

Article

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Willingness to Share Debunking Information on Social Media — An Exploration of Influencing Factors from the Perspective of Media Affordance Theory

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Abstract: With the rapid advancement of technology, social media platforms have become crucial channels for the dissemination of refutation information. This study investigates the underlying mechanisms through which media affordances influence users' willingness to share such information, adopting a technological perspective. The aim is to understand how the affordances provided by media platforms enhance the effectiveness of refutation efforts, enabling better utilization of these technological means. Building on the theoretical frameworks of media affordance and the Stimulus-Organism-Response (S-O-R) model, this research develops a model to examine social media users' willingness to share refutation information. Through a survey, 308 valid questionnaires were collected and analyzed using structural equation modeling. The results reveal that media flexibility, user agency, emotional expressiveness, social connectivity, and 24/7 push notifications—representing five key dimensions of social media platforms—significantly and positively impact users' perceptions of refutation information and their willingness to share it.

Keywords: social media; media affordance; refutation information; S-O-R model

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1. Introduction

Following the advent of social media, information accessibility has significantly increased. Concurrently, the proliferation of information flow, coupled with the empowering nature of new media technologies, has positioned social media as a breeding ground for rumors and falsehoods. The anonymity inherent in these platforms further complicates the discernment of information veracity. Nonetheless, it is imperative to recognize that social media platforms offer technological affordances that facilitate the widespread sharing of refutation information by the general user base, in contrast to traditional broadcast models[1]. Users on these platforms are not merely recipients and propagators of rumor-laden content; they are also potential agents of rumor disruption. In the realm of news industry practices, the evolution of social media platforms represents an ongoing enhancement of media affordances[2]. In instances where rumors proliferate rapidly across social media, refutation efforts must take into account the unique attributes of these platforms, enlisting greater support to propagate refutation messages. By leveraging the novel media affordances, these efforts can achieve a more punctual and efficacious dispelling of misinformation.

The concept of affordances was initially posited by the American ecological psychologist James J. Gibson, who perceived it as the potential for specific actions that an environment bestows upon an individual within a particular setting[3]. Within the realm of social media, affordances refer to the possibilities for user behaviors that are engendered by these interactive platforms. Pan Zhongdang categorizes the affordances of new media into three distinct dimensions: production affordances, social affordances, and mobile affordances[4]. These dimensions highlight the diversity of content production enabled by collective participation, the potential for social connectivity and emotional interaction, and the attributes of pervasive online presence within contextualized scenarios.

Approaching from the vantage point of media affordances, the objective is not to rigidly adhere to a technological determinism that overemphasizes the media technology itself, considering media affordances as an immutable environment that is unyielding to enhancement. Rather, the aspiration is for media practitioners to fully engage with the potential offered by media technologies, to utilize the environment provided by the media to its fullest extent, thereby attaining more effective communication and persuasive outcomes.

In light of the aforementioned, this paper focuses on the willingness of social media users to share refutation information as its research subject. It employs a quantitative research approach, combining questionnaire surveys with data analysis. Based on the Stimulus-Organism-Response (S-O-R) Model, the paper constructs a theoretical model for the willingness of social media users to share refutation information. Perceived credibility and perceived usefulness are posited as mediating variables within the organismal component to investigate the influence of the three dimensions of social media platform affordances on users' perception of information. The study examines whether the functional configurations of social media platforms exert a significant influence on the propensity of users to disseminate refutation information.

2. Research Hypothesis and Model Construction

2.1. Model Construction

Pan Zhongdang categorizes the concept of media affordances into three components: production affordances, social affordances, and mobile affordances, thereby constructing a foundational framework for research on media affordances[4]. Advancements in media technology have broadened the capabilities of information dissemination platforms. The integrated employment of diverse functionalities for the editing and publication of refutation information stands as a vital instrument in the battle against rumors and in the cultivation of a transparent online milieu. In contrast to conventional media channels such as rumor-refuting websites and broadcast television, social media platforms for disseminating refutation information are distinguished by their immediacy, diversity in form, and content shareability. Yu Guoming posits that media with a higher degree of affordance engender a greater level of user engagement, thereby activating a wider array of media-based behavioral patterns[4]. Adhering to this framework and grounded in the S-O-R model, the present study investigates the role of enhanced media affordances in elevating the propensity of users to disseminate refutation information.

S-O-R Patterns are a framework developed based on the Stimulation Response Theory and used to explain individual behavioral responses. S-O-R pattern contains three related factors, stimulus, organism, and response,[5] explaining specific processes by which changes in external stimulus, including environmental changes, lead to consequent reactions and behavioral changes in individuals. On social media platforms, users browse anti-rumor information, accept "stimulus" and make "reactions" to cognitive changes and sharing anti-rumor information. [6] This paper considers "stimulation" from three aspects of production affordances, social affordances and mobile affordances, and divides it into five concrete variables: "Media Flexibility," "User Proactivity" "Emotional Expressiveness" "Social Connectivity" and "Full-time Service". At the same time, the concepts of perceived

credibility and perceived usefulness are introduced to explain the perception and measurement of information content after receiving information. Finally, the user's "willingness to share debunking information" as a dependent variable.

2.2. Research Hypothesis

Production affordances includes Edit-ability, Review-ability, Replicability, Scalability and Associability. These characteristics can, on the one hand, explain the flexibility of media organizations in mobilizing resources, and on the other hand, demonstrate the agency of users in content production. The study indicates that if the refutation information does not present video and image evidence to social media users, it will significantly reduce the authority and credibility of the refutation information, especially in the context of public opinions on sudden incidents. Such forms of refutation information cannot effectively attract public attention and concern, and may even trigger public questioning, leading to a negative effect on the refutation information[7]. Media with higher flexibility can mobilize various information resources including images, videos, etc, to serve content release, achieve the most suitable dissemination model of information on different platforms, and modify information in a timely manner, thereby improving the quality of the published content. Research has confirmed that information quality has a positive impact on user-perceived usefulness[11]. Taking Weibo as an example, as a social media platform that can use text, images, videos, and other multimedia content for releasing and providing users' discussion, it has high media flexibility. Therefore, this study believes that the media flexible use of various forms of information resources has a positive impact on improving users' attitudes towards refutation information. Based on this, the article proposes the following hypotheses:

H1: Media flexibility has a significant positive impact on the perceived credibility of refutation information.

H2: Media flexibility has a significant positive impact on the perceived usefulness of refutation information.

Production affordance can also be interpreted as the proactivity of users when producing content. [2] With the production affordance provided by social media, sharing news or information becomes easier because people can participate in the production and dissemination of information [7]. According to the critical mass theory, when a sufficient number of people (critical mass) participate in a common event, this attention will drive more people to participate in a popular effect and help participants judge the nature of the original content [8]. Based on the study of refutation information on Weibo, the main body of refutation has a significant impact on the dissemination of refutation information, and the refutation effects of different refutation subjects are different [9]. The main bodies of refutation are divided into: government organizations, commercial organizations, civilian organizations, opinion leaders, parties involved, and others [10]. Users in social media can not only act as sharers of refutation information in the node-based dissemination network but also, when the user's subject is related to the content of the rumor, they can publish refutation information in the form of a party involved under the production affordance provided by the media. Therefore, this study believes that the proactivity of user content production can enhance users' psychological perception after receiving information stimulation at both the information release and sharing levels. Based on this, the article proposes the following hypotheses:

H3: User proactivity has a significant positive impact on the perceived credibility of refutation information.

H4: User proactivity has a significant positive impact on the perceived usefulness of refutation information.

Social affordance emphasizes the potential for the media to provide users with the ability to express emotions and connect socially. Expressiveness and emotional expressiveness are the abilities of the media to mobilize emotional expression[2]. Taking

Weibo as an example, users can express their intentions through interactive functions such as "retweet, like, and comment" provided by the social platform, and users can express emotions through emoticons, private messages, and other functions. When facing refutation information, this expression and emotional expression convey recognition of the refutation, enhancing the perception of the refutation information. Based on this, the article proposes the following hypotheses:

H5: Emotional expressiveness has a significant positive impact on the perceived credibility of refutation information.

H6: Emotional expressiveness has a significant positive impact on the perceived usefulness of refutation information.

Coordinativeness and connectivity are the abilities of the media to present and construct social relationship networks[2]. In today's communication forms, it is particularly manifested as the ability to break through the familiar society based on kinship relationships and form a "new familiar society" relationship network that is more tribalized and community-based, based on relationships such as regional, interest-based, and occupational[12]. Taking Weibo as an example, on one hand, after the content is published, this social media platform connects users with the same topic event in the form of topics, forming new interest relationships. This new connection enables users to better find information that is valuable to them. When users browse refutation information on social media platforms, they can click on the topic function to connect with other users discussing the same content, thereby strengthening their cognition of the refutation information. Based on this, the article proposes the following hypotheses:

H7: Social connectivity has a significant positive impact on the perceived credibility of refutation information.

H8: Social connectivity has a significant positive impact on the perceived usability of refutation information.

The mobile affordance of the media encompasses four aspects: "portability," "accessibility," "locatability," and "compatibility"[4]. In essence, on the hardware front, social media platforms capture users' real-time locations and behavioral characteristics, while on the software side, platform algorithms transform users' behaviors and location features into personalized needs that can be matched with content, responding within seconds[13]. Mobile affordance liberates users from the constraints of time and place in receiving information; anytime, anywhere, information is "actively" pushed into the hands of users. Some research has applied the perspective of "news actively finding me" to the spread of rumor information[14]. Therefore, this study also applies the mobile affordance provided by social media platforms to the dissemination of refutation information. Specifically, it manifests as the impact of all-day push on users' perception of refutation information. Based on this, the article proposes the following hypotheses:

H9: All-day push has a significant positive impact on the perceived credibility of refutation information.

H10: All-day push has a significant positive impact on the perceived usability of refutation information.

Regarding the impact of perceived credibility on the willingness to share information, the attitudes and behaviors of information recipients are largely influenced by their perceived credibility of the information[15]. After receiving information stimulation, users decide their next actions based on the credibility of the information. And users' information sharing behavior is one of the manifestations of information adoption behavior, the premise of which is the user's perception of the trustworthiness and objectivity of the information[16]. The article posits that users are more likely to engage in information sharing behavior after being exposed to refutation information with higher perceived credibility. Based on this, the article proposes the following hypothesis:

H11: Perceived credibility has a significant positive impact on the willingness to share refutation information.

Perceived usefulness also influences the willingness to share information. The greater the perceived usefulness of the information by the recipient, the higher the possibility of information adoption[17]. Some research has expanded the scope of perceived usefulness in the study of knowledge sharing, suggesting that perceived usefulness can not only promote the use of technology but also positively affect people's willingness to adopt information[18]. Social media users can share information by forwarding or sending screenshots to friends. This article believes that when users perceive the refutation information they encounter as useful to themselves or others, it will increase their willingness to share that refutation information. Based on this, the article proposes the following hypothesis:

H12: Perceived usefulness has a significant positive impact on the willingness to share refutation information.

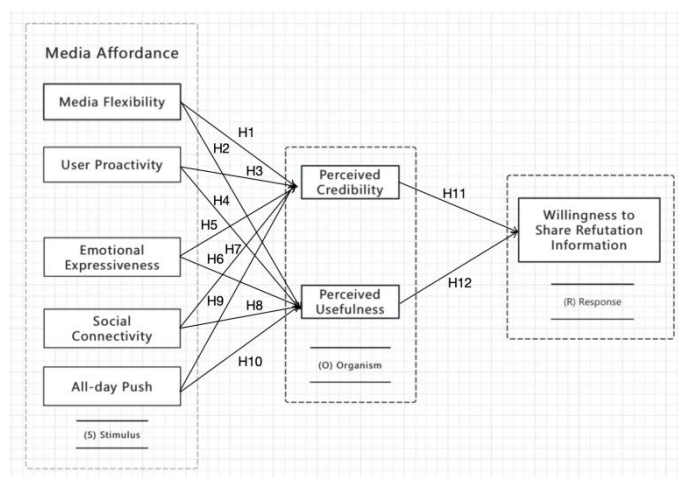


Figure 1. Theoretical Research Model.

3. Research Methods

3.1. Questionnaire Design

In accordance with the hypotheses proposed, this research bifurcates the questionnaire into two principal sections: an examination of the demographic attributes of social media users and an inquiry into the propensity to disseminate refutation information. The survey encompasses eight observational variables, including independent variables, mediators, and dependent variables. The independent variables are categorized into five dimensions: media flexibility, user proactivity, emotional expressiveness, social connectivity, and around-the-clock push notifications, comprising a total of 17 survey items; the mediators consist of two dimensions: perceived credibility and perceived usefulness, with 6 survey items; and the willingness to share refutation information is gauged by 3 survey items. To ensure the fidelity and construct validity of the questionnaire, the scales employed in this research are sourced from established scales within relevant studies and have been adapted to suit the aims and variables of this particular study. The variables are measured using a Likert scale ranging from 1 to 5, corresponding to "strongly disagree," "disagree," "uncertain," "agree," and "strongly agree."

3.2. Data Collection

This research utilized an online survey platform known as "Questionnaire Star" to administer the questionnaire and established exclusion criteria to eliminate respondents who were not Weibo users. Following the development of the questionnaire, a pretest was conducted to refine the design and ascertain the reliability of the data collected. The pretest involved 80 students who were Weibo users. Questionnaire items that exhibited flawed or unreasonable metrics were eliminated to finalize the survey instrument. The

survey yielded a total of 359 responses, from which 51 were deemed invalid, leaving 308 valid responses, corresponding to a response rate of 85.8%.

Within the 308 valid questionnaires, the proportion of female subjects was 52.3%, while male subjects constituted 47.7%, reflecting a balanced gender distribution. Approximately half (48.7%) of the respondents were within the age bracket of 18 to 24 years old, with the next largest group (46.1%) falling between 25 to 29 years old, which is consistent with the notion that younger demographics are the predominant users of online platforms. Regarding educational attainment, over 80% of the participants possessed a bachelor's degree or higher, thereby ensuring the robustness of the data collected.

4. Data Analysis and Hypothesis Testing

4.1. Reliability and Validity Analysis

This study engaged the Cronbach's alpha coefficient as the metric for assessing reliability. Furthermore, to evaluate the convergent and discriminant validity of each latent variable within the analysis, Composite Reliability (CR), Average Variance Extracted (AVE), and the HTMT ratio were utilized. In the realm of theoretical research, a threshold Cronbach's alpha value of 0.7 is typically deemed acceptable, with a minimum benchmark for composite reliability (CR) set at 0.7, and for AVE, a value above 0.5 is required. An HTMT ratio below 0.9 is considered within acceptable parameters. The findings from the measurements revealed that all Cronbach's alpha coefficients for the variables exceeded 0.7, signifying an adequate level of reliability within the scale. The composite reliability (CR) values surpassed 0.7, AVE figures were in excess of 0.5, and HTMT ratios were all beneath 0.9, collectively suggesting robust convergent and discriminant validity. In conjunction with this, a diagnosis of multicollinearity among the independent variables was performed, yielding Variance Inflation Factor (VIF) scores that were uniformly below the threshold of 5.

4.2. Structural Equation Model Test

The present investigation has opted to utilize the Partial Least Squares (PLS) method for the empirical validation of the structural equation model formulated. The software application SmartPLS 4.0, which is predicated on the PLS methodology, has been selected to perform the hypothesis testing analysis of the model.

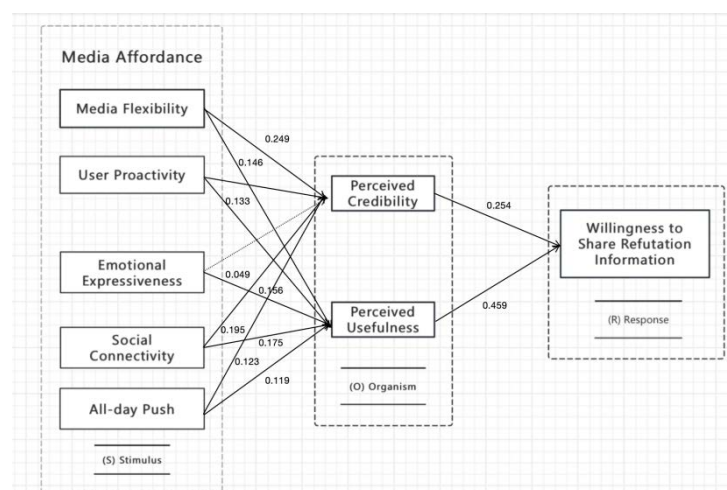


Figure 2. Structural Model Path Coefficient Diagram.

The findings demonstrate that aside from the non-significant influence of emotional expressiveness on perceived credibility ($\beta=0.049$, $t=0.608$, $p=0.272$), the remaining four var-

ables exerted a significantly positive influence on both perceived credibility and perceived usefulness (β values spanned from 0.119 to 0.249, t -values ranged between 1.952 and 4.322, and p -values were all below 0.05), with the most substantial effect attributed to media flexibility ($\beta=0.249$, $t=4.322$, $p<0.001$). Additionally, perceived credibility and perceived usefulness were both found to significantly and positively influence the propensity to share refutation information (with β values of 0.254 and 0.459, respectively, corresponding t -values of 4.094 and 7.871, respectively, and p -values less than 0.001), where the impact of perceived usefulness was notably more pronounced.

5. Research Findings

The research undertook a rigorous reliability and validity assessment of 308 valid experimental datasets, substantiating the reliability of the utilized scales and the data integrity. A correlation analysis was executed, which corroborated the presence of positive associations between the independent and dependent variables. The primary hypotheses were scrutinized through structural equation modeling. The paper encompasses 12 research hypotheses, with 11 being substantiated and the remaining one showing non-significance yet aligning with the anticipated direction. Consequently, the research model delineated in this paper possesses a considerable level of rationality and theoretical soundness.

5.1. The Impact of Media Affordances on Users' Perception of Refutation Information

In the dimension of production affordance. The study found that media flexibility positively affects users' perceived credibility and perceived usefulness of refutation information. When publishing refutation information on social media platforms, publishers can use media functions such as images, videos, topics, and hot search to further enhance the explanation of the truth and clarification of facts. At the same time, the editable feature of the Weibo platform allows users to update the published content in a timely manner after learning the latest information, and this feature can also be used for timely review of the published content. At the same time, the study found that user proactivity positively affects the perceived credibility and perceived usefulness of refutation information. Taking Weibo as an example, social media platforms provide users with topic participation and content editing functions, which means that when users browse rumors related to themselves or familiar fields, users can try to edit refutation information through the affordances provided by the media to help spread the refutation information.

In the dimension of social affordance. The study found that although the dimension of emotional expressiveness does not significantly affect the perceived credibility of refutation information, it still has a positive correlation with the dependent variable. The reason may be that when users browse refutation information on web pages outside of social media platforms, they can also understand the information and express emotions through functions such as liking, forwarding, and commenting. Social media platforms do not have a unique distinction in these functions compared to other platforms. However, the dimension of social connectivity positively affects users' perceived credibility and perceived usefulness of refutation information. It indicates that social media platforms provide community functions in addition to likes, forwarding, and comments. After the refutation information is published, users under the same topic event form a new connection of interest. This new connection allows users to better find valuable information for themselves. At the same time, social media platforms such as Weibo can directly contact the account of the refutation information publisher through the private message function for additional and confirmation of relevant information. These functions further enhance users' perceived credibility and perceived usefulness of refutation information.

Regarding the dimension of mobile affordance, the study found that all-day push can positively affect users' perceived credibility and perceived usefulness of refutation infor-

mation. Subjects believe that even though they do not actively search for refutation information, they do not worry about not keeping up with the dynamics of refutation because the information will be pushed to the hands of users all day through the algorithm recommendation and user relationship network of the social media platform. This support for media affordance improves the efficiency of the spread of refutation information and promotes users' perception of refutation information.

5.2. The Impact of Perceptions of Refutation Information on User Propensity to Share Such Information

The empirical findings demonstrate that perceived credibility ($\beta=0.254$, $P<0.05$) and perceived usefulness ($\beta=0.459$, $P<0.05$) both exert a significant positive influence on the propensity to share refutation information, with the effect of perceived usefulness being notably more pronounced. This indicates a preference among users for disseminating information that is perceived as beneficial to them. Additionally, the measures of perceived credibility and perceived usefulness, serving as mediators in the organism, underpin the positive impact of media affordances on the user's willingness to share refutation information within four dimensions: media flexibility, user proactivity, social connectivity, and constant push notifications. The greater the degree of media affordance, the higher the perceived credibility and usefulness of the information, which correspondingly increases the user's intent to partake in the act of sharing refutation information.

6. Conclusion

This study, which initiates from the vantage point of media affordances, meticulously examines the influence that various dimensions of media affordances exert on the propensity of users to disseminate refutation information. It constructs a theoretical model illustrating the role of media affordances in shaping users' perceptions of information and their intent to communicate, through the lens of technological interpretation. At the theoretical stratum, the research augments the utility of affordance theory within the realm of social media platform research. From the vantage point of rumor refutation, it extends the existing body of research on media affordances by investigating their impact on the reception and propagation of refutation information. Furthermore, it innovatively integrates the Stimulus-Organism-Response (S-O-R) theory with media affordance theory within the concrete context of refutation information consumption, delineating the pivotal role that diverse dimensions of media affordances play in the gestation of users' attitudes toward refutation information and their intent to share such content.

On a pragmatic plane, the study unveils the technological competencies and user intents associated with distinct media affordances in the scenario of refutation information perusal. It delineates the technological functionality on social media platforms that catalyze the emergence of user attitudes and the execution of behaviors, offering insights for those who disseminate refutation information on how to optimize the use of social media platform features to amplify the efficacy of refutation information propagation. For disseminators of refutation information, the study provides a technical framework to identify the determinants affecting the credibility and utility of such information, thereby facilitating the maximization of refutation outcomes in alignment with the intrinsic characteristics of social media platforms. For social media platform users, it affords an understanding of the pathways through which refutation information is disseminated, enabling the discernment of the motivations behind the willingness to share such information, and promoting the judicious employment of various platform functionalities to inform rational behavioral choices.

The paper acknowledges its inherent limitations: the research was confined to a single social media platform, Weibo, and the survey participants were limited to those with experience on this platform. Given the unique attributes of different social media platforms and the potential disparities among them, the generalizability of this study's

findings to refutation contexts on other platforms may be limited. Future research is suggested to encompass a variety of social media platforms as novel settings for comparative studies on user engagement with refutation information, including their adoption and sharing behaviors.

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