

Encountering misinformation online: antecedents of trust and distrust and their impact on the intensity of Facebook use

Encountering
misinformation
online

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Abstract

Purpose – This study focused on the impact of misinformation on social networking sites. Through theorizing and integrating literature from interdisciplinary fields such as information behavior, communication and relationship management, this study explored how misinformation on Facebook influences users' trust, distrust and intensity of Facebook use.

Design/methodology/approach – This study employed quantitative survey research and collected panel data via an online professional survey platform. A total of 661 participants in the USA completed this study, and structural equation modeling (SEM) was used to test the theoretical model using Amos 20.

Findings – Based on data from an online questionnaire ($N = 661$) in the USA, results showed that information trustworthiness and elaboration, users' self-efficacy of detecting misinformation and prescriptive expectancy of the social media platform significantly predicted both trust and distrust toward Facebook, which in turn jointly influenced users' intensity of using this information system.

Originality/value – This study contributes to the growing body of literature on information and relationship management and digital communication from several important aspects. First, this study disclosed the underlying cognitive psychological and social processing of online misinformation and addressed the strategies for future system design and behavioral intervention of misinformation. Second, this study systematically examined both trust and distrust as cognitive and affective dimensions of the human mindsets, encompassed the different components of the online information behavior and enriched one's understanding of how misinformation affected publics' perceptions of the information system where it appeared. Last but not least, this study advanced the relationship management literature and demonstrated that a trustful attitude exerted a stronger influence on the intensity of Facebook use than distrust did.

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Keywords Misinformation, Relationship management, Trust, Distrust, Social media intensity, Digital platform

Paper type Research paper

1. Introduction

The increasing popularity of social media such as Facebook, Twitter and Instagram in the current society has made information spread more rapidly and become more accessible on the Internet. A prominent feature of these social media platforms is the generation of enormous quantity of information, building and maintaining complex social relationships. However, a drawback of such a structure is information overload. Misinformation without prudent editorial judgments appears frequently in recent years (Reber *et al.*, 2018). A recent study showed that 63% of the participants surveyed in the USA believed that misinformation, as “unintentional dissemination of false, incorrect or erroneous information,” has become a major problem in society, leading individuals to make misinformed decisions (Flynn and Li,



2019, p. 1). Such misinformation has made people more skeptical toward media and public institutions (Engel, 2017; Field, 2018), and it has brought harmful impacts on corporate reputation as well (Reber *et al.*, 2018). The widespread misinformation that dismisses facts and appeals to emotions and partisan beliefs was especially evident in the 2020 coronavirus crisis in the USA. Consequently, the public's distrust toward information systems such as Facebook has escalated when they encountered misinformation, especially on social media where its negative impacts are amplified (Silverman, 2016). However, studies on the impact of online misinformation were lacking (Cheng and Chen, 2020). How misinformation might influence individuals' attitudes toward Facebook such as trust and distrust and the intensity of social media usage deserves more exploration.

In the context of online and social media communication, many scholars have studied trust and have provided valuable insights on how to increase trust in the online environment (e.g. Warner-Söderholm *et al.*, 2018; Wathen and Burkell, 2002; Wu *et al.*, 2010), yet relatively few have investigated how to prevent distrust. Distrust is not merely the opposite side of trust. Its antecedents and outcomes deserve in-depth investigations within the misinformation context (Cheng, 2018). In addition, research on online communication has mostly focused on website design characteristics (e.g. Agag and El-Masry, 2016; Seckler *et al.*, 2015; Schlosser *et al.*, 2006). Such gaps, along with the conceptual distinction between trust and distrust, necessitate the importance to examine trust and distrust simultaneously as distinct constructs when it comes to social media misinformation. This is especially necessary for the current posttruth environment when distrust in social media platforms is escalating. To fill this gap, the current study sets out to examine how misinformation on social media influences social media users' perceptions and behavioral intentions toward an information system (Facebook in this study) where the misinformation is communicated. Specifically, it looks at how information characteristics (i.e. information trustworthiness and information elaboration) and users' psychological features (i.e. self-efficacy and prescriptive expectancy) influence social media users' trust and distrust toward the platform (i.e. Facebook) and how trust and distrust jointly affect their intensity of using the platform as an outcome. Facebook was chosen as a representative information system due to its popularity in the USA, where its users (169.5m) contain approximately 50% of the US population (Kats, 2018).

This study aims to contribute to current information systems and communication research from three aspects. First, it intends to provide a holistic and balanced view, by separating trust and distrust as distinct constructs and integrating a research model to systematically investigate the negative effects of misinformation. Second, by examining the intensity of Facebook use as a behavioral outcome of trust and distrust, this study provides a dual perspective to explain how these two concepts may jointly affect individuals' behavioral intentions. Third, this study helps social media managers better understand the how and why's of the influence of misinformation on public's attitudes and behaviors, thereby assisting them to find practical guidelines to combat misinformation, build trust, prevent distrust online and increase the intensity of social media use.

2. Literature review

2.1 Social media as an information system

In the past ten years, social media have attracted heated discussions among scholars from multidisciplinary fields, including information systems and communication (Cheng *et al.*, 2015; Kapoor *et al.*, 2018; Kaufhold *et al.*, 2020). In the information systems literature, scholars provided different definitions of social media. For instance, Lundmark *et al.* (2016) defined social media as "a unique form of communication, integrates multiple sources of legitimacy, and as a result, present a unique and important context through which to study the topic. Indeed, social media are a means for the dissemination of both internally and externally generated information pertaining to firms, industries, and society in general" (p. 3).

Schlagwein and Hu (2017) suggested that social media apps, together with managerial structures belong to social information systems. In the field of communication, Cheng *et al.* (2015) used the term “social networking sites” to describe social media as a media platform, within which diversified stakeholders transmitted information for social communication. Consolidating the aforementioned definitions, this study regards social media (e.g. Facebook) as an information system, which allows users to exchange online information in a tenacious social structure.

Previous literature has discussed the positive side of social media as an information system for supporting community building, e-commerce and global public affairs (Kapoor *et al.*, 2018), whereas few discussed the dark side of online information behavior. Scholars such as Maier *et al.* (2015) found that the information posted on Facebook might bring peer pressure and increased discontinuance intentions of users. Ali-Hassan *et al.* (2015) also pinpointed the negative influence of the hedonic use of social media on routine performance in the workplace. However, misinformation, as the negative phenomenon associated with the management of information on social media, received little academic attention to date. It remains unknown regarding how users’ trust and distrust of the information systems may be impacted by misinformation and how users’ subsequent intensity of usage is changed in the current posttruth environment. In the next sections, we first review the definitions and key characteristics of “misinformation” and “disinformation” as well as the major differences between these two concepts, contextualizing the focus of our study on misinformation. We then review trust and distrust as two distinct concepts. After that, the antecedents of trust and distrust and their behavioral consequences will be explained.

2.2 Misinformation and disinformation

The terms “misinformation” and “disinformation” bear important conceptual differences and should be clarified in our research context. In general, both “misinformation” and “disinformation” refer to information being untrue (Shin *et al.*, 2018). However, the intention and motivation of untrue information are different. Misinformation refers to false information where the motivation of spreading such information is unknown and oftentimes without the intention to mislead (Lewandowsky *et al.*, 2012). Disinformation, on the other hand, refers to the intentional transmission of false, inaccurate or misleading information with the intention to cause public harm or gain an advantage (High Level Expert Group on Fake News and Disinformation, 2018). Freelon and Wells (2020) pointed out that deception, potential for harm and intent to harm being the three critical criteria for disinformation, thereby distinguishing it from the concept of misinformation, where motivation is oftentimes unintentional or unknown (Lewandowsky *et al.*, 2012). Given the distinction between these two concepts, we delimit the scope of our study to misinformation.

2.3 Trust and distrust as distinct concepts

Trust, as an important attitudinal construct, has been widely examined in various fields including management, marketing, e-commerce and communication (e.g. Cho, 2006; Kang and Park, 2017; Kujala *et al.*, 2016). In the context of the online environment, scholars (e.g. Seckler *et al.*, 2015; Wang and Emurian, 2005; Warner-Söderholm *et al.*, 2018) defined trust as an implicit belief that reflects online users’ confidence in the information platform. According to Johnson and Grayson (2005), trust was driven by knowledge on the trustees and often depended on trustors’ judgments of competence and reliability. Previous studies found that various website characteristics including privacy statements, security signs, ease of browsing, as well as informative customer service (e.g. Andrade *et al.*, 2012; Ou and Sia, 2010), could influence users’ trust in the website.

Closely connected with trust is the concept of distrust, yet distrust was relatively understudied because it has been mostly considered as the opposite end of trust in previous studies (Schoorman *et al.*, 2007). Such a unidimensional approach, however, has been challenged by Lewscki *et al.* (1998). They argued that the distinction between trust and distrust is related to the broader psychological context where positive-valent and negative-valent attitudes should not be considered opposite ends on the same continuum, but rather should have each of their distinct bipolar (Lewscki *et al.*, 1998; Watson and Tellegen, 1985). In their proposed theoretical framework, trust is defined as “confident positive expectations regarding another’s conduct” and distrust is defined as “confident negative expectations regarding another’s conduct” (p. 444). Consequently, trust and distrust coexist as two distinct components. Such a framework has been further examined and empirically supported in recent studies (e.g. Seckler *et al.*, 2015; Wu *et al.*, 2010). For example, distrust was found to be a distinct dimension from trust when measuring organization–public relationships (Cheng and Shen, 2020). The distinction between trust and distrust was further supported by Kang and Park (2017) as the two constructs showed discriminant validity and were associated with symmetrical communication and public engagement to different extents. Reimann *et al.* (2017) suggested that trust was heritable, whereas distrust was more intuitive, and the disposition to distrust was explained by shared socialization.

This study thus followed Lewscki *et al.* (1998)’s approach and treated trust and distrust as two distinct constructs. In addition, to date, few studies have examined the influence of misinformation on users’ trust and distrust in the social information system. This study thus draws insights from past literature and examines the antecedents and consequences of both trust and distrust online.

2.4 Antecedents of trust and distrust

Information trustworthiness. Information trustworthiness refers to the perceived credibility of information. Users on social media have their own tendencies to believe a message. According to Lee *et al.* (2015), truthful information on the websites would make customers feel easy to find their preferred products/services. Customers then would encode this content with high truthfulness and thus change their cognition, emotions or even behaviors online. Vance *et al.* (2008) also suggested that high information trustworthiness would reflect high integrity, which was a key source of trust. When people perceive online information with high trustworthiness, they tend to develop positive expectations and consider the information system trustworthy (Seckler *et al.*, 2015). Therefore, we propose H1a regarding the relationship between information trustworthiness and users’ trust toward Facebook.

H1a. Users’ perceived information trustworthiness online would positively influence their level of trust toward Facebook.

In contrast, untruthful online information could trigger distrust. Lee *et al.* (2015) found that when consumers encountered skeptical information online such as manipulative inferences or distorted descriptions, they were unlikely to value products/services accurately or make purchase behavior. Users thus might develop fear for the online platform (Cases, 2002) and consider the potential risks of using it. The suspicion on the competency of information system thus would generate users’ distrust online (Cho, 2006). Therefore, H1b was proposed.

H1b. Users’ perceived information trustworthiness online would negatively influence their level of distrust toward Facebook.

Information elaboration. The elaboration of information is a key variable in cognitive-information processing (Petty and Cacioppo, 1986). Information elaboration refers to how much one would incline to think about a message (Petty and Cacioppo, 1986; Wei *et al.*, 2010).

In this study, the elaboration refers to the extent to which a social media user thinks about the misinformation he/she was exposed to. The more social media users were motivated to allocate cognitive resources to evaluate the information received, the more likely the information quality would influence their level of trust (Pee and Lee, 2016). Based on this premise, we hypothesized that higher elaboration of the detrimental consequences of misinformation would negatively influence users' confidence about the competence of information platforms. Thus, H2a was proposed.

H2a. Users' perceived information elaboration online would negatively influence their level of trust toward Facebook.

On the contrary, users' distrust emerges because they intuitively feel skeptical of information systems. Previous studies have suggested the impact of information elaboration on increasing the magnitude of the message's consequences on the recipient (Wei *et al.*, 2007, 2010). The high level of elaboration of misinformation thus could increase the possibility for users to develop a negative expectation of such an information system's performance in providing reliable content. Thus, H2b was proposed as follows.

H2b. Users' perceived information elaboration online would positively influence their level of distrust toward Facebook.

Apart from the aforementioned information characteristics, this study also considered users' individual psychological features such as self-efficacy of detecting misinformation and prescriptive expectation of the information system (i.e. Facebook).

Self-efficacy. Grounded in the social cognitive theory, self-efficacy refers to one's belief in his/her ability to perform certain actions required to produce related effects (Bandura, 1997). Self-efficacy can be task-specific (Stajkovic and Luthans, 1998) and has been applied to various contexts including political communication (Tewksbury *et al.*, 2008), Internet skills (Eastin and LaRose, 2000) and risk management (ter Huurne and Gutteling, 2009). In the context of this study, self-efficacy refers to an individual's belief in the ability to evaluate and identify digital misinformation.

Previous studies have identified the associations between self-efficacy and trust. In the field of online transactions, Kim and Kim (2005) found that one's self-efficacy in online transactions positively affected consumers' trust as they believed that they could identify the true or false statements regardless of the content provided online. Self-efficacy and trust were also found to jointly influence the cocreation of value by consumers in company-consumer relationships (Alves and Mainardes, 2017). Wu *et al.* (2012) supported the positive relationship between self-efficacy and social trust in an online community, suggesting that people possessing confidence in interpersonal interactions would establish a trustful relationship with others. In the context of misinformation on social media, it can therefore be inferred that the higher level of self-efficacy users have in recognizing misinformation, the more positive expectation regarding the system's conduct (e.g. delivering verified content) they will have. Therefore, H3a is proposed as follows.

H3a. Users' self-efficacy of detecting misinformation online would positively influence their level of trust toward Facebook.

In contrast, scholars found that people's political efficacy was negatively associated with media mistrust (Guggenheim *et al.*, 2011). If one's self-belief in detecting misinformation is lower, then after exposure to misinformation on social media, his/her negative expectation of the platform's conduct (i.e. delivering false information) becomes higher (Celik and Yesilyurt, 2013). Thus, H3b is proposed.

H3b. Users' self-efficacy of detecting misinformation online would negatively influence their level of distrust toward Facebook.

Prescriptive expectancy. As an important component in the expectancy violations theory, prescriptive expectancy refers to the anticipated behavior from a certain party based on social norms (Burgoon, 1993; Kim, 2014). In this study, prescriptive expectancy is operationalized as the expectation based on the social norm related to the information that social media systems should provide and the responsibility to inform users about the risks of misinformation. Based on the tenets of expectancy violations theory (Affi and Burgoon, 2000; Burgoon, 1993), when social media users expect the platform to behave according to the prescribed social norm, their positive expectations of what the platform can provide are more likely to be diminished when being exposed to misinformation. High prescriptive expectancy thus might lead to a decreased level of trust. Distrust emerged when users suspected that the other party was being able to do harmful things and contained high prescriptive expectancy that the party should take responsibilities (Sitkin and Roth, 1993). In this circumstance, negative expectations of the platform's behavior of disseminating misinformation are more likely to increase. Therefore, H4 is proposed.

H4. Users' prescriptive expectancy of the information system (a) negatively influences trust and (b) positively influences distrust after their exposure to misinformation.

2.5 Effects of trust and distrust on the intensity of Facebook use

Stemmed from computer-mediated communication research, the intensity of Facebook use refers to the extent one is emotionally connected and actively engaged in activities on Facebook (Acopio and Bance, 2016). In previous studies, Petter *et al.* (2013) reviewed 140 articles based on the information systems success model and found that users' trust toward online community platforms could significantly increase their behavioral intentions such as continued usage and user satisfaction. Trust was also often linked with loyalty and the beliefs of users about competence and integrity of online platforms and could significantly increase their intentions to return to online communities (Ray *et al.*, 2012). Benraad and Johannes (2018) also found that the trust of Facebook as a news source was positively associated with the intensity of using this information system. Consistent with extant research findings, we hypothesized that a positive relationship between trust and intensity of Facebook use existed.

H5. Users' trust toward Facebook would increase their intensity of using this information system.

Past literature also indicated that one's negative emotional connection and skepticism toward an information system would evoke distrust of users, reduce their intensity of usage and cause high stress for work tasks (Thielsch *et al.*, 2018). In the context of this study, when users are more likely to develop negative expectations of what Facebook can provide, thereby developing mistrust toward the platform, they are less likely to use Facebook intensively. Therefore, H6 was proposed.

H6. Users' distrust toward Facebook would decrease their intensity of using this information system.

To sum up the hypotheses and depict the mediating role of trust and distrust between the antecedents and social media users' intensity of using the information system, a theoretical model is proposed (see Figure 1).

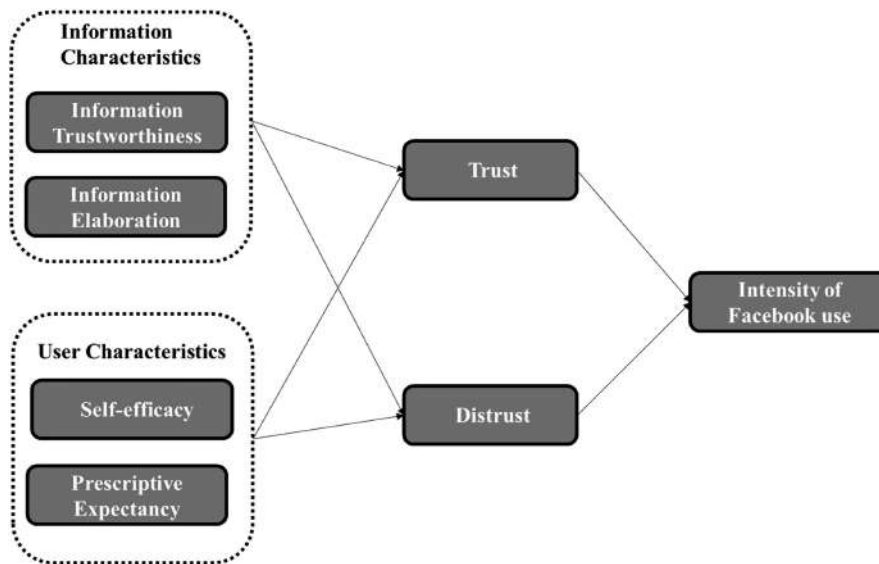


Figure 1.
The conceptual model

3. Method

3.1 Data collection and sampling

Panel data were collected via an online survey platform in November 2018, which was managed by Qualtrics, a large survey software company for quality and validity control of each response (Kang and Hustvedt, 2014). A pilot test was first conducted to ensure that the survey was clear and understandable from the participants' perspectives. We enrolled 237 panel participants and achieved a total of 128 valid answers. Based on the quantitative data and participants' qualitative comments, we started another round of data collection. Qualtrics' experts randomly sent the invitation URL link to panel participants based on the key demographic distribution of US Census data through the quota sampling technique. At the outset of the survey, all participants were shown a shared post from a Facebook user, who stated that Coca-Cola was recalling their Dasani water within the country since it contained clear parasites. The post also stated that there was a website for emergency recalls for any bad food or products. The post did not show whether the common consumer sharing the information was doing so intentionally, thereby delimiting the context to the scope of misinformation, rather than disinformation. To ensure the quality of the online survey, we set up a few attention-check questions (e.g. what this post was about) during this study, and 261 participants who did not fully pay attention to the content were excluded from data analysis. A total of 661 qualified participants in the USA completed the questionnaires and were included in the final data analysis. Participants' ages ranged from 18 to 84, with an average age of 45.1. Slightly more than half were female (53.9%). Approximately 60% identified themselves as Caucasian/White (non-Hispanic) and the annual household income of the majority (58.2%) ranged from \$20,000 to \$80,000. Table 1 presents the details of the demographic characteristics.

3.2 Measures

Based on previous literature, we modified and employed measurement items in the current study. All variables (i.e. distrust, trust, information trustworthiness and elaboration, self-

Sample characteristics	Valid <i>n</i> sample	Valid % sample
<i>Gender</i>	661	100.0%
Male	305	46.1
Female	356	53.9
<i>Age</i>	661	
Mean = 45.10; SD = 18.13		
<i>Race/Ethnicity</i>	661	100.0%
Black/African American (non-Hispanic)	95	14.4
Asian American/Pacific Islander	40	6.0
Caucasian/White (non-Hispanic)	401	60.7
Latino/Hispanic Native	107	16.2
American/American Indian	7	1.0
Other	11	1.7
<i>Annual household income</i>	661	100.0%
\$20,000 or under	155	23.4
\$20,001–\$40,000	199	30.1
\$40,001–\$60,000	112	16.9
\$60,001–\$80,000	74	11.2
\$80,001–\$100,000	40	6.1
\$100,001 and higher	45	6.8
Prefer not to say	36	5.5
<i>Highest level of education</i>	661	100.0%
Less than high school degree	27	4.1
High school graduate (high school diploma or equivalent including GED)	225	34.0
Some college but no degree	150	22.7
Associate degree in college (2-year)	57	8.6
Bachelor's degree in college (4-year)	124	18.8
Master's degree	59	8.9
Doctoral degree	19	2.9

Table 1.
Participant profile for
the study (*n* = 661)

efficacy, prescriptive expectancy and the intensity of Facebook use) were measured using five-point Likert-type scales, which ranged from strongly disagree (1) to strongly agree (5).

Trust was measured by four items adapted from Cheng *et al.* (2018) ($M = 3.07$, $SD = 0.82$, $\alpha = 0.88$). *Distrust* was measured by five items adapted from Cheng *et al.* (2018) ($M = 3.50$, $SD = 0.83$, $\alpha = 0.89$). *Intensity of Facebook use* was measured by five items adapted from Acopio and Bance (2016) ($M = 2.93$, $SD = 1.17$, $\alpha = 0.94$). *Information trustworthiness* was measured by three items adapted from Lee *et al.* (2015) ($M = 2.75$, $SD = 0.96$, $\alpha = 0.82$). *Information elaboration* ($M = 3.66$, $SD = 0.75$, $\alpha = 0.75$) and *self-efficacy* ($M = 3.60$, $SD = 0.75$, $\alpha = 0.67$) were measured by scales modified from Wei *et al.* (2010). *Prescriptive expectancy* was measured by three items modified from Burgoon (1993) and Kim (2014) ($M = 3.93$, $SD = 0.72$, $\alpha = 0.79$). See Table 2 for the specific items. In the data analyses, we controlled age, gender, prior media trust and distrust, misinformation exposure and social media usage to avoid confounding effects, as previous literature showed these variables were related to people's overall trust and distrust of information systems (e.g. Chen and Barnes, 2007; Warner-Söderholm *et al.*, 2018).

4. Results

Measurement model. Structural equation modeling (SEM) was used to test the theoretical model using Amos 20. We adopted Hu and Bentler (1999)'s criteria, which suggested that Comparative Fit Index (CFI) ≥ 0.96 and Standardized Root Mean Square Residual

				Encountering misinformation online
Factor (α)	Measurement item	Factor loadings ^a	AVE CR	
Trust ($\alpha = 0.88$)	I believe that Facebook treats people like me fairly and justly	0.77	AVE = 0.62 CR = 0.87	
	Facebook can be relied on to keep its promises to people like me	0.84		
	I feel very confident about Facebook's capabilities	0.84		
	Facebook has the ability to accomplish what it says it will do	0.68		
Distrust ($\alpha = 0.89$)	I am skeptical about whether Facebook keeps my interests in mind when it makes decisions	0.71	AVE = 0.55 CR = 0.86	
	I feel that I cannot trust Facebook and information on its platform	0.74		
	I feel that the way Facebook is run is irresponsible and unreliable	0.80		
	I feel that Facebook transmits unreliable information for its own interests	0.71		
	I feel that Facebook exploits my vulnerability given the chance	0.75		
Information trustworthiness ($\alpha = 0.82$)	The Facebook post tells the truth	0.81	AVE = 0.63 CR = 0.83	
	I think the Facebook post is convincing	0.77		
	I like the Facebook post	0.79		
Information elaboration ($\alpha = 0.75$)	After viewing the Facebook post, I began to consider the consequences of the misinformation	0.71	AVE = 0.54 CR = 0.78	
	After viewing the Facebook post, I have worried about the consequences of the misinformation	0.84		
	After viewing the Facebook post, I thought about how the misinformation relates to other things I know	0.65		
Self-efficacy ($\alpha = 0.67$)	I believe that I can post or share facts instead of misinformation	0.77	AVE = 0.52 CR = 0.68	
	I believe that I can reduce the likelihood of receiving or sharing misinformation	0.67		
Prescriptive expectancy ($\alpha = 0.79$)	Facebook should remind users of the potential risks of misinformation	0.65	AVE = 0.58 CR = 0.80	
	Facebook should stop advertising any types of misinformation	0.85		
	Facebook should monitor and control any types of misinformation	0.77		
Intensity of Facebook use ($\alpha = 0.94$)	I feel proud to tell people I'm on Facebook	0.87	AVE = 0.76 CR = 0.94	
	Facebook has become part of my daily routine	0.87		
	I feel out of touch if I have not logged onto Facebook for a while	0.86		
	I feel I am part of the Facebook community	0.91		
	I will feel sorry if Facebook is shut down	0.85		

Note(s): ^aAll factor loadings are significant at the level of $p < .001$. AVE = Average Variance Extracted; CR = Composite reliability

Table 2.
Constructs and measurement model

(SRMR) ≤ 0.10 or Root Mean Square Error of Approximation (RMSEA) ≤ 0.06 and SRMR ≤ 0.10 . The confirmatory factor analysis (CFA) demonstrated good data-model fit: $\chi^2 = 609.772$, $df = 247$, $\chi^2/df = 2.47$, SRMR = 0.04, RMSEA = 0.05, CFI = 0.96, IFI = 0.96,

$n = 661$. Average variance extracted (AVE), composite reliability (CR), Cronbach's alpha (CA) and item loadings were computed to evaluate discriminant validity, convergent validity and internal consistency of the measures. Results in Table 2 showed that the measures were valid and reliable.

Structural model. Following a two-stage process, hypotheses were then tested via the structural model (see Figure 2). The structural model demonstrated satisfactory fit with the data: $\chi^2 = 817.891$, $df = 252$, $\chi^2/df = 3.25$, SRMR = 0.08, RMSEA = 0.05, CFI = 0.94, IFI = 0.94, $n = 661$.

H1a and H1b examined the influence of information trustworthiness on trust and distrust of Facebook. As shown in Figure 2, a positive association between information trustworthiness and trust ($\beta = 0.14$, $p < 0.01$), and a negative association between information trustworthiness ($\beta = -0.14$, $p < 0.01$) and distrust were observed. Thus, both H1a and H1b were supported. H2a and H2b examined the influence of information elaboration on trust and distrust. Data demonstrated that information elaboration significantly predicted trust ($\beta = -0.20$, $p < 0.001$) and distrust ($\beta = 0.20$, $p < 0.01$), supporting H2.

H3 asked about the association between self-efficacy on trust and distrust toward Facebook. Results showed that self-efficacy had a direct positive effect on trust ($\beta = 0.53$, $p < 0.001$) and a negative effect on distrust of Facebook ($\beta = -0.33$, $p < 0.001$). Therefore, H3a and H3b were supported. Results also presented that prescriptive expectancy negatively predicted trust ($\beta = -0.22$, $p < 0.01$) and positively influenced distrust ($\beta = 0.53$, $p < 0.001$). H4a and H4b were both supported.

Furthermore, H5 and H6 posited the impact of trust and distrust on the behavioral consequence (i.e. the intensity of Facebook use). Results suggested that trust in the Facebook platform led to an increased intensity of Facebook use ($\beta = 0.62$, $p < 0.001$), supporting H5. A negative effect was found between distrust and the intensity of Facebook use ($\beta = -0.08$, $p < 0.05$), supporting H6.

Finally, a rival model was tested to examine the mediating roles of trust and distrust between four different antecedents and intensity of Facebook use. This rival model hypothesized that all four antecedents could directly predict intensity of Facebook use. Data Results demonstrated that this alternative model fit was not satisfactory ($\chi^2 = 1172.028$, $df = 255$, $\chi^2/df = 4.60$, SRMR = 0.09, RMSEA = 0.07, CFI = 0.90, IFI = 0.90). Thus, the rival model failed to explain the data as compared to the original proposed one.

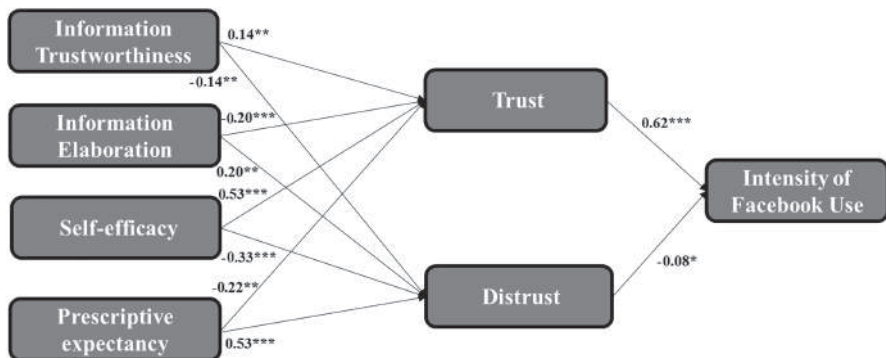


Figure 2.
Results of the
theoretical model

Note(s): $\chi^2 = 817.891$, $df = 252$, $\chi^2/df = 3.25$, SRMR = 0.08, RMSEA = 0.05, CFI = 0.94, IFI = 0.94, $n = 661$; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5. Discussion

This study examined how misinformation in the social media environment influences users' trust, distrust and intensity of information system use. Results from a survey ($N = 661$) showed that information-based characteristics (i.e. information trustworthiness and information elaboration) and users' psychological features (i.e. self-efficacy and prescriptive expectancy) significantly influenced both trust and distrust, yet such influence was not equivalent between the two distinctive constructs. Trust and distrust were important mediators through which misinformation influences users' intensity of using the information system.

5.1 Theoretical implications

This study offers significant theoretical implications. First, the dark side of misinformation on social media is an understudied area (Chen and Cheng, 2019). By examining the impact of misinformation in online information systems, this study provides a model integrating both antecedents and consequences of trust and distrust that can be replicated and extended in the future. In addition, scholars have explored how trust and distrust were driven by different facets including benevolence, honesty and competence, but a consensus was yet to be reached (e.g. Cho, 2006; Seckler *et al.*, 2015). This study adds both information characteristics and users' psychological factors as antecedents to trust and distrust. Such dimensions encompass different components of the cognitive psychological and communication processes and help enrich understanding of how misinformation affects the publics' attitudes toward the platform where it appears.

Results showed that self-efficacy was positively associated with trust, which suggested that the more confident that social media users believed they could recognize misinformation by themselves, the more likely they would trust the information system itself. Such results supported findings from previous studies (e.g. Alves and Mainardes, 2017; Wu *et al.*, 2012). It is possible that when social media users have a higher level of self-efficacy in identifying misinformation, they also become more experienced and comfortable with information shared on social media, and they consequently tend to believe in what the social media platform can deliver. Self-efficacy also had a significant influence on distrust, indicating that when someone had a high level of self-efficacy, such distrust toward the system itself would decrease. Results from the survey also supported the effect of misinformation elaboration on trust and distrust in Facebook. Increased levels of misinformation elaboration led to decreased trust and increased distrust. It is possible that misinformation elaboration could make social media users perceive the impact of misinformation as more severe (Wei *et al.*, 2007, 2010), leading to increased distrust and decreased trust in Facebook – where the misinformation was disseminated.

Second, this study enriches relationship management research in the area of communication. Trust as an important construct of attitudinal outcome has been frequently discussed and examined by scholars in this field (Cheng, 2018). In contrast, relatively few have studied the concept of distrust, as many considered it just as the opposite end of trust (Schoorman *et al.*, 2007). However, the lack of studies on distrust in information systems could potentially cause biased views. Even if both trust and distrust have been acknowledged and examined in past literature related to online communication, limited research was focused on social media (Warner-Söderholm *et al.*, 2018), especially regarding its dark side as an information system. This paper, therefore, fills the gap by examining both antecedents and behavioral consequences of distrust in the current posttruth online context. We supported the argument that trust and distrust were distinct constructs (Cho, 2006; Lewicki *et al.*, 1998; Ou and Sia, 2010), and it further examined the different facets of trust and distrust in the context of misinformation on social media.

Finally, this study also showed that trust and distrust in Facebook concurrently influenced social media users' intensity of use via two distinct paths. Previous research mostly focused on trust and distrust toward e-vendors and business outcomes such as brand loyalty, commitment and purchasing intention of brands or products (Chang and Fang, 2013; Lee *et al.*, 2015). Few had fully examined the intensity of use in information platforms as the consequence of trust and distrust. Results of this study filled the gap by exploring how the intensity of social media usage can be increased via effectively enhancing trust and preventing distrust toward the online platform. Data further demonstrated that trust had a stronger impact on increasing the intensity of use than distrust on decreasing Facebook intensity. In an online posttruth context, people strongly valued trusted media for communication, and such findings further enriched the theoretical framework by confirming trust as an important mediator in the formation of users' social media intensity.

5.2 Practical implications

Besides theoretical implications, this study also provides important practical implications for social media managers to better understand the dark side of misinformation and its impact on users' attitudes and behaviors toward online systems. Since trust and distrust coexist and jointly influence the intensity of use, practitioners should not only engage in enhancing trust, but they should also adopt strategies to decrease distrust. It is important to address both information and user characteristics when practitioners appraise the appropriate channels to combat misinformation. Specifically, in a posttruth online environment where misinformation prevails, users' distrust in the platform may result from higher levels of misinformation elaboration and prescriptive expectancy toward information platforms. Social media companies thus may invest resources and develop functions to constantly monitor misinformation on platforms, provide useful links to help users check or evaluate the validity of information online and engage in ethical and responsible conduct to meet users' prescriptive expectancy. Increased trust in the platform, on the other hand, occurs when there are higher levels of self-efficacy and increased information trustworthiness. Therefore, when choosing the platforms to combat misinformation, social media managers may specifically pinpoint the source (vs platform) sharing the misinformation to associate the misinformation with the source rather than the information platform. They may also implement training to improve users' self-efficacy in identifying misinformation. Finally, social media managers need to notice that trust is different from distrust regarding the influence on the intensity of usage. While efforts should be invested in both increasing trust and decreasing distrust, practitioners should stress the importance of building trust to increase the intensity of usage (cf. Lee *et al.*, 2015).

5.3 Limitations and future research

Some limitations of this article must be addressed. First, as this study focused on Facebook, a specific type of social media platform, future studies could investigate different types of social media platforms such as Twitter and Instagram to examine users' perceptions and behaviors when they encounter misinformation on these different platforms. Second, previous research indicated that trust might be related to different behavioral outcomes such as brand loyalty and purchase intention (Agag and El-Masry, 2016). Future research could include more types of consequences in the conceptual model and provide more inferences to the practice of countering misinformation on social media. Last but not least, it would also be valuable to reexamine the associations supported by this study in different types of misinformation and explore users' attitudes and behaviors toward misinformation such as rumors and pranks.

6. Conclusion

In summary, this study contributes to the growing body of literature on information and relationship management and digital communication from several important aspects. First, this study disclosed the underlying cognitive psychological and social processing of online misinformation, and it also addressed the strategies for future system design and behavioral intervention of misinformation. Second, this study systematically examined both trust and distrust as cognitive and affective perceptions in people's minds, encompassed the different components of online information behavior and enriched our understanding of how misinformation affected the publics' perceptions of the information system where it appeared. Last but not least, this study advanced the relationship management literature and demonstrated that a trustful attitude exerted a stronger influence on the intensity of Facebook use than distrust did.

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