LYING THROUGH ONE'S TWEETS: HOW FALSE RUMORS DETER PUBLIC COMPLIANCE DURING CRISES

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DEDICATION

To Dr. Santana, Dr. Sweetser, and Dr. Spitzberg,

Thank you all for your time, patience, and insight. Thank you for helping me mold this project into something far better than I could have created alone.

To my husband, Andrew,

I never could have finished this thesis without your unwavering encouragement and support. I love you, darling.

To my daughter, Alice,

Thank you for being a bright ray of sunshine on stressful days. I love you, sweets.

ABSTRACT OF THE THESIS

Lying Through One's Tweets: How False Rumors Deter Public Compliance During Crises
by
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During crises, people are drawn to the unfiltered, up-to-the-minute coverage uniquely available on social media. When posted online, however, crisis information must often compete for audiences' attention with specious commentary, counterarguments, false narratives, and rumors. Distinguishing opinion from fact on social media can be difficult; the challenge may overwhelm people's cognitive capacity and give rise to misperceptions.

Misinformation can lead to harmful decision-making and is particularly dangerous in crisis situations. False rumors built on statistical, narrative, and visual evidence may negatively affect attitudes, erode trust in the government, and deter compliance with official guidance. The driving purpose of this study was to examine the roles of individual attributes and cognitive processing in the decision-making process and determine which message features are more persuasive during crises.

Inspired by the events of Hurricane Harvey, a disaster during which misinformation circulated widely on social media, this study employed a pretest-and-posttest online experiment to test the persuasiveness of false rumors in the crisis communication context. Building on the Elaboration Likelihood Model and the narrative paradigm, the 3 × 2 factorial design ($N = 477$) manipulated evidence types (statistical vs. narrative vs. visual) and majority influence (low likes/retweets vs. high likes/retweets). Analyses indicated that media literacy, not need for cognition, predicted central processing and accurate credibility assessments. Although central processing overall did not function as anticipated, *positive central processing* predicted positive attitudes toward compliance, positive behavioral intentions, and higher ratings of organizational trustworthiness and reputation. Narrative evidence arose as the most persuasive and damaging to attitudes, behavioral intentions, and credibility assessments, while high likes/retweets negatively affected attitudes and behavioral intentions.

Theoretically, this study's inclusion of persuasive message features may open new methodological pathways for mass communication and public relations scholars, and help public relations practitioners identify and address especially persuasive rumors before they gain traction, skew public perceptions, and disrupt the flow of accurate, life-saving information to those who need it most.

TABLE OF CONTENTS

PAGE

ABSTRACT v

LIST OF TABLES.....viii

LYING THROUGH ONE'S TWEETS: HOW FALSE RUMORS DETER PUBLIC COMPLIANCE DURING CRISES 1

Purpose and Rationale 3

LITERATURE REVIEW 5

The Elaboration Likelihood Model 5

Personal Relevance.....7

Prior Knowledge and Experience 8

Need for Cognition and Media Literacy.....9

Previous Crisis Communication Research Applying the ELM 12

Persuasive Crisis Communication.....13

Public Distrust and Organizational Reputation 16

Crisis Narratives 19

Statistical, Narrative, and Visual Evidence.....21

Social Media Usage During Crises.....24

Rumors on Social Media 26

Majority Influence 28

METHOD 30

Sample 30

Design.....31

Instrument.....33

Need for Cognition 33

Media Literacy.....35

Prior Knowledge and Experience 36
Attitudes Toward Compliance 37
Message Elaboration 39
Behavioral Intentions 40
Personal Relevance 41
Message Credibility 42
Trustworthiness and Reputation 43
Plausibility and Realism of Stimuli 45
RESULTS 47
Manipulation Checks 47
Preliminary Analysis 48
The Effect of Personal Relevance on Central Processing and Credibility Assessments 49
The Disparate Roles of Prior Knowledge and Experience 50
The Connection Between NFC and Media Literacy 51
The Impact of Central Processing on Attitudes and Behavioral Intentions 53
The Impact of Central Processing on Trustworthiness and Reputation 54
Exploring the Effects of Persuasive Evidence 54
Examining the Effects of Majority Influence 56
The Combination of Persuasive Evidence and Majority Influence 57
DISCUSSION 58
Implications for Research 62
Implications for Practice 65
Limitations and Directions for Future Research 67
CONCLUSION 69
REFERENCES 71
APPENDICES
A PRETEST QUESTIONNAIRE 95
B CRISIS SCENARIO 99
C EXPERIMENTAL STIMULI 100
D POSTTEST QUESTIONNAIRE 105

LIST OF TABLES

PAGE

Table 1. Need for Cognition Means and Standard Deviations 34
Table 2. Media Literacy Means and Standard Deviations 36
Table 3. Prior Knowledge of Hurricanes Means and Standard Deviations 37
Table 4. Prior Experience with Hurricanes Means and Standard Deviations 37
Table 5. Pretest Attitude Toward Compliance Means and Standard Deviations 38
Table 6. Posttest Attitude Toward Compliance Means and Standard Deviations 38
Table 7. Behavioral Intentions Means and Standard Deviations 41
Table 8. Personal Relevance Means and Standard Deviations 42
Table 9. Factual Tweet Credibility Means and Standard Deviations 43
Table 10. False Rumor Credibility Means and Standard Deviations 43
Table 11. Trustworthiness Means and Standard Deviations 44
Table 12. Organizational Reputation Means and Standard Deviations 45
Table 13. Plausibility Means and Standard Deviations 46
Table 14. Correlation Matrix 49

LYING THROUGH ONE'S TWEETS: HOW FALSE RUMORS DETER PUBLIC COMPLIANCE DURING CRISES

When Hurricane Harvey barreled ashore near Rockport, Texas, on August 25, 2017, it became the first major hurricane to make landfall in the United States since 2005 (The Weather Channel, 2017). Peak wind speeds of 130 miles per hour earned the storm Category 4 status, though it was Harvey's heavy rains that defined its historic impact (Smith, 2020). While the winds rapidly abated, the storm's powerful rain bands hovered in place for four days, dumping more than 60 inches of rain over the region (Blake & Zelinsky, 2018). The unprecedented rainfall overwhelmed standard rain gauges and prompted National Weather Service meteorologists to add a new category to their precipitation charts (Blake & Zelinsky, 2018; National Weather Service, 2017).

In lieu of issuing evacuation orders, most Texas officials urged residents to shelter in place and ride out the storm (Domonoske, 2017). Houston's mayor, Sylvester Turner, acknowledged that Harvey was a "rainmaker," but reasoned that ordering the city's population to flee en masse could evolve into a disaster greater than the storm itself (Andone, 2017; Domonoske, 2017). Most of Houston's 6.5 million inhabitants hunkered down at home as the most severe tropical cyclone rainfall event in U.S. history unfolded. The heavy rainfall quickly overtopped creeks, lakes, bayous, and rivers, inundated major roadways like the I-10 and I-49, and transformed hundreds of neighborhoods in the Houston metro area and southward into flooded marshes (Blake & Zelinsky, 2018). During and after the four-day deluge, people from more than 80,000 households across the region found flood water rising in their homes and fast-moving rivers sweeping down their streets (FEMA, 2017b).

Thousands of stranded flood victims turned to social media, posting their addresses and pleas for help on Facebook, Twitter, and Nextdoor (Rhodan, 2017; Silverman, 2017).

Citizen volunteers fielded the online requests, compiled them in online databases, and notified local authorities and Good Samaritans (Conrad et al., 2020, Rhodan, 2017). Social networking sites also served as critical hubs of public safety information and real-time updates. Agencies and organizations at every governmental level used their Facebook and Twitter pages to disseminate weather forecasts, safety warnings, flood locations, known hazards, official guidance, and other updates (Liu et al., 2018; Street, 2019). However, while social media allowed for rapid-fire sharing of accurate disaster information, it also enabled misinformation to spread just as quickly. On Facebook and Twitter, for example, many people shared what they believed to be a National Guard emergency phone line that was later revealed to be an insurance company's phone number (Qiu, 2017). Among the many rumors circulating on social media were claims that police were checking immigration papers at shelters, looters were wreaking havoc throughout Houston, exposure to floodwater increased the risk of contracting tetanus, and the mayor of Houston had mysteriously vanished (FEMA, 2017a; Van Dyke et al., 2017).

The dispersion of baseless rumors on social media during Hurricane Harvey may revolve partly around the messages' sentiment. Chen et al. (2020) analyzed all pertinent tweets posted and retweeted during the hurricane and found that negative messages spread more rapidly than those positive or neutral in tone. Enough people engaged with and shared misleading content that many of the rumors and spurious photos went viral, attracting more attention in some cases than legitimate emergency communications (Van Dyke et al., 2017). Said misinformation originated from fake news purveyors, hyperpartisan organizations, self-proclaimed satirical news sites, influential content creators, and average citizens. Some social media users responded to informational posts and updates by arguing against official guidance and promoting exaggerated or misleading narratives. The false information reached millions of social media users who consumed it, shared it, and in many instances, believed it (Kaplan, 2017).

Government agencies and organizations at every level competed with rumors and false claims as they provided affected communities with accurate information and scrambled to save lives. Overall, the government's response to Hurricane Harvey may appear

successful; local, state, and federal first responders rescued 122,331 people and 5,234 pets, while citizen volunteers rescued thousands more (FEMA, 2017b). But emergency managers and rescue teams struggled to locate and help people who did not heed their guidance. Distressed residents bypassed official communication channels and called for help on social media, forcing dispatchers to wade through a flood of both authentic pleas and hoaxes (Campoy, 2017; Silverman, 2017). Emergency managers urged citizens to rapidly seek high ground and attract the attention of helicopter rescue teams (U.S. Coast Guard, 2017), but many stayed in their flooded homes and attics until the water forced them out or overtook them. Of the 68 people who died during Hurricane Harvey, 65 drowned in freshwater flooding (Blake & Zelinsky, 2018).

Purpose and Rationale

The extent to which misinformation actively disrupted the flow of crisis communication during Hurricane Harvey remains unclear. Other factors, such as distrust in involved government agencies and unfavorable attitudes toward compliance, may have led people to disregard official guidance. The main purpose of this research is to examine the roles of individual attributes and cognitive processing in the decision-making process and determine whether different types of falsehoods are more persuasive during crises. Misinformation that gained traction during Hurricane Harvey included a mixture of rumors built on faulty statistical, narrative, and visual evidence, although it is unknown whether one type was more convincing. Few crisis communication scholars have investigated the role of evidence and other persuasion principles in their research, despite the fact that crisis communication is inherently a persuasive discipline (Fediuk et al., 2010b). The Elaboration Likelihood Model (ELM) unravels the complex processes by which audiences interpret and respond to messages and provides a solid bridge between persuasion and crisis communication research (McDermott & Lachlan, 2020). Using the ELM as a guiding theoretical framework, this thesis will investigate the cognitive processes by which attitudes change, specifically when one encounters both accurate and false crisis information on social media.

Deliberately biased or misleading information undermines democracy, disrupts civic discourse, and in times of crisis, threatens lives. This issue is increasingly ubiquitous; a recent Institute for Public Relations report found that 61% of U.S. adults consider misinformation a major problem, with 74% reporting seeing news or information that misrepresents reality at least once a week (McCorkindale, 2020). Yet the U.S. population's growing disregard for facts, data, and analysis, a phenomenon RAND researchers dubbed the *truth decay*, may pose a bigger threat than the misinformation itself (Kavanagh & Rich, 2018). The truth decay is predominantly fueled by increasing disagreement about facts and data, a blurring of the line between opinion and fact, the increasing relative volume and resulting influence of opinion over fact, and declining trust in formerly respected sources of factual information (Kavanagh & Rich, 2018). Distinguishing opinion from fact is especially difficult on social media; the challenge may overwhelm people's cognitive capacity and give rise to misperceptions about what is true and what is not (Kavanagh & Rich, 2018).

By focusing on message recipients' cognitive responses to factual crisis information and misleading rumors, this thesis will attack the problem of misinformation from an alternative angle. This study's inclusion of persuasive message features, such as evidence types and majority influence, may open new methodological pathways for persuasion and crisis communication scholars exploring the effects of misinformation on attitudes, behavioral intentions, and organizational reputation. A deeper understanding of the interplay between misleading rumors and the cognitive processes that shape attitudes may also benefit public relations practitioners, especially crisis managers conveying guidance on social media. This research's findings may help crisis communication teams identify and address especially persuasive rumors before they gain traction, skew public perceptions, and disrupt the flow of accurate, life-saving information to those who need it most.

LITERATURE REVIEW

THE ELABORATION LIKELIHOOD MODEL

Originally proposed as a framework for organizing, categorizing, and understanding the processes contributive to the effectiveness of persuasive communication, the ELM has since become one of the most preeminent and extensively examined theories in persuasion research and beyond (Carpenter, 2015). ELM authors Petty and Cacioppo (1986) noted the longstanding discord among persuasion scholars regarding the antecedents of attitude change and sought to reconcile inconsistencies by consolidating disparate theories into a new, unifying model. The ELM's main concern is examining the affective, cognitive, and behavioral processes through which *attitudes*, or the general evaluations people hold in regard to themselves, other people, objects, and issues, are influenced (Petty & Cacioppo, 1986). In their seminal work, the authors characterized the ELM first and foremost as a general theory of attitude change, though it is also widely known as a dual-process persuasion theory.

As asserted by Chaffee (1991), it is imperative to determine the relationships between constructs when explicating a theory's conceptual components. In this regard, an examination of the ELM must begin with a review of the central and peripheral routes. Petty and Cacioppo's pre-ELM studies on attitude persistence and persuasion resistance allowed for early explorations of two different levels of persuasion reached via two qualitatively distinct paths (Petty & Cacioppo, 1977, 1978). When processing a persuasive message on the central route, one carefully and diligently considers the merits of issue-relevant arguments (Petty & Cacioppo, 1986). Conversely, on the peripheral route to persuasion, one spends less effort processing issue-relevant arguments and relies instead on simple cues, such as perceived source credibility, source attractiveness, or the apparent number of arguments contained in a message (Cacioppo et al., 1986; Petty & Cacioppo, 1986). By definition, these *peripheral*

cues can shape attitudes without necessitating elaboration of message arguments (Petty & Cacioppo, 1986; Petty et al., 1983). *Elaboration*, or the extent to which one thinks carefully about issue-relevant information, occurs at varying degrees on a continuum, from no thought to thorough evaluation and assimilation of persuasive arguments into one's attitude schema (O'Keefe, 2013; Petty & Cacioppo, 1986). As Petty and Wegener (1999) pointed out, elaborating a persuasive communication is not equivalent to learning or encoding the information verbatim, but involves the self-generation of unique information.

At the core of the ELM is the notion that people are inherently motivated to hold relatively correct views and attitudes (Petty & Cacioppo, 1986). However, people cannot realistically expend maximum cognitive effort absorbing every message they encounter, so they must choose when to be "cognitive misers" and when to devote careful thought to an issue or argument (Taylor, 1981). Several individual and situational factors may alter one's ability or desire to engage in issue-relevant elaboration. The ELM posits that source, message, recipient, and context variables can affect the amount and direction of attitude change by serving as persuasive arguments, acting as peripheral cues, and/or affecting the extent or direction of elaboration (Petty & Cacioppo, 1986). Both the central and peripheral routes can result in attitude change, although the ELM posits that attitudes formed via central argument scrutiny are more enduring and predictive of behavior than those founded on simple, peripheral inferences (Cialdini et al., 1981; Petty & Cacioppo, 1986).

According to the ELM, motivation and ability are the two key determinants of whether one processes persuasive information centrally or peripherally (O'Keefe, 2013; Petty & Cacioppo, 1986). When a person is more motivated, ego-involved, psychologically invested or engaged with an issue, and the more competent, experienced, knowledgeable and capable they are regarding that issue, the more inclined they are to engage in complex reasoning and analysis of information or messages about that issue. But if either their motivation or ability is low, peripheral cues hold more sway (Petty & Cacioppo, 1986). Motivation variables include the personal relevance of the persuasive communication, personal responsibility, and need for cognition, while prior knowledge and distraction

determine ability (Petty & Cacioppo, 1986). Of these variables, Petty and Cacioppo (1986) point to personal relevance and prior knowledge as the most influential.

PERSONAL RELEVANCE

In their early persuasion experiments, Petty and Cacioppo (1979a, 1979b) tested the potency of *issue involvement*, which the authors defined as "the extent to which the attitudinal issue under consideration is of personal importance" (Petty & Cacioppo, 1979b, p. 1915) and manipulated this variable by telling a portion of their college student sample that their own university was imminently making a certain policy change, and the other subjects that the change was set to occur either far in the future or at a distant university. In one such experiment, the researchers found that higher issue involvement increased subjects' agreement with attitude-congruent messages and enhanced the persuasiveness of stronger messages, but had the opposite effects on messages that were counterattitudinal or low-quality (Petty & Cacioppo, 1979b). Adopting this manipulation of issue involvement as a standard practice, many subsequent persuasion researchers have echoed Petty and Cacioppo's findings that involvement increases message recipients' motivation to engage in message-relevant thinking and can greatly heighten or diminish the persuasiveness of a message (Chaiken, 1980; Johnson, 1994; Leippe & Elkin, 1987; Maio & Olson, 1995; Sorrentino et al., 1988; Stiff, 1986).

When formulating the postulates of the ELM, Petty and Cacioppo (1984, 1986) began interchangeably using the terms issue involvement and *personal relevance*, which describes the extent to which a message seems intrinsically important, meaningful, or consequential (Petty & Cacioppo, 1986). Through further testing of this construct, the authors and their colleagues found that as personal relevance increased, people became more motivated to effortfully process issue-relevant arguments via the central route (Petty & Cacioppo, 1984; Petty et al., 1981; Petty et al., 1983). Central processing increases the likelihood that an individual will detect weaknesses in an argument, such as specious or irrelevant evidence. For instance, in their experiment testing organizational response strategies against

misinformation, Vafeiadis et al. (2019) found that highly involved subjects were more likely to process information centrally and doubt the credibility of false rumors.

On the basis of this evidence, the researcher proposes that personal relevance will affect both issue-relevant elaboration and perceptions of false information.

H_1: As the personal relevance of information increases, so does the likelihood that an individual will (a) process crisis information more centrally than peripherally, and (b) perceive factual arguments as more credible than false arguments.

Prior Knowledge and Experience

While personal relevance tends to facilitate relatively objective message-processing, *prior knowledge*, or the extent to which one possesses an organized structure of knowledge, is more likely to trigger central, yet biased processing (Petty & Cacioppo, 1986). Prior knowledge encompasses one's familiarity, expertise, and experience with an issue (Kerstetter & Cho, 2004). People with existing knowledge about an issue are more apt to counterargue with discordant messages and readily accept those they perceive to be congruent (Petty & Cacioppo, 1986). Cacioppo et al. (1982) tested this hypothesis by presenting schema-congruent messages to subjects who considered themselves knowledgeable about either religious or legal matters. As expected, subjects who received schema-congruent arguments evinced higher elaboration and deemed the arguments more persuasive than those who received messages outside their wheelhouse (Cacioppo et al., 1982). In a similar experiment, Wood (1982) presented participants with counter-attitudinal messages opposing environmental preservation and found that individuals with greater prior knowledge and experience generated more counterarguments and were more likely to resist persuasion.

The biasing effect of prior knowledge is especially pronounced when people encounter a message or set of messages presenting both sides of an issue (Petty & Cacioppo, 1986). People with substantial prior knowledge, personal experience, or firmly established beliefs tend to gravitate toward the message that aligns with their viewpoint, accept it at face value, then critically scrutinize the counter-attitudinal message (Lord et al., 1979). Such biased processing typically results in the reinforcement of preexisting attitudes (Lord et al.,

1979; Meszaros et al., 1996; Ross et al., 1975), a pattern with disturbing implications for the role of evidence in settling controversial social issues (Baron, 2000). However, in more modern ELM-based studies, prior knowledge elicited peripheral processing rather than central processing (Cyr et al., 2018) or did not exhibit any moderating effects on elaboration (Pee & Lee, 2016). Pee and Lee (2016) offered that the unusually large scale of the crisis featured in their study may have led respondents to believe that prior knowledge might not be applicable, thereby diluting the variable's effect.

Considering the abundance of evidence supporting the capacity of prior knowledge to enhance elaboration, the author proposes that prior knowledge and experience will significantly increase individuals' ability to process crisis information centrally and distinguish between credible information and specious rumors.

> H_2: As prior knowledge and experience increase, so does the likelihood that an individual will (a) process crisis information more centrally than peripherally, and (b) perceive factual arguments as more credible than false arguments.

Need for Cognition and Media Literacy

To analyze instances in which personal relevance and prior knowledge failed to account for differences in elaboration likelihood, Petty and Cacioppo employed an individual differences approach (Cacioppo & Petty, 1982; Cacioppo et al., 1983). The authors proposed that people vary in their inherent desire to engage in issue-relevant thinking when dealing with their social environment (Petty & Cacioppo, 1986). Simply put, some people enjoy thinking more than others. Building on Cohen et al.'s (1955) concept, the ELM authors redefined *need for cognition* as "the statistical tendency of and intrinsic enjoyment individuals derive from engaging in effortful information processing" (Cacioppo et al., 1986, p. 1033). Individuals low in need for cognition (NFC) tend to expend less cognitive energy compared with people high in NFC, who willingly engage in repeated, prolonged episodes of effortful problem solving (Petty & Cacioppo, 1986). Both types of people must make sense of their world, but they tend to derive meaning, form attitudes, and make decisions via differing processes (Cacioppo et al., 1996).

Since 1982, scholars in psychology, social science, education, journalism, marketing, and law have examined the role of NFC in various research contexts (Cacioppo et al., 1996). Namely, past studies found that people with high levels of NFC were more likely to recall presented information (e.g., Boehm, 1994; Cacioppo et al., 1983; Lassiter et al., 1991; Kassin et al., 1990), engage in personal problem solving (Heppner et al., 1983), obtain information from news media (Ahlering, 1987), and feel involved in complicated social issues (Verplanken, 1989). More specific to persuasion scholarship, researchers found that individuals high in NFC were more attuned and responsive to the quality of arguments in a message (Cacioppo et al., 1986; Haugtvedt et al., 1992; Petty et al., 1993), were more likely to make thoughtful, belief-based judgments (Verplanken, 1989), and possessed more knowledge about a wider variety of topics (Ahlering, 1987; Cacioppo et al., 1986). NFC may also trigger extrinsic motivators; when anticipating difficult intellectual activities, high-NFC individuals are motivated by a fear of failure more so than those low in NFC (Steinhart & Wyer, 2009). Recent research by Amit et al. (2020) found a positive relationship between NFC and conscientiousness and dispelled notions that the deliberate thinking exhibited by high-NFC individuals is negatively related to intuitive thinking.

As noted by Hallahan (2009), public relations scholars have largely forgone studying individual differences variables like NFC, despite the attribute's influence on the selection, consumption, and interpretation of mediated messages. In his own experiment examining NFC's impact on the processing of both news and advertisements, Hallahan (2009) found that high-NFC subjects thought more critically about persuasive messages and formed more negative attitudes than did low-NFC subjects. These results suggest that individuals high in NFC are unwilling to accept mediated messages without scrutinizing them carefully (Hallahan, 2009). Although Cacioppo et al. (1996) pointed out that NFC is more of a stable, innate disposition than an intellectual ability, researchers have found that NFC is related to and can enhance individuals' media literacy (Austin et al., 2016; Cacioppo & Petty, 1982; Maksl et al., 2015; Tully & Vraga, 2018).

As an educational movement, *media literacy* describes a framework that empowers individuals to access, analyze, evaluate, create, and participate with messages in a variety of

forms (Center for Media Literacy, n.d.). More commonly, media literacy refers to the ability of an individual to think actively and critically about mediated messages (Hobbs & Jensen, 2009). Thoman and Jolls (2004) emphasized that the goal of media literacy is to imbue individuals with higher order thinking skills like identifying key concepts, making connections between ideas, asking pertinent questions, identifying fallacies, and formulating responses. Although once geared primarily toward children, media literacy has evolved into "a survival kit for the 21st century" (Koc & Barut, 2016, p. 834) that encompasses information, news, entertainment, and digital media.

The rise of *new media*, or computer and communication technologies that allow users to interact with information and each other (Rice, 1984), further expanded notions of media literacy. New media is characterized by digital interactivity, creative and collective participation, data manipulation, modularity, hybridity, and virtuality (Chen et al., 2011). To navigate the digital information sphere, individuals must possess *new media literacy*, or the ability to critically consume and actively (re)produce digital media messages (Koc & Barut, 2016). Critical consumption, one of new media literacy's four dimensions, includes analyzing and deconstructing digital messages, synthesizing media content from various sources, and evaluating the credibility and veracity of digital media (Chen et al., 2011; Koc & Barut, 2016). The ability to question potential biases, detect indicators of ironic expressions, and distinguish parodies or misinformation from facts is integral to communicating adeptly and responsibly in the digital era (Koc & Barut, 2016).

Given their propensity for critical thinking, individuals high in NFC may be especially predisposed to acquire new media literacy skills, while those low in NFC may be at a disadvantage when communicating digitally. To explore this vulnerability, Metzger et al. (2015) surveyed teenagers about information literacy and found that respondents higher in NFC demonstrated greater use of analytical strategies and greater confidence in their own abilities when evaluating the credibility of online information. Similarly, in a recent experiment by Schaewitz et al. (2020) examining perceptions of fake news articles, subjects high in NFC were more likely to deem disinformation implausible and perceive a higher amount of the information as inaccurate. Moreover, NFC predicted participants' media

literacy-based skills more overtly than did sex, age, political orientation, and participants' knowledge and relevance of the topics (Schaewitz et al., 2020).

In light of these findings, the researcher posits the following:

H_3: NFC and media literacy are positively related.

H_4: As NFC increases, so does the likelihood that an individual will (a) process crisis information more centrally than peripherally, and (b) perceive factual arguments as more credible than false arguments.

H_5: As media literacy increases, so does the likelihood that an individual will (a) process crisis information more centrally than peripherally, and (b) perceive factual arguments as more credible than false arguments.

Previous Crisis Communication Research Applying the ELM

In his meta-analysis examining the effects of persuasive arguments, Carpenter (2015) found that three academic disciplines have produced the majority of ELM research: social psychology, marketing/advertising, and communication. Although greatly outnumbered by psychology and marketing studies, the communication studies were unique by design and in their findings, which clashed with the ELM's predictions (Carpenter, 2015). These studies found that strong arguments were more persuasive than weak arguments regardless of whether subjects processed the messages centrally or peripherally (Carpenter, 2015). This discordant finding likely stems from communication scholars' unique focus on message features, an approach that diverges from traditional ELM research (O'Keefe, 2003).

Public relations scholars have used ELM principles to examine the effects of involvement (Hallahan, 1999, 2000; Heath & Douglas, 1990; Kim & Grunig, 2011) and framing (Lundy, 2006) on cognitive responses. Researchers in the field of crisis communication have applied the ELM framework to investigate the role of source credibility (McDermott & Lachlan, 2020), involvement (Ahmad et al., 2017), online media interactivity (Li et al., 2019), online information vetting behavior (Lu & Jin, 2020), trust in user-generated content (Pee & Lee, 2016), perceptions of risk (Miles & Morse, 2007), and the effects of peripheral cues on social media engagement (Ji et al., 2019; Xu & Zhang, 2018). Despite the

prevalence of misinformation in both research and practice, few public relations scholars have examined the issue using ELM concepts and methods, creating a gap for this research to fill.

Persuasive Crisis Communication

Although most major persuasion theories—including the ELM—originated from social psychology, persuasion is also deeply embedded in the history, scholarship, and practice of public relations (Dainton & Zelley, 2005; Pfau & Wan, 2006). In its infancy, public relations served a propagandist function; practitioners used one-way communication to engender American support for the nation's involvement in World War I (Broom & Sha, 2013). Although the profession quickly changed and matured, negative associations between propaganda, persuasion, and public relations persist even today (Fawkes, 2007). Despite this, one of the founding fathers of public relations, Edward Bernays (1955), characterized public relations as using "information, persuasion, and adjustment to engineer public support for an activity, cause, movement, or institution" (pp. 3–4). He distinguished persuasion as an integral part of both strategic communication and democratic life (Bernays, 1955). Debates sprang up among public relations scholars who advocated for the value of persuasion (Miller, 1989; Pavlik, 1987; Pfau & Wan, 2006) and those who condemned it as ignoble (Grunig, 1989; Grunig & Hunt, 1984; Wilcox et al., 2003). Notably, Grunig (1989) criticized Bernays's persuasion-based model, arguing that such a "two-way asymmetrical approach" (p. 18) to public relations is manipulative and unethical.

Modern definitions of public relations commonly emphasize words such as *reciprocal*, *mutual*, *dialogic*, and *between*, implying a collective shift away from persuasion, but as Pfau and Wan (2006) asserted, a need exists for both symmetrical and asymmetrical approaches. Expunging persuasion from public relations research does not nullify its presence in practice. As Fawkes (2007) observed, "it is difficult to conceive of organisational communication which does not contain some persuasive content" (p. 316). Public relations practitioners must often operate on a continuum spanning from pure advocacy (persuasion) to pure accommodation (dialogue), depending on the circumstances (Cancel et al., 1997). The

size and nature of the issue at hand, the organization's history, and the organization's relationship with the public are among the many variables that inform practitioners' decisions and determine how persuasive or accommodating an organization should be (Cancel et al., 1997). These factors are especially formative in *crisis communication*, a public relations specialty designed to help organizations strategically respond to crises and communicate with affected publics (Broom & Sha, 2013).

A *crisis* is a "specific, unexpected, and non-routine event[s] or series of events that create high levels of uncertainty and threaten or are perceived to threaten high priority goals" (Seeger et al., 1998, p. 233). These goals may include the protection of human life, property, or community well-being (Spence et al., 2011). *Persuasion* is "the use of communication in an attempt to shape, change, and/or reinforce perception, affect (feelings), cognition (thinking), and/or behavior" (Pfau & Wan, 2006, p. 89). According to O'Keefe (1990), persuasion involves three components: a goal and intent to achieve said goal on the part of the message sender, the use of communication to achieve that goal, and free will on the part of the message recipient. Based on these criteria, threatening physical harm if the message recipient refuses to comply is considered force, not persuasion (O'Keefe, 1990). This conceptual definition of persuasion aligns with the overarching crisis communication objectives of protecting an organization's reputation and changing, altering, or shaping stakeholders' perceptions, attitudes, and behaviors (Fediuk et al., 2010b). As such, crisis responses are inherently persuasive, rhetorical, and advocative (Fediuk et al., 2010b; Heath & Millar, 2004; Stacks, 2004). Crisis communication involves the development of strategic, fact-based communication intended to withstand public scrutiny and counterarguments, although the facts themselves matter less than how audiences interpret them (Heath & Millar, 2004). Modern crisis communication studies have examined how the advent of social media has impacted, changed, and convoluted the flow of information from practitioners to stakeholders (Cheng, 2018; Cheng et al., 2017; Coombs, 2014b; Gilpin, 2010).

As established by Weiner's (1985) attribution theory, when an unexpected or negative event occurs, people tend to compulsively search for the cause and assign blame. Building on this tenet, Coombs's (2007) Situational Crisis Communication Theory (SCCT) predicts how

a crisis impacts an organization's reputation, how response strategies can reduce damaging effects, and how stakeholders view and interpret said crisis responses. SCCT maintains that the public's assessment of a crisis is of utmost importance; the more responsibility stakeholders attribute to an organization, the more accommodating, or dialogic, the organization's crisis response should be (Fediuk et al., 2010b).

Although SCCT primarily provides a mechanism for matching crisis types with response strategies, Coombs (2007) emphasized the importance of prioritizing stakeholder needs above all else. In this vein, Fediuk et al. (2010a) recommended taking a cognitive, receiver-focused approach to explore the impact of a crisis and better understand the values that shape stakeholder expectations. According to SCCT, people spend varying amounts of cognitive effort understanding and making judgments about crisis situations (Fediuk et al., 2010a). The amount of cognitive effort an individual exerts while processing crisis responses stems predominantly from their motivation and ability (Petty & Cacioppo, 1986). Specifically, when people consider a crisis personally relevant, they are more likely to systematically seek out and thoughtfully consider information about the incident (Claeys & Cauberghe, 2014; Lim, 2019). Because stored knowledge tends to be biased in favor of a preexisting attitude or viewpoint, prior knowledge and experience often elicit central, yet biased processing of persuasive messages (Fiske & Taylor, 2013). This can be counterproductive during natural disasters, as past experience with comparable crises can imbue a person with false confidence and lead them to treat an event as inconsequential (Venette, 2008). Before Hurricane Katrina made landfall, for instance, many Gulf Coast residents downplayed the storm's severity and decided against evacuating based on experiences with past hurricanes (Cole & Fellows, 2008). As one New Orleans resident reasoned, ''If I survived Hurricane Betsy, I can survive that one, too" (Elder et al., 2007, p. 125).

Even though "understanding how individuals perceive and cognitively process crisis events and post-crisis messages is crucial to the crisis manager" (Fediuk et al., 2010a, p. 635), few studies have empirically examined how stakeholders' motivation and ability alter their perceptions of crisis responses (Bundy et al., 2017). As Fediuk et al. (2010b) pointed

out, SCCT researchers are chiefly interested in how the nature of a crisis affects the selection of certain crisis responses, but seem less concerned with the effects of specific message features. Researchers typically operationalize crisis responses by combining a wide range of defensive and accommodative messages into a unidimensional variable (Fediuk et al., 2010b). While congruent with SCCT principles, this practice hinders the examination of crisis responses as persuasive messages designed to alter stakeholder perceptions and behavioral intentions (Fediuk et al., 2010b). Additionally, most crisis communication researchers have neglected the influence of stakeholders' biases, heuristics, and emotions on their perceptions of response strategies and resultant attitudes (Bundy et al., 2017). ELM research has shown that attitudes formed via the central route to persuasion are more resistant to change and more predictive of actual behavior than attitudes formulated peripherally (Cialdini et al., 1981). Based on this principle, central processing may determine whether one decides to act on official guidance or believe false rumors during a crisis.

Given the preponderance of social psychology and persuasion research supporting links between cognitive, attitudinal, and behavioral responses, the researcher proposes that higher levels of issue-relevant elaboration will result in the alignment of attitudes and behavioral intentions with stronger, credible arguments.

> H_6: As central processing increases and peripheral processing decreases, so does the likelihood that an individual will report (a) attitudes and (b) behavioral intentions congruent with factual arguments.

Public Distrust and Organizational Reputation

By its very nature, a crisis disrupts normal routines, casts organizations and stakeholders into disarray, and triggers uncertainty. Affected individuals tend to launch immediately into information-seeking mode to find answers and reduce cognitive discomfort (Heath & Gay, 1997). The information-seeking process is often heightened at the beginning of a crisis, when uncertainty looms largest and threats remain unknown or unclear (Stephens & Malone, 2009). To meet this urgent need, Coombs (2007) implored communicators to provide stakeholders with instructing information as rapidly as possible. Instructing

information reduces uncertainty and stress by notifying affected publics how to protect themselves from physical threats (Coombs, 2007). Upon providing initial guidance, organizations can then issue adjusting information to help stakeholders cope with psychological stressors (Coombs, 2007; Maresh & Williams, 2010). However, uncertainty is socially constructed and may persist even in the face of instructing and adjusting information (Einsiedel & Thorne, 1999). For instance, some people may acknowledge their uncertainty about a crisis but actively resist learning more about it out of fear, anxiety, or unwillingness to spend cognitive energy (Einsiedel & Thorne, 1999).

While most crises conjure uncertainty, natural disasters can be especially upsetting and disorienting (Afifi et al., 2012; Miller & Goidel, 2009). This is true both for people directly impacted by the crisis and for unaffected populations monitoring the disaster in the news (Miller & Goidel, 2009). Since a natural disaster is unlikely to induce attributions of responsibility or seriously threaten an organization's reputation, especially at the onset, instructing and adjusting information may prove sufficient without further communication (Coombs, 2007). However, if people perceive a lack of regular updates or struggle to find pertinent information, uncertainty can spark negative emotions, widespread confusion, and harmful behavioral intentions (Fediuk et al., 2010a). This type of knowledge-sharing gap is dangerous, since "access to information in a natural disaster can be the difference between survival and death" (Spence et al. 2011, p. 272).

Crisis information must not only be accessible, but believable (Department of Homeland Security, 2018). When searching for dependable guidance, people often gravitate toward information sources they already know and trust (Siegrist & Zingg, 2014). Publics also use perceived source credibility as a filtering mechanism, or peripheral cue, when perusing and selecting risk-related information from a range of sources (Petty et al., 1981; Steelman et al., 2015). Under most conditions, higher source credibility bolsters a message's persuasiveness, precipitates attitude change, and motivates behavioral compliance (Petty & Wegener, 1999; Pornpitakpan, 2004). When the source is a government agency, however, the judgment process may be more convoluted (Avery & Lariscy, 2010). The general public tends to possess very little knowledge about federal government agencies and may make

sweeping generalizations based on an overall sense of dislike and distrust (Steelman et al., 2015). In fact, nearly two-thirds (69%) of Americans suspect the federal government intentionally withholds important information from the public that it could safely release (Rainie et al., 2019).

Government communicators routinely face obstacles unique to the public sector, such as political biases, chronic media scrutiny, legal constraints, and negative public perceptions (Liu & Horsley, 2007). Crisis situations can exacerbate these challenges and threaten a government agency's credibility and reputation (Avery & Lariscy, 2010). Unlike corporations, "the *product* of a government is the reputation it garners through its public service, which must, among other objectives, assure all stakeholders that their tax dollars are being spent in sound ways" (Avery & Lariscy, 2010, p. 320, emphasis in original). An agency's reputation is largely contingent on the public's assessment of both their actions and communication efforts. The more negative the reputation, the less likely stakeholders are to report behavioral intentions that are supportive of an organization, including following the organization's guidance (Coombs, 2007; Coombs & Holladay, 2001). After Hurricane Katrina struck New Orleans, local officials continuously urged citizens to leave, warning that the levee system had been compromised. Yet in the 9th Ward, an imperiled neighborhood hemmed in by levees, thousands of residents felt they couldn't trust the guidance of such an incompetent, negligent government and resigned themselves to surviving without any help (Select Bipartisan Committee, 2006).

Regardless of government agencies' crisis responses and reputations, most people tend to seek supplemental information from a variety of official and unofficial channels (Westerman et al., 2014). Online news, commentary, and conversations often contain alternate accounts of an ongoing crisis; depending on the source and content, these accounts can potentially reduce crisis managers' reputations and deter public compliance with their ordinances. For example, while news organizations generally cover natural disasters accurately, their framing of crises as dramatic, singular events fails to place the government's performance in a broader context and can dilute public perceptions of risk (Lerbinger, 2012; Miller & Goidel, 2009). Moreover, news media are subject to institutional biases that may

result in skewed reporting, misattribution of blame, or the promotion of false narratives, all of which can mislead affected publics (Miller & Goidel, 2009). Individuals, too, may latch onto or create false narratives, spreading them among friends and strangers (Zhao et al., 2018). Research has shown that during crises, people propagate misinformation both knowingly and unknowingly, some to fill knowledge gaps, others to deliberately sow confusion and distrust (Del Vicario et al., 2016; Lewandowsky et al., 2012; van der Meer & Jin, 2020). Conflicting crisis narratives, rumors, and other falsehoods can further distort public perceptions of crisis response and dissuade at-risk individuals from behaving safely and appropriately, marking these issues as serious concerns for scholars and practitioners alike (Lachlan et al., 2017).

Research has demonstrated that the careful scrutiny of issue-relevant arguments affects both the perceived veracity of information and subsequent perceptions of involved organizations (Choi & Chung, 2013; Choi & Lin, 2009; McDonald et al., 2010). Considering these findings, the author proposes the following:

> H_7: As central processing increases and peripheral processing decreases, so does the likelihood that an individual will perceive the source of factual information as (a) trustworthy and (b) reputable.

Crisis Narratives

Narratives play an important role in crisis communication from both organizational and stakeholder perspectives (Coombs & Holladay, 2018; Heath, 2004). Generally, a *narrative* is "recognized to be a way of ordering and presenting a view of the world through a description of a situation involving characters, actions, and settings" (Foss, 1996, p. 400). Upon first glance, people may consider a narrative to simply be a descriptive recounting of events, but it also functions as an argument used to view and understand the world a certain way (Foss, 1996; Heath, 2004). A narrative is "a series of statements that is expected to present a factually accurate, coherent, and probable account for the event and its proper resolution" (Heath, 2004, p. 168), that can help a critic can understand the argument being

made and the likelihood that it will be successful in gaining adherence for its presented position (Foss, 1996).

Providing instructing information and implementing crisis responses are strategies communicators use to reinstate the narrative of continuity and win audiences' confidence and support (Heath, 2004). Yet *crisis narratives* do not derive solely from organizational narrators, but are co-created by organizations, commentators, and key publics seeking a rational explanation for an event (Chewning, 2015; Heath, 2004). Crisis narratives open the overall discourse and enable public relations practitioners, media members, stakeholders, affected publics, and observers to collectively make sense of a crisis (Heath, 2004). Even those not directly impacted by a crisis may experience psychological proximity to the victims simply by consuming crisis narratives (Seeger & Sellnow, 2016). For those who experience disasters firsthand, crisis narratives provide "a perfect framework for understanding the past, knowing what is occurring in the present, and projecting action and events into the future" (Heath, 2004, p. 173).

In contrast, Tyler (2005) warned that crises rarely unfold in an orderly, linear fashion and described the creation of crisis narratives as a "public contest" in which "competing narratives . . . erupt to counter the dominant narrative" (p. 567). Thus, crisis narratives can empower otherwise marginalized publics by empowering them to enter the dialogue (Waymer & Heath, 2007). But, as stated by Miller and Goidel (2009), "The power to give meaning to a story is great, but the power to create misunderstanding is just as great" (p. 271). Organizations and individuals alike may concoct unethical narratives to sway public opinion, unduly assign or avoid blame, and spread inaccurate information (Clementson, 2020). This strategy is effective because people tend to believe and absorb narratives that align with their preexisting attitudes and values, regardless of the narrative's veracity (Heath, 2004). In his early conceptualizations of the narrative paradigm, Fisher (1985) argued that humans are narrative beings (*homo narrans*) fundamentally drawn to and profoundly affected by storytelling. Therefore, the most persuasive or influential message is often not the most rational or factual, but instead a compelling narrative that flows smoothly, triggers emotional reactions, and convinces the audience to take action (Dainton & Zelley, 2005).

In this sense, crisis narratives can potentially derail practitioners' communication efforts by diminishing the salience of risks and predisposing affected publics against following governmental guidance. Individuals enact narratives by spreading negative word of mouth, often on social media, which can reach broad audiences and influence public attitudes toward an organization (Coombs & Holladay, 2007; Utz et al., 2013). To manufacture credibility, creators of false narratives draw information from trustworthy sources and manipulate it to reinterpret reality (Introne et al., 2018). False narratives built on themes of chaos, irresponsibility, and ineptitude are particularly damning for governmental agencies, whose ideal narratives assume orderliness and benefits (Heath, 2004). Even so, agencies and organizations may hesitate to cultivate crisis narratives of their own, deterred by an indiscriminate aversion to persuasive strategies (Heath, 2004). But, as Heath (2004) pointed out, "A crisis response that merely includes details of the present misses the rhetorical exigency of addressing the past, present, and future" (p. 178). Purely providing basic facts may persuade some, but is more likely to leave people questioning whether they should trust the communicator and accept their guidance (Rainear et al., 2018).

Statistical, Narrative, and Visual Evidence

In the persuasion paradigm, narratives can also serve as *evidence*, or material designed to bolster the premise of an argument (Boster et al., 2000). Scholars in several fields have sought to determine which type of evidence—narrative or non-narrative—is more effective at shaping beliefs, attitudes, and behaviors, albeit with varying results (Zebregs et al., 2015). The most frequently tested type of non-narrative evidence is *statistical evidence*, which refers to the use of factual assertions and abstract data, such as percentages, to persuade message receivers that they are likely to be affected by a problem (de Wit et al., 2008). *Narrative evidence* refers to the use of case stories or examples, such as first-person accounts of an experience, to boost the credibility and relatability of the communicator's claims (Allen & Preiss, 1997; de Wit et al., 2008). Many studies directly comparing statistical and narrative evidence feature health communication issues, such as exercising (Gray & Harrington, 2011), using tanning beds (Greene & Brinn, 2003; Greene et al., 2010; Limon &

Kazoleas, 2004), wearing seatbelts (Kazoleas, 1993), sexual risk behavior (de Wit et al., 2008), and avoiding fetal alcohol spectrum disorder (Yu et al., 2010). All told, these studies found that statistical evidence had a stronger influence on beliefs and attitudes, whereas narrative evidence had a stronger influence on risk perceptions and behavioral intentions (Zebregs et al., 2015). Overall, audiences may find narrative communication more personal, realistic, and memorable than non-narrative messages (Hinyard & Kreuter, 2007). This is likely due to the perceived vividness of narrative evidence, or the ability of a narrative to attract attention and inspire the imagination (Nisbett & Ross, 1980).

Although vividness is typically conceptualized as a written or verbal communication attribute, photographs, videos, and other images facilitate fluid encoding of visual memories and may arguably be more vivid than even the most riveting narrative (Taylor & Thompson, 1982). Building on the description of an *image* as a "social fact that may be applied as evidence to the task of historical or social analysis" (Morgan, 2009, p. 9), the present study defines *visual evidence* as the use of an image or images to persuade message receivers that certain conditions exist. In their review of experimental vividness literature, Taylor and Thompson (1982) uncovered only modest support for the greater persuasive impact of visual evidence over other evidence types. Although images directly represent reality and thus can enhance a message's credibility (Messaris & Abraham, 2001), they may also divert attention from actual arguments (Frey & Eagly, 1993). Taylor and Thompson (1982) concluded that the persuasiveness of visual evidence likely depends on the interaction of multiple variables, such as the message recipient's preexisting attitudes, the perceived personal relevance of the message or issue, and other judgments about the message. This echoes the ELM's assumption that examinations of persuasion must address the cognitive processes by which attitudes change. Despite the increasing presence of images in the modern information sphere, research has neglected testing the persuasiveness of visual evidence (Hameleers et al., 2020).

Few researchers have empirically tested the persuasive effects of statistical, narrative, and visual evidence in the crisis communication context. In a recent experiment conducted by Clementson (2020), subjects watched the interview of a spokesperson explaining a racially

charged crisis situation using either narrative or non-narrative responses. Overall, the use of non-narrative information bolstered the spokesperson's perceived credibility and trustworthiness, prompting the researchers to conclude that non-narrative information "may be less engrossing than a narrative, but casts a sweeping impression of the company's crisis response" (p. 7). While these results suggest that organizations embroiled in scandals may benefit from a facts-focused approach, Clementson's (2020) study did not explore the impact of different evidence types in non-causality crises like natural disasters.

A fundamental part of successful crisis communication is understanding how publics react to information, including negative word of mouth about involved agencies, false crisis narratives, rumors, and other specious claims (Coombs, 2007). As noted by persuasion and argumentation scholars, it may be enlightening to examine organizational crisis messages and contradictory public responses using a normative approach (Hoeken et al., 2020). Based on normative criteria, instructing information from a government agency qualifies as an *argument from consequences*, which Walton (1996) defines as "a species of practical reasoning where a contemplated policy or course of action is positively supported by citing the good consequences of it" (p. 75). Conversely, false crisis narratives, rumors, and other specious claims can be viewed as *counterarguments*, or complaints and attacks against an organization's attributes or performance (Hoeken et al., 2020). The persuasive effect of evidence depends on the amount and intensity of cognitive processing of the presented arguments (Reinard, 1988). It is uncertain, however, whether evidence maintains the same persuasive potency when used to support false claims.

Due to the conflicting findings of studies testing the persuasiveness of evidence types, the author will explore the effects of statistical, narrative, and visual evidence on multiple variables within the crisis communication context by asking:

> RQ_1: How do different evidence types affect (a) cognitive processing, (b) attitudes, (c) behavioral intentions, and perceptions of (d) argument credibility, (e) organizational trustworthiness, and (f) organizational reputation?

Social Media Usage During Crises

More people than ever are turning to online sources for news and crisis updates; 68% of U.S. adults get news on *social media*, which are digital tools and applications that facilitate interactive communication and content exchange among and between audiences and organizations (Liu et al., 2011; Shearer & Matsa, 2018). There are two broad categories of social media sites and applications: content-oriented and user-oriented (Pallis et al., 2011). Content-oriented social media like Twitter and YouTube focus on users' shared interests, whereas user-oriented social media like Facebook and LinkedIn focus on users' social relationships (Yoo et al., 2020). Publics and organizations use a variety of both content-oriented and user-oriented social media to communicate during crises.

Crisis communication literature distinguishes two main reasons people use social media during crises: to access important information and to discuss the crisis with others (Austin et al., 2012; Choi & Lin, 2009; Procopio & Procopio, 2007). Audiences are drawn to the unfiltered, up-to-the-minute crisis coverage uniquely available on social media (Procopio & Procopio, 2007). The appeal intensifies when affected publics perceive a deficit of timely, relevant information from traditional media or government agencies (Yoo et al., 2020). Publics who actively use social media during crises may assign a higher level of credibility to social media coverage than to traditional coverage (Procopio & Procopio, 2007; Sweetser & Metzgar, 2007). Aside from the access to insider information, audiences also use social media for emotional support and crisis recovery (Choi & Lin, 2009). When Typhoon Haiyan ravaged the Philippines in November of 2013, survivors used social media to tell friends and family they were alive, to participate in collective sense-making of the disaster, and to document and memorialize their feelings and experiences (Tandoc & Takahashi, 2017). Social media provide informal channels through which people can share important information, express opinions about organizational responses, or construct and spread crisis narratives (Austin et al., 2012).

From the organizational perspective, social media enables communicators to inform and interact with immense, diverse groups of stakeholders and publics (Bennett & Iyengar, 2008). Jin and Liu's (2010) social-mediated crisis communication (SMCC) model describes

interaction between an organization in crisis and three types of publics: influential social media creators who post crisis information for others to consume, social media followers who consume the influential social media creators' crisis information, and social media inactives who may consume influential social media creators' crisis information indirectly through traditional media or word-of-mouth communication. Organizations can extend their reach by identifying key influencers and encouraging them to amplify and share crisis messages (Palen et al., 2010).

During crises, organizational communicators also use social media to gather pertinent information from affected publics and citizen journalists. Crowdsourcing is especially useful during natural disasters that damage critical infrastructure and hinder first responders from locating and helping people in need (Harrison & Johnson, 2019). User-generated content is readily available for use by crisis managers, journalists, and social media influencers (Kaplan & Haenlein, 2010; Loukis & Charalabidis, 2015). Although Loukis and Charalabidis (2015) characterized most social media crowdsourcing as a passive activity, some disasters have prompted organizations to incisively request information from affected publics. After the 2010 Haiti earthquake, the Ushahidi-Haiti Project drew information from Twitter, Facebook, and blogs to create an interactive crisis map, providing emergency responders critical information about people's needs and whereabouts (Heinzelman & Waters, 2010).

While social media are indisputably useful crisis communication tools, they also present risks to all who use them (Coombs, 2014b). Coombs (2014b) described social media as the "driving force in the bleeding edge of crisis communication," (p. 2) asserting that social media have not yet been fully tested and therefore are unreliable. In an analysis of socially mediated crisis management studies, Cheng (2018) indicated a dearth of research closely examining online interactions between organizations and publics. According to Cheng (2018), existing literature does not specify how textual, visual, or mixed messages of differing valence (positive, negative, or neutral) impact the overall interactions and relationships on social media. Additionally, Cheng et al. (2017) argued that because of the fast-paced flow of information on social media, timing is paramount. One ill-timed or

imprudent message can snowball into a social media crisis rife with customer service issues, venting, and challenges to an organization's reputation (Coombs, 2014b).

Rumors on Social Media

On social media, accurate crisis information competes with specious commentary, counterarguments, false narratives, rumors, and conspiracy theories for people's attention and trust (Southwell et al., 2018; van der Meer, 2018). *Misinformation*, all false and inaccurate information, is particularly dangerous in crisis situations (Coombs, 2014a; Lewandowsky et al., 2012). Unconfirmed crisis information triggers negative emotions, while incomplete crisis information induces confusion and misunderstanding (Keim & Noji, 2011; Liu & Kim, 2011). Individuals must discern the veracity of information on social media and decide how to react to it (van der Meer & Jin, 2020). Collective belief in misinformation can lead to poor decision-making that harms society at the micro and macro levels (Lewandowsky et al., 2012). Not only does misinformation influence the decisions and behaviors of at-risk publics, it can tarnish the reputations of responding organizations (Coombs, 2007). During a natural disaster, misinformation may distract from legitimate messaging, erode trust in government agencies, and affect attitudes toward complying with official guidance.

According to a 2018 Department of Homeland Security report, misinformation on social media most often stems from four underlying issues: incorrect information (both intentional and unintentional), insufficient information, opportunistic disinformation, and outdated information. The resulting falsehoods may evoke uncertainty in governmental guidance, exploit emotional situations, or redirect attention from real issues to false narratives (Department of Homeland Security, 2018). While not all misinformation is malicious, social media users may feel less pressure to report factually due to the medium's perceived anonymity (Hameleers et al., 2020). People are eager to pass on information that will evoke an emotional response in the recipient, regardless of its accuracy (Lewandowsky et al., 2012). As Seeger et al. (2003) argued, "truthfulness, honesty, deception, and even lying become even more complex moral issues during a crisis" (p. 234).

Rumors run rampant during crises and can be particularly problematic for both practitioners and publics, as they clutter the information environment with speculative half-truths and undermine legitimate guidance (DiFonzo & Bordia, 2007; Na et al., 2018; Simon et al., 2016). *Rumors*, which DiFonzo and Bordia (2007) define as "unverified and instrumentally relevant information statements in circulation that arise in contexts of ambiguity and that function primarily to help people make sense and manage threat" (p. 273) are essentially persuasive claims that can be either true or false. Rumor mongers often support their claims with statistical evidence to make messages appear unbiased and truthful (Fragale & Heath, 2004; Krafft & Donovan, 2020), or use visual evidence to reinforce the credibility of false information (Hameleers et al., 2020). Hameleers et al. (2020) described how people pair real visuals with misleading text, reframe or crop visuals to highlight certain aspects of issues, manipulate visuals to present a different reality, and fabricate content by pairing manipulated images with manipulated text. Deceptive imagery that circulated on social media during Hurricane Harvey included old photos from previous flooding disasters, a picture of airplanes purportedly underwater at a Houston airport, and a doctored photo of a shark rumored to be swimming on a flooded Houston freeway (Gillin, 2017; Van Dyke et al., 2017).

Misleading images, rumors, false narratives, and other forms of misinformation are difficult for crisis communicators to control, especially if the falsehoods go viral on social media (Lovari & Bowen, 2020; Vraga & Bode, 2018). However, in times of uncertainty, people searching for personally relevant information are generally quite willing to "ferret out the facts" (DiFonzo, 2010, p. 1132) as long as their motivation is high. For example, despite the tendency of highly motivated participants in Tandoc's (2019) study to rate their own Facebook friends as more credible than a news organization, they rated news articles as more credible when posted by a news organization than when shared by friends. In ELM terms, if one's motivation and ability to process information are high, one may successfully differentiate even the most persuasive rumors and falsehoods from the truth. But if one is unable or unmotivated to elaborate misinformation along the central route, they may turn to peripheral processing to cope with information overload and uncertainty (Sundar, 2008).

Social networking sites present users with a wide array of potential peripheral cues, including user interface features, profile pictures, icons, navigational features, and engagement metrics (Cyr et al., 2018; Goh & Chi, 2017).

Majority Influence

In their explication of peripheral cues, Petty and Cacioppo (1986) described the formative role of the number of message sources in enhancing motivation to process a message. The more people who appear to endorse a position or argument, the more correct it seems. People may adopt the majority view out of a desire to hold a correct opinion (Festinger, 1954) or to alleviate conformity pressure (Asch, 1951; Latané & Wolf, 1981). While Petty and Cacioppo (1986) asserted that the opinions of others typically serve as peripheral cues, the appearance of several people endorsing a message may sometimes evoke curiosity and motivate central processing. Ultimately, the power of multiple sources to enhance elaboration depends on their perceived informational independence and the divergent perspectives they presumably represent (Petty & Cacioppo, 1986).

The number of message sources is especially relevant in the context of social networking sites, which revolve around social influence and provide channels for expressing independent, divergent perspectives. Adapting Pee and Lee's (2016) conceptual definition, this study considers the opinion of others in terms of *majority influence*, which reflects the extent to which most people in a group agree about an issue (Nemeth, 1986). On social media, majority influence manifests in the number of likes, shares, and comments associated with content (Pee & Lee, 2016). Social media users may perceive posts with high engagement metrics as widely validated and therefore more reliable (Chaiken & Maheswaran, 1994). This aligns with the concept of social proof, which describes the process by which individuals facing uncertainty determine appropriate behavior by examining the behavior of others (Cialdini, 1993). Based on this principle, majority influence may play an important role in crisis situations, wherein people make difficult decisions in uncertain conditions. Troublingly, people sometimes trust social endorsements, even those from strangers, more than their own first-hand knowledge or personal feelings about information

they encounter on social media (Metzger & Flanagin, 2013). Previous research has discovered effects of majority influence, also called bandwagon cues, on the persuasiveness of online ads (Li et al., 2020), the source credibility of health messages on Twitter (Lee & Sundar, 2012; Lin et al., 2016), as well as a reverse "snob" effect of bandwagon cues on organizational trust (Lin & Spence, 2019).

Personal relevance may be the main determinant of majority influence's impact. Such was the case in Pee and Lee's (2016) study investigating trust in user-generated social media content during the Fukushima Daiichi nuclear crisis. The authors found that social media users were more affected by majority influence than information quality, especially when crisis information lacked personal relevance (Pee & Lee, 2016). It is unclear whether majority influence associated with spurious social media content would elicit central or peripheral processing, and whether personal relevance would remain a determining factor. Under certain circumstances, high motivation to scrutinize information may not preclude peripheral processing of that information, but rather may supplement it, yielding mixed results (Metzger & Flanagin, 2013).

Due to the paucity of research testing the persuasive power of majority influence in the crisis communication context, the present study inquires:

> RQ_2: How does majority influence affect (a) cognitive processing, (b) attitudes, (c) behavioral intentions, and perceptions of (d) argument credibility, (e) organizational trustworthiness, and (f) organizational reputation?

METHOD

To empirically determine how individual attributes, cognitive processing, and persuasive message features impact attitudes and behavioral intentions in the crisis communication context, the researcher conducted an online experiment. The 3 × 2 (statistical vs. narrative vs. visual evidence × high vs. low retweets/likes) factorial, between-subjects design contained seven cells (including a control group) and manipulated the independent variables of evidence type and majority influence. Participants read a priming scenario about a fictional hurricane followed by one or two related tweets. The first tweet contained guidance from a government agency and was consistent across all experimental cells. The second tweet contained a false counterargument featuring different evidence types and manifestations of majority influence. Subjects in the control group saw only the priming scenario and the first tweet. All participants completed a pretest and posttest questionnaire.

SAMPLE

Prior to conducting the experiment, the researcher obtained approval from the Human Subjects Review Board via the Institutional Review Board. The researcher used a convenience sample collected from a diverse pool of students enrolled at a large southwestern public university (N = 477). The median participant was female (79.7%, n = 380), White (50.3%, n = 240), 20 years old (SD = 3.90), had completed high school (64.2%, n = 306), and identified as a Democrat (59.5%, n = 284).

On average, study participants reported using social media 3 to 6 hours daily (59.7%, n = 285) for either personal reasons (57.2%, n = 273) or a mixture of personal and business-related activities (41.1%, n = 196). Regarding social media platforms, participants expressed a preference for Instagram (92.5%, n = 441), Snapchat (80.3%, n = 383), TikTok (57.7%, n = 275), and Twitter (57.2%, n = 273). When asked about their news consumption habits, 42.3%

of participants (*n* = 202) reported checking the news several times a day, followed closely by the 34.4% (*n* = 164) who reported consuming news once a day. As expected from this young adult sample, most of the participants said they seek routine news from speaking to people they know (84.9%, *n* = 405), online sources like CNN, FOX, or the Washington Post (60%, *n* = 286), and Twitter (55.3%, *n* = 263). When asked about their preferred news sources during times of crisis, participants listed online news sites as their top choice (74.8%, *n* = 357), followed by talking to others (69.9%, *n* = 332), and Twitter (59.3%, *n* = 283).

According to these demographic measures, this study's sample largely consisted of avid social media users with a hearty appetite for news. This aligns with the general snapshot of young adults in the U.S., for whom social media is an increasingly popular news source (Shearer, 2018). As a matter of course, young Americans are exposed to misinformation on social media more frequently than other demographic groups and, depending on their media literacy or cognitive tendencies, may be at a higher risk of falling prey to falsehoods. Due to dwindling trust in the government, young adults may also be more susceptible to anti-government arguments, no matter their veracity. A 2019 Pew Research Center report on distrust found that U.S. adults under 30 are significantly less confident about the military, religious leaders, business leaders, and police officers than are people 50 and older (Rainie & Perrin, 2019). According to the same report, nearly half of young adults (46%) also tend to generally distrust other people, raising questions about how this sample would interpret opposing arguments in the crisis communication context. Given their propensity to consume news online and tendency to distrust institutions and individuals, young adults were an appropriate target population for this study.

DESIGN

Inspired by the events of Hurricane Harvey, a disaster during which rumors circulated widely on social media, the researcher designed an experiment to test the persuasiveness of misinformation in the crisis communication context. The researcher specifically chose a natural disaster scenario to focus more on public safety and behavioral intentions than reputational damage.

After taking the pretest questionnaire, all participants read a priming scenario that described the fictional Hurricane Alice, a slow-moving Category 4 hurricane that had made landfall nearby and was unleashing record-breaking rainfall across the region. The scenario asked participants to imagine they were using a trending hashtag (#HurricaneAlice) to search for pertinent information on Twitter. The researcher featured Twitter because it is commonly recognized as a source of misinformation on social media (Castillo et al., 2011; Starbird et al., 2014; Vosoughi et al., 2018), and was a hub of false claims during Hurricane Harvey (Van Dyke et al., 2017). Because linkages on Twitter are based on weak ties, users of the platform are unlikely to know each other offline and are driven more by information-seeking than social needs (Valenzuela et al., 2018). As a result, Twitter more closely resembles an information broadcasting site than a traditional social networking site and is useful for testing the persuasiveness of arguments during a crisis (Pee & Lee, 2016).

All participants read a tweet by the Coast Guard that included a rescue tally, emergency contact information, and specific instructions for people endangered by flooding. To bolster the message's realism, the researcher adapted an actual tweet posted by the Coast Guard during Hurricane Harvey. The experimental tweet also featured the same engagement metrics (likes and retweets) and photograph as the real Coast Guard tweet. Participants not in the control group read a randomly assigned second tweet, a counterargument against the Coast Guard's message posted by an average Twitter user. All versions of the counterargument used different types of false evidence to support the claim that the government does not care and people should not follow the Coast Guard's instructions.

During Hurricane Harvey, social media users spread unconfirmed rumors, created false narratives, and purposely distributed outdated images to garner attention, generate confusion, and lambast government agencies (Van Dyke et al., 2017). Echoing this mixture, the researcher manipulated experimental counterarguments by using either statistical, narrative, or visual evidence to support the messages' claims. While the fictional Twitter user's motives were not apparent, all counterarguments consisted of false evidence and therefore qualified as misinformation. The researcher also manipulated the levels of majority influence, or engagement metrics, associated with the counterarguments. The tweets featured

either high or low amounts of retweets and likes, which allowed the researcher to test the effects of majority influence on cognition, perceptions, attitudes, and behavioral intentions.

INSTRUMENT

The pretest measured subjects' need for cognition, media literacy, and attitude toward complying with governmental guidance, whereas the posttest measured message elaboration, resultant attitude, personal relevance, behavioral intentions, perceptions of message credibility, organizational trustworthiness and reputation, and the scenario's realism and plausibility. All participants completed the same pretest and posttest, regardless of cell assignment.

Need for Cognition

According to Petty and Cacioppo (1986), NFC is a formative individual differences variable that affects one's motivation to process arguments centrally or peripherally. Measuring NFC may uncover chronic differences among people in elaboration likelihood prior to the presentation of a persuasive appeal (Cacioppo & Petty, 1982). To test the influence of persuasive misinformation on participants with different levels of NFC, the researcher employed Cacioppo et al.'s (1984) unidimensional, 18-item scale. The 5-point Likert scale asked participants to indicate whether statements were characteristic of them or what they believe using items such as: *I prefer complex to simple problems*, *I only think as hard as I have to*, and *I usually end up deliberating about issues even when they do not affect me personally* (see Table 1). The 18 items were combined into a reliable index (M = 3.27; SD = 0.58, α = .85).

Table 1. Need for Cognition Means and Standard Deviations

Item	*M*	*SD*
I prefer complex to simple problems.	3.08	1.08
I like to have the responsibility of handling a situation that requires a lot of thinking.	3.38	1.07
Thinking is not my idea of fun. (R)	3.49	1.04
I would rather do something that requires little thought than something that is sure to challenge my thinking abilities. (R)	3.20	1.08
I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something. (R)	3.49	1.08
I find satisfaction in deliberating long and hard for hours.	3.03	1.18
I only think as hard as I have to. (R)	3.14	1.18
I prefer to think about small daily projects to long term ones. (R)	2.80	1.16
I like tasks that require little thought once I've learned them. (R)	2.70	1.11
The idea of relying on thought to make my way to the top appeals to me.	3.60	0.95
I really enjoy a task that involves coming up with new solutions to problems.	3.73	0.98
Learning new ways to think doesn't excite me very much. (R)	3.78	1.02
I prefer my life to be filled with puzzles I must solve.	3.00	1.05
The notion of thinking abstractly is appealing to me.	3.56	1.02
I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.	3.40	1.04
I feel relief rather than satisfaction after completing a task that requires a lot of mental effort. (R)	2.69	1.18
It's enough for me that something gets the job done; I don't care how or why it works. (R)	3.28	1.15
I usually end up deliberating about issues even when they do not affect me personally.	3.56	1.08

Note: Items asked on a 5-point scale, where 1 = *extremely uncharacteristic of me* and 5 = *extremely characteristic of me.*

Media Literacy

Informed by research connecting NFC to media literacy (Austin et al., 2016; Maksl et al., 2015; Metzger et al., 2015; Tully & Vraga, 2018), the author used the 11-item critical consumption portion of Koc and Beirut's (2016) multidimensional new media literacy scale to explore the effects of media literacy on cognition, attitude change, and perceptions of argument credibility. The 5-point Likert scale prompted subjects to rate their media literacy based on items such as: *I can compare news and information across different media environments, I consider media rating symbols to choose which media contents to use,* and *I can assess media in terms of credibility, reliability, objectivity and currency* (see Table 2). The 11 measures were averaged to form a reliable media literacy index (M = 3.84; SD = 0.51, α = .85).

Table 2. Media Literacy Means and Standard Deviations

Item	*M*	*SD*
I can distinguish different functions of media (communication, entertainment, etc.).	4.26	0.75
I am able to determine whether or not media contents have commercial messages.	4.21	0.72
I manage to classify media messages based on their producers, types, purposes, and so on.	3.75	0.93
I can compare news and information across different media environments.	4.12	0.78
I can combine media messages with my own opinions.	4.21	0.70
I consider media rating symbols to choose which media contents to use.	2.97	0.97
It is easy for me to make decisions about the accuracy of media messages.	3.64	0.80
I am able to analyze positive and negative effects of media contents on individuals.	4.05	0.71
I can evaluate media in terms of legal and ethical rules (copyright, human rights, etc.).	3.53	0.89
I can assess media in terms of credibility, reliability, objectivity, and currency.	3.90	0.82
I manage to fend myself from the risks and consequences caused by media contents.	3.72	0.80

Note: Items asked on a 5-point scale, where 1 = *strongly disagree* and 5 = *strongly agree.*

Prior Knowledge and Experience

As outlined by the ELM, the most important ability variable that influences the extent and direction of elaboration is prior knowledge, which refers to one's familiarity, expertise, and experience with an issue (Kerstetter & Cho, 2004). Individuals with high levels of knowledge about an issue are more likely to spend more cognitive effort processing information and reject arguments discrepant with their preconceived views. The researcher used Yoo's (2014) unidimensional, 3-item, 5-point semantic differential scale, which asked

subjects to rate their knowledge of hurricanes based on the following: *not familiar/familiar, don't know/know a lot,* and *unaware/aware* (see Table 3). These measures were summed into a reliable index (M = 2.70; SD = 1.15, α = .89).

Table 3. Prior Knowledge of Hurricanes Means and Standard Deviations

Item	*M*	*SD*
Not familiar / familiar	2.68	1.36
Don't know / know a lot	2.41	1.07
Unaware / aware	3.01	1.34

Note: Items asked on a 5-point semantic differential scale.

To gauge whether participants had prior experience with hurricanes, the author adapted a unidimensional, 3-item scale by Pee and Lee (2016). Participants used a 5-point Likert scale to describe their experience level based on the following items: *I have professional expertise related to hurricanes*, *I have personally experienced the effects of hurricanes*, and *I have spent a lot of time reading about hurricanes* (see Table 4). These three items were averaged into an index (M = 1.53; SD = 0.85, α = .74), which represented an acceptable reliability score.

Table 4. Prior Experience with Hurricanes Means and Standard Deviations

Item	*M*	*SD*
I have professional experience related to hurricanes.	1.35	0.81
I have personally experienced the effects of hurricanes.	1.63	1.24
I have spent a lot of time reading about hurricanes.	1.63	1.06

Note: Items asked on a 5-point scale, where 1 = *extremely uncharacteristic of me* and 5 = *extremely characteristic of me.*

Attitudes Toward Compliance

To determine whether attitude change resulted from the experimental treatment, both the pretest and posttest measured participants' attitudes toward complying with governmental guidance during a crisis. In doing so, the researcher also sought to address complaints from

ELM critics that the theory explains attitude formation rather than change (Carpenter, 2015; Hamilton et al., 1993). The author implemented McCroskey's (1966) general attitude measurement, a unidimensional, 6-item, 5-point semantic differential scale that instructed subjects to rate their attitude using polar adjectives such as: *harmful/beneficial, wise/foolish,* and *negative/positive*. Combining these items into reliable attitude indices, the researcher measured subjects' attitude toward compliance in the pretest (M = 3.34, SD = 0.82, α = .91) and posttest (M = 3.40, SD = 0.79, α = .92). See Tables 5 and 6 for both sets of means and standard deviations.

Table 5. Pretest Attitude Toward Compliance Means and Standard Deviations

Item	*M*	*SD*
Good / bad (R)	3.52	1.00
Wrong / right	3.52	0.96
Harmful / beneficial	3.44	0.96
Fair / unfair (R)	3.05	1.01
Wise / foolish (R)	3.31	0.98
Negative / positive	3.24	3.52

Note: Items asked on a 5-point semantic differential scale.

Table 6. Posttest Attitude Toward Compliance Means and Standard Deviations

Item	*M*	*SD*
Good / bad (R)	3.57	0.96
Wrong / right	3.57	0.85
Harmful / beneficial	3.43	0.96
Fair / unfair (R)	3.16	0.97
Wise / foolish (R)	3.40	0.91
Negative / positive	3.30	0.92

Note: Items asked on a 5-point semantic differential scale.

Message Elaboration

Thought-listing provided the researcher with means to directly measure the extent and direction of subjects' issue-relevant elaboration and was an apt technique for collecting cognitive responses to persuasive materials (Shen & Seung, 2018). Adapting Petty and Cacioppo's (1977) approach, the posttest instructed participants to list all the things they were thinking in the last few minutes—whether favorable, unfavorable, or irrelevant to the tweets. The posttest allotted subjects three minutes to enter individual thoughts into blank boxes. Instead of prompting participants to code their own responses (see Cacioppo et al., 1979), the author and an undergraduate research assistant coded a total of 2,857 thoughts for the amount and valence of issue-relevant thoughts relating to the topic of the advocacy (complying with governmental guidance). The intercoder reliability, conducted on a subsample of 10% (n = 285), yielded a kappa of .80, suggesting substantial agreement between the raters (Cohen, 1960).

The coding scheme consisted of four main categories: positive issue-relevant thoughts (M = 0.43, SD = 0.74), negative issue-relevant thoughts (M = 0.62, SD = 0.96), neutral issue-relevant thoughts (M = 1.33, SD = 1.58), and issue-irrelevant thoughts (M = 3.59, SD = 2.54). *Positive issue-relevant thoughts* included those that reacted positively to the content of either tweet (e.g., "The first tweet sounds really trustworthy and makes sense."), as well as thoughts supportive of complying with the government's instructions during a natural disaster (e.g., "I would definitely go to my roof like the CG said."). *Negative issue-relevant thoughts* included those that challenged the premises, truth value, or fairness of either tweet (e.g., "The second tweet is dishonest and not reliable."), as well as thoughts criticizing or challenging the notion of following the government's guidance during a disaster (e.g., "I would do what is necessary for my family, even if it doesn't agree with government protocol."). *Neutral issue-relevant thoughts* included those that evaluated or reacted to the content of the tweets or the topic of complying with governmental guidance, but without an overt indication of valence (e.g., "How does Mike know those stats?"). *Issue-irrelevant thoughts* included those strictly focused on peripheral cues, such as profile pictures or majority influence (e.g., "The second

tweet did not have many likes or retweets.”), as well as thoughts unrelated to the presented arguments and/or topic of complying with governmental guidance.

To reduce the possibility of extreme scores distorting the findings when comparing the effects of central and peripheral processing, the author created a central processing index (M = 1.84, SD = 2.35) by calculating the difference between all issue-relevant (positive, negative, and neutral) and issue-irrelevant thoughts divided by the sum of total thoughts listed (see Cacioppo et al., 1997). A peripheral processing index was similarly created (M = 3.25, SD = 2.74) for use in data analyses, as was a positive central processing index (M = -0.48, SD = 0.86), negative central processing index (M = -0.25, SD = 1.12), and a neutral central processing index (M = 0.58, SD = 1.79).

Behavioral Intentions

The ELM posits that attitudes resulting from processing issue-relevant arguments on the central route are more resistant to counterarguments and more predictive of behavior. To examine the impact of persuasive misinformation on the elaboration process and gauge whether the evidence types or majority influence affected subjects’ intentions to comply with governmental guidance, the author used Song et al.’s (2014) unidimensional behavioral intentions scale. The 3-item, 5-point Likert scale asked participants to indicate whether the following statements were characteristic of them: *I would intend to comply with the Coast Guard’s recommended actions, It is highly likely that I would follow the Coast Guard’s recommended actions*, and *I would comply with the Coast Guard’s recommendations* (see Table 7). These measures were averaged into a reliable index (M = 4.22, SD = 0.83, α = .93).

Table 7. Behavioral Intentions Means and Standard Deviations

Item	*M*	*SD*
I would intend to comply with the Coast Guard's recommended actions.	4.25	0.85
It is highly likely that I would follow the Coast Guard's recommended actions.	4.20	0.93
I would comply with the Coast Guard's recommendations.	4.23	0.86

Note: Items asked on a 5-point scale, where 1 = *strongly disagree* and 5 = *strongly agree.*

To discern subjects' willingness to share the crisis information presented in the stimuli, the researcher employed a 5-point Likert scale and asked subjects to rate the likelihood that they would retweet the Coast Guard's tweet (M = 3.45, SD = 1.31) and the likelihood that they would retweet Mike Carpenter's tweet (M = 1.99, SD = 1.19).

Personal Relevance

The ELM posits that personal relevance is influential in determining whether an individual processes persuasive arguments along the central or peripheral route. Personal needs, interests, goals, and values can increase the appeal of an issue or message (Zaichkowsky, 1985), which can then promote central processing. Zaichkowsky's (1994) unidimensional, 10-item personal involvement inventory allowed the researcher to measure subjects' perceived personal relevance of experimental stimuli. The 5-point semantic differential scale prompted subjects to rate the experimental crisis information using polar descriptions such as: *important/unimportant, boring/interesting, relevant/irrelevant, means nothing/means a lot to me, appealing/unappealing,* and *worthless/valuable* (see Table 8). These items were averaged into a single index (M = 3.64; SD = 0.67, α = .89).

Table 8. Personal Relevance Means and Standard Deviations

Item	*M*	*SD*
Important / unimportant (R)	3.92	1.02
Boring / interesting	3.81	0.92
Relevant / irrelevant (R)	3.92	0.99
Exciting / unexciting (R)	3.34	0.92
Means nothing to me / means a lot to me	3.31	0.89
Appealing / unappealing (R)	3.52	0.88
Fascinating / mundane (R)	3.49	0.90
Worthless / valuable	3.76	0.89
Involving / uninvolving (R)	3.58	0.90
Not needed / needed	3.73	1.01

Note: Items asked on a 5-point semantic differential scale.

Message Credibility

Neither the priming scenario nor experimental instrument informed participants that any presented tweets contained false information. To assess participants' perceptions of the factual Coast Guard tweet and false counterarguments, the researcher used Appelman and Sundar's (2016) unidimensional, 3-item message credibility scale. Using a 5-point Likert scale, subjects rated the *accuracy*, *authenticit*y, and *believability* of the messages they read. Averaging these items into reliable indices, the researcher measured the credibility of the Coast Guard's message ($M = 3.62$, $SD = 0.84$, $\alpha = .86$), as well as the credibility of Mike Carpenter's message ($M = 2.68$, $SD = 0.93$, $\alpha = .85$). See Tables 9 and 10 for both sets of means and standard deviations.

Table 9. Factual Tweet Credibility Means and Standard Deviations

Item	*M*	*SD*
Accurate	3.50	0.93
Authentic	3.63	0.96
Believable	3.74	0.95

Note: Items asked on a 5-point semantic differential scale.

Table 10. False Rumor Credibility Means and Standard Deviations

Item	*M*	*SD*
Accurate	2.51	0.96
Authentic	2.81	1.07
Believable	2.72	1.14

Note: Items asked on a 5-point scale concerning how well the adjectives described the message, where 1 = *describes very poorly* and 5 = *describes very well*.

Trustworthiness and Reputation

Research suggests that general distrust in the government may affect public compliance with official ordinances during a crisis (Edelman, 2020; Steelman et al., 2015). Touré-Tillery and McGill's (2015) unidimensional, 4-item scale was used to gauge the influence of preexisting attitudes, persuasive misinformation, and message elaboration on perceived trustworthiness. Using a 5-point semantic differential, participants rated the Coast Guard on the following traits: *dishonest/honest, unethical/ethical, phony/genuine,* and *untrustworthy/trustworthy* (see Table 11). These items were combined to form a reliable trustworthiness index (M = 3.97, SD = 0.82, α = .94).

Table 11. Trustworthiness Means and Standard Deviations

Item	*M*	*SD*
Dishonest / honest	4.00	0.88
Unethical / ethical	4.00	0.87
Phony / genuine	3.93	0.91
Untrustworthy / trustworthy	3.96	0.89

Note: Items asked on a 5-point semantic differential scale.

The researcher also employed Coombs and Holladay's (1996) unidimensional, 10-item organizational reputation scale to measure participants' perceptions of the Coast Guard and uncover relationships between persuasion, attitudes, behavioral intentions, message credibility, and reputation. The measure used a 5-point Likert scale and prompted participants to indicate their level of agreement with statements such as: *The Coast Guard is basically honest, The Coast Guard is concerned with the well-being of its publics,* and *I would seek information from the Coast Guard* (see Table 12). The author combined these measures into a reliable organizational reputation index ($M = 3.97$, $SD = 0.68$, $\alpha = .91$).

Table 12. Organizational Reputation Means and Standard Deviations

Item	*M*	*SD*
The Coast Guard is basically honest.	3.79	0.88
The Coast Guard is concerned with the well being of its publics.	4.15	0.84
I do trust the Coast Guard to tell the truth about an incident.	3.81	1.03
I would prefer to have NOTHING to do with the Coast Guard. (R)	3.86	0.96
Under most circumstances, I WOULD NOT be likely to believe what the Coast Guard says. (R)	3.96	0.93
The Coast Guard is basically DISHONEST. (R)	4.10	0.88
I do NOT trust the Coast Guard to tell the truth about an incident. (R)	3.99	0.94
Under most circumstances, I would be likely to believe what the Coast Guard says.	3.91	0.89
I would seek services or assistance from the Coast Guard.	4.08	0.82
The Coast Guard is NOT concerned with the well being of its publics. (R)	4.06	0.92

Note: Items asked on a 5-point scale concerning participants' impressions of the organization, where 1 = *strongly disagree* and 5 = *strongly agree*.

Plausibility and Realism of Stimuli

The researcher adapted Cho et al.'s (2014) unidimensional, 5-item plausibility scale to gauge how realistic subjects deemed the experimental tweets and overall scenario. Using a 5-point Likert scale, participants rated the stimuli on the following traits: *The tweet(s) described something that could possibly happen in real life, Events in the tweet(s) portrayed possible real-life situations, The story in the tweet(s) could actually happen in real life, Never in real life would what was described in the tweet(s) happen,* and *Real people would not do the things described in the tweet(s)* (see Table 13). These items were combined to form a reliable plausibility index (M = 4.24, SD = 0.78, α = .90).

Table 13. Plausibility Means and Standard Deviations

Item	*M*	*SD*
The tweet(s) described something that could possibly happen in real life.	4.36	0.83
Events in the tweet(s) portrayed possible real-life situations.	4.34	0.83
The story in the tweet(s) could actually happen in real life.	4.36	0.79
Never in real life would what was described in the tweet(s) happen. (R)	4.11	1.06
Real people would not do the things described in the tweet(s). (R)	4.07	1.07

Note. Items asked on a 5-point scale, where 1 = *strongly disagree* and 5 = *strongly agree.*

Additionally, the researcher included a single item that asked subjects to rate the realism of the presented crisis scenario using a 5-point Likert scale ($M = 4.26$, $SD = 0.86$).

RESULTS

MANIPULATION CHECKS

To gauge the effectiveness of the manipulated independent variables (evidence type and majority influence) and ensure subjects paid adequate attention, the researcher employed two factual manipulation checks during the posttest questionnaire (see Kane & Barabas, 2019).

For evidence type, the first manipulation check asked participants to select the most fitting description of the tweet(s) they read: "In this study, I saw:" (1) "Only a tweet by the Coast Guard."; (2) "A tweet by the Coast Guard followed by another tweet in which someone used a PERCENTAGE to contradict the Coast Guard."; (3) "A tweet by the Coast Guard followed by another tweet in which someone told a DETAILED PERSONAL STORY to contradict the Coast Guard."; (4) "A tweet by the Coast Guard followed by another tweet in which someone posted a PICTURE to contradict the Coast Guard."; or (5) "I don't remember." Chi-square tests revealed that, in each evidence type condition, the greatest number of subjects chose the matching description: 94.1% of those in the control group chose answer (1); 71% in the statistical evidence group chose answer (2); 84.4% in the narrative evidence condition chose answer (3); and 84.4% in the visual evidence condition chose answer (4). The difference was statistically significant, x^2 (12, N = 476) = 936.53, p < .001.

For level of majority influence, the second manipulation check prompted subjects to select the most fitting description of the tweet(s) they read: "In this study, I saw:" (1) "Only a tweet by the Coast Guard."; (2) "A tweet by the Coast Guard followed by another tweet that had LESS THAN 50 retweets and 50 likes."; (3) "A tweet by the Coast Guard followed by another tweet that had MORE THAN 50 retweets and 50 likes."; or (4) "I don't remember." Chi-square tests revealed that, in each majority influence condition, the greatest number of

subjects chose the matching description: 83.8% of those in the control group chose answer (1); 77.7% in the low majority influence group chose answer (2); and 77.6% in the high majority influence group chose answer (3). The difference was statistically significant, χ^2 (6, N = 475) = 598.92, $p < .001$.

These results suggest that participants paid sufficient attention and that the manipulations for evidence type and majority influence were successful.

PRELIMINARY ANALYSIS

Before analyzing each hypothesis and research question, the author calculated an attitude change index by subtracting subjects' pretest attitude scores from their posttest attitude scores. Attitude change scores ranged from -2.50 to 2.17 (M = 0.05, SD = 0.58). Similarly, the author computed a credibility difference score by subtracting the overall perceived credibility of misinformation from the overall perceived credibility of factual crisis information. Credibility difference scores ranged from -4.00 to 4.00 (M = 0.96, SD = 1.43). Additionally, the author conducted an overall Pearson product-moment correlation of all major variables to discern relationships between constructs (see Table 14).

Table 14. Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. NFC	—	.29**	.07	.05	-.00	.00	.10*	-.08	-.02	.06	.16**	-.02	.07	-.06	.05	.10*
2. ML	.29**	—	.17**	.13**	.03	.11**	-.04	-.01	.07	.19**	.14**	-.14**	.20**	-.11*	.23**	.26**
3. PR	.07	.17**	—	.06	.00	.09*	-.01	.16**	.21**	.16**	.23**	.01	.23**	.02	.23**	.28**
4. PK	.05	.13**	.06	—	.54**	.07	.00	.07	.08	.03	.10	.00	.15**	-.05	.09*	.14**
5. PE	-.00	.03	.00	.54**	—	.02	-.00	.04	.03	-.10*	.00	.04	.08	-.05	.00	-.03
6. CEN	.00	.11*	.09*	.07	.02	—	-.54**	.05	.06	.02	-.00	-.07	.04	-.01	.03	.08
7. PER	.10*	-.04	-.01	.00	-.00	-54**	—	-.00	.01	-.02	-.01	.00	-.01	-.02	.00	.02
8. ATT1	-.08	-.01	.16**	.07	.04	.05	-.00	—	.74**	.20**	.12**	-.11*	.15**	-.10*	.28**	.29**
9. ATT2	-.02	.07	.21**	.08	.03	.06	.01	.74**	—	.29**	.17**	-.28**	.31**	-.26**	.41**	.41**
10. BI	.06	.19**	.16**	.03	-.10*	.02	-.02	.20**	.29**	—	.31**	-.31**	.47**	-.26**	.46**	.56**
11. RT1	.16**	.14**	.23**	.10*	.00	-.00	-.01	.12**	.17**	.31**	—	.01	.37**	-.21**	.32**	.34**
12. RT2	-.02	-.14**	.01	.00	.04	-.07	.00	-.11*	-.28**	-.31**	.01	—	-.29**	.56**	-.35**	-.37**
13. CR1	.07	.20**	.23**	.15**	.08	.04	-.01	.15**	.31**	.47**	.37**	-.29**	—	-.33**	.48**	.53**
14. CR2	-.06	-.11*	.02	-.05	-.05	-.01	-.02	-.10*	-.26**	-.26**	-.21**	.56**	-.33**	—	-.31**	-.28**
15. TR	.05	.23**	.23**	.09*	.00	.03	.00	.28**	.41**	.46**	.32**	-.35**	.48**	-.31**	—	.77**
16. REP	.10*	.26**	.28**	.14**	-.03	.08	.02	.29**	.41**	.56**	.34**	-.37**	.53**	-.28**	.77**	—

Note: NFC = Need For Cognition, ML = media literacy, PR = personal relevance, PK = prior knowledge, PE = prior experience, CEN = central processing, PER = peripheral processing, ATT1 = pretest attitude, ATT2 = posttest attitude, BI = behavioral intentions, RT1 = willingness to retweet factual tweet, RT2 = willingness to retweet false rumor, CR1 = credibility of factual tweet, CR2 = credibility of false rumor, TR = trustworthiness, REP = reputation.

$^{*}p < .05$. $^{**}p < .01$.

The Effect of Personal Relevance on Central Processing and Credibility Assessments

According to H1a, the personal relevance of crisis information should increase the likelihood that an individual will carefully process the information along the central route rather than use heuristic cues to evaluate messages peripherally. A Pearson product-moment correlation revealed a weak, positive correlation between personal relevance and central processing, $r(459) = .09$, $p = .037$. Personal relevance and peripheral processing were not significantly correlated. To test H1a further, a bivariate regression analysis was conducted with central processing as a dependent variable and personal relevance as a predictor

variable. Results showed that central processing (r^2 = .00) was significantly predicted by personal relevance (β = .33, p = .037). These results partially supported H1a.

H1b posited that higher personal relevance should motivate individuals to closely evaluate the strength of presented arguments, thus enabling them to perceive factual information as more credible than specious rumors. A Pearson product-moment correlation found a weak, positive correlation between personal relevance and perceived difference in credibility, $r(376) = .11$, $p = .024$. Additionally, a bivariate regression analysis revealed that personal relevance significantly predicted subjects' perception of factual arguments as more credible than false arguments (β = .24, p = .024), with an r^2 of .01. Thus, H1b was supported.

The Disparate Roles of Prior Knowledge and Experience

H2a expected individuals' prior knowledge and experience to contribute to deeper scrutiny of crisis information along the central route to persuasion instead of the peripheral route. Although a Pearson product-moment correlation revealed a moderate, positive correlation between prior knowledge and experience, $r(471) = .54$, $p < .001$, no significant correlations emerged between either of these variables and central processing. Similarly, there were no significant correlations between prior knowledge or experience and peripheral processing. As a result, H2a was not supported.

H2b proposed that individuals who are knowledgeable about and/or experienced with an issue would be better equipped to discern factual crisis information from false rumors than those with low knowledge and/or experience. Using the difference score in perceived credibility, the researcher conducted a Pearson product-moment correlation, revealing a weak, positive correlation between prior knowledge and perceived difference in credibility, $r(379) = .11$, $p = .023$, yet no significant relationship between experience and perceived difference in credibility. A bivariate regression analysis showed that prior knowledge significantly predicted subjects' perception of factual arguments as more credible than false arguments (β = .14, p = .023), accounting for 1% of the variance of this outcome, r^2 = .01. Additionally, a moderator analysis revealed that prior knowledge and experience both

moderated the relationship between central processing and the perceived difference in credibility, albeit in disparate ways. Specifically, the interaction of prior knowledge and central processing (β = -.20, p = .026) negatively predicted the ability to correctly assess credibility, while the interaction of prior experience and central processing (β = .30, p < .001) positively predicted said outcome, accounting for 2% of the variance in credibility assessments (R^2_{adj} = .02).

Only prior knowledge emerged as a direct predictor of perceived difference in credibility between factual and false arguments, yet both prior knowledge and experience exhibited significant moderating effects on the relationship between central processing and credibility assessments. When considered as a moderator, not a direct predictor, prior knowledge had a negative effect on credibility assessments, somewhat contradicting the expectations of H2b. All told, these results partially supported H2b.

The Connection Between NFC and Media Literacy

According to H3, need for cognition and media literacy are positively related. To discover the extent of this relationship, the author conducted a Pearson product-moment correlation and uncovered a positive correlation between NFC and media literacy, $r(464)$ = .29, p < .001. With NFC set as the dependent variable in a bivariate regression analysis, media literacy emerged as a significant predictor (β = .33, p < .001), with an r^2 of .08. In turn, a separate bivariate regression analysis determined NFC was a significant predictor of media literacy (β = .25, p < .001), accounting for 8% of the variance of this outcome, r^2 = .08. Based on these results, H3 was supported.

H4a proposed that NFC would directly motivate individuals to carefully scrutinize information rather than use peripheral cues as assessments of presented arguments. Although a Pearson product-moment correlation revealed a lack of significant correlation between NFC and central processing, the analysis found a weak, positive correlation between NFC and peripheral processing, $r(457)$ = .10, p = .032. The author conducted a bivariate regression analysis and found NFC significantly predicted peripheral processing (β = .46, p = .032), accounting for 1% of the variance of this outcome, r^2 = .01. In a deeper examination of

NFC's connection to central processing, the researcher included the valence-related central processing indices in a Pearson product-moment correlation and found a weak, positive correlation between neutral central processing and NFC, $r(457) = .09$, $p = .040$, as well as a weak, negative correlation between positive central processing and NFC, $r(457) = -.12$, $p = .007$. Bivariate regression analyses found that NFC significantly predicted neutral central processing ($\beta = .29$, $p = .040$), a model in which $r^2 = .009$, and that NFC significantly predicted positive central processing ($\beta = -.18$, $p = .007$), accounting for 1% of the variance of this outcome, $r^2 = .01$. Considering all of the above, H4a was only partially supported.

H4b expected that individuals with higher levels of NFC would be more likely to distinguish factual arguments from false rumors than low-NFC subjects. However, no significant correlations surfaced between NFC and the perceived difference in credibility between factual information and misinformation. These results did not support H4b.

H5a posited that higher levels of media literacy would enable individuals to centrally process information in lieu of using peripheral cues to evaluate arguments. A Pearson product-moment correlation revealed a meager, positive correlation between media literacy and central processing, $r(464) = .11$, $p = .010$. No significant correlation was found between media literacy and peripheral processing. A bivariate regression analysis was conducted with central processing as a dependent variable and media literacy as an independent variable. Results showed that central processing ($r^2 = .01$) was significantly predicted by media literacy ($\beta = .54$, $p = .010$). Due to the lack of negative correlation between media literacy and peripheral processing, these results partially supported H5a.

To test H5b, which posited that individuals with higher levels of media literacy would be better equipped to distinguish between credible, factual information and specious, false rumors, the author conducted a Pearson product-moment correlation and found a small, positive correlation between media literacy and the perceived difference in credibility, $r(381) = .18$, $p < .001$. With the perceived difference in credibility set as the dependent variable in a bivariate regression analysis, media literacy emerged as a significant predictor ($\beta = .50$, $p < .001$), with an r^2 of .03. These results supported H5b.

The Impact of Central Processing on Attitudes and Behavioral Intentions

H6a proposed that as central processing increases and peripheral processing decreases, individuals would be more likely to report attitudes congruent with factual arguments rather than specious rumors. A Pearson product-moment correlation did not reveal significant correlations between central processing, peripheral processing, and attitudes toward compliance. To better understand this finding, the author included the valence-related central processing indices in a Pearson product-moment correlation and found a weak, positive correlation between positive central processing and a positive attitude toward compliance, $r(466) = .16$, $p < .001$. A bivariate regression analysis found that positive central processing significantly predicted positive attitudes toward compliance ($\beta = .14$, $p < .001$), accounting for 2% of the variance of this outcome, $r^2 = .02$. As such, H6a was only partially supported.

According to H6b, individuals who carefully scrutinize information along the central route rather than using peripheral cues would report behavioral intentions aligned with factual arguments rather than false rumors. However, a Pearson product-moment correlation did not reveal significant correlations between central processing, peripheral processing, behavioral intentions, and intentions to retweet presented messages. A more expansive Pearson product-moment correlation uncovered a weak, positive correlation between positive central processing and willingness to retweet factual crisis information, $r(374) = .14$, $p = .004$, as well as a weak, negative correlation between positive central processing and willingness to retweet misinformation, $r(374) = -.13$, $p = .011$. Bivariate regression analyses found that positive central processing significantly predicted willingness to retweet factual information ($\beta = .21$, $p = .002$), a model in which $r^2 = .02$, and that positive central processing significantly predicted willingness to retweet false rumors ($\beta = -.17$, $p = .011$), accounting for 1% of the variance of this outcome, $r^2 = .01$. Considering these results, H6b was only partially supported.

The Impact of Central Processing on Trustworthiness and Reputation

H7a posited that as central processing increases and peripheral processing decreases, individuals would be more likely to perceive the source of factual arguments as trustworthy. A Pearson product-moment correlation did not uncover significant correlations between central processing, peripheral processing, and perceptions of trustworthiness. To investigate this finding, the author included the valence-related central processing indices in a Pearson product-moment correlation and found a weak correlation between positive central processing and trustworthiness, $r(465) = .12$, $p = .007$. A bivariate regression analysis found that positive central processing significantly predicted perceptions of trustworthiness ($\beta = .11$, $p = .007$), accounting for 1% of the variance of this outcome, $r^2 = .01$, which provided only partial support for H7a.

H7b proposed that as central processing increases and peripheral processing decreases, individuals would be more likely to perceive the source of factual arguments as reputable. Although a Pearson product-moment correlation did not uncover significant correlations between central processing, peripheral processing, and organizational reputation, a more expansive analysis found a weak, positive correlation between positive central processing and reputation, $r(456) = .16$, $p < .001$. The author conducted a bivariate regression analysis and discovered that positive central processing significantly predicted organizational reputation ($\beta = .13$, $p < .001$), accounting for 2% of the variance of this outcome, $r^2 = .02$. As a result, H7b only received partial support.

Exploring the Effects of Persuasive Evidence

To answer RQ1, which asked how different types of persuasive evidence (statistical, narrative, and visual) would affect cognitive processing, attitudes, behavioral intentions, and perceptions of argument credibility, organizational trustworthiness, and organizational reputation, the researcher conducted a series of ANOVAs. Analyses did not indicate any main effects on central or peripheral processing (RQ1a) or resultant attitudes toward compliance (RQ1b) based on evidence type. For attitude change, however, an ANOVA revealed main effects, showing statistically significant differences in the amount of reported attitude change,

$F(2, 404) = 4.29$, $p = .014$. Tukey post hoc analyses revealed that subjects who saw narrative evidence ($M = -0.06$, $SD = 0.56$) experienced a significant negative attitude change compared with those who saw statistical evidence ($M = 0.11$, $SD = 0.57$) or visual evidence ($M = 0.10$, $SD = 0.53$). There was no statistically significant difference between the attitude change reported by those who saw statistical evidence and visual evidence, ($p = .995$).

Analyses did not reveal any main effects of evidence types on overall behavioral intentions to comply with government guidance or retweet factual information (RQ1c), but an ANOVA did uncover a main effect of evidence type on subjects' willingness to retweet misinformation, $F(2, 381) = 9.95$, $p < .001$. Tukey post hoc analyses revealed that participants who saw narrative evidence ($M = 2.34$, $SD = 1.30$) were significantly more willing to retweet a false rumor compared with those who saw statistical evidence ($M = 1.69$, $SD = 0.98$) or visual evidence ($M = 1.97$, $SD = 1.20$). There was no statistically significant difference between the retweet intentions of those who saw statistical evidence and visual evidence, ($p = .144$).

For RQ1d, ANOVAs did not show main effects of evidence type on perceived credibility of the Coast Guard's message, but did reveal main effects of evidence type on the credibility of misinformation, $F(2, 376) = 15.52$, $p < .001$. Tukey post hoc analyses showed that subjects who saw narrative evidence ($M = 3.00$, $SD = 0.86$) found misinformation significantly more credible than those who saw statistical evidence ($M = 2.37$, $SD = 0.96$) or visual evidence ($M = 2.65$, $SD = 0.88$). Additionally, those who saw visual evidence ($M = 2.65$, $SD = 0.88$) deemed misinformation significantly more credible than those who saw statistical evidence ($M = 2.37$, $SD = 0.96$). An ANOVA also found a main effect of evidence type on the perceived difference in credibility between factual arguments and false rumors, $F(2, 374) = 9.07$, $p < .001$. Tukey post hoc analyses revealed that participants who saw narrative evidence ($M = 0.56$, $SD = 1.20$) were significantly less likely to perceive a difference in credibility between factual information and misinformation compared with those who saw statistical evidence ($M = 1.29$, $SD = 1.59$) or visual evidence ($M = 1.07$, $SD = 1.41$). There was no significant difference in overall credibility assessment between those who saw statistical evidence and those who saw visual evidence, ($p = .436$). For perceptions

of trustworthiness (RQ1e) and organizational reputation (RQ1f), ANOVAs did not reveal any significant main effects.

Examining the Effects of Majority Influence

To answer RQ2, which asked how different levels of majority influence (low and high numbers of likes and retweets) would affect cognitive processing, attitudes, behavioral intentions, and perceptions of argument credibility, organizational trustworthiness, and organizational reputation, the author conducted a series of independent samples *t*-tests. For cognitive processing (RQ2a), an independent samples *t*-test yielded a significant difference in central processing between those who saw low majority influence ($M = 2.29$, $SD = 2.55$) and those who saw high majority influence ($M = 1.75$, $SD = 2.14$), $t(398) = 2.30$, $p = .022$. No significant differences in peripheral processing emerged. For RQ2b, an independent samples *t*-test revealed a significant difference in attitudes toward compliance between those who saw low majority influence ($M = 3.47$, $SD = 0.78$) and those who saw high majority influence ($M = 3.32$, $SD = 0.79$), $t(407) = 1.96$, $p = .050$. There was no significant difference between the two groups' overall attitude change.

For behavioral intentions (RQ2c), an independent samples *t*-test showed a significant difference in overall behavioral intentions to comply with government guidance between those who saw low majority influence ($M = 4.33$, $SD = 0.73$) and those who saw high majority influence ($M = 4.13$, $SD = 0.89$), $t(407) = 2.53$, $p = .012$. A significant difference in willingness to retweet specious rumors also surfaced between those who saw low majority influence ($M = 1.81$, $SD = 1.13$) and those who saw high majority influence ($M = 2.19$, $SD = 1.22$), $t(382) = -3.10$, $p = .002$. Conversely, there was no significant difference in willingness to retweet factual crisis information between low and high majority groups. Analyses did not reveal any significant differences in perceptions of credibility (RQ2d), trustworthiness (RQ2e), or organizational reputation (RQ2f) based on majority influence.

The Combination of Persuasive Evidence and Majority Influence

To explore whether the combination of each persuasive evidence type (statistical, narrative, and visual) with majority influence (low and high numbers of likes and retweets) may have impacted the aforementioned outcomes disparately, the author ran a series of independent samples *t*-tests comparing low- and high- majority influence versions of each evidence type. For the two statistical evidence groups (statistical evidence/low majority influence, statistical evidence/high majority influence), significant differences emerged in the following dependent variables: central elaboration, $t(133) = 2.69$, $p = .008$, the Coast Guard's credibility, $t(135) = 1.49$, $p = .024$, the credibility of false rumors, $t(127) = -2.37$, $p = .019$, the perceived difference in overall credibility, $t(126) = 2.65$, $p = .009$, behavioral intentions, $t(136) = 2.70$, $p = .008$, willingness to retweet misinformation, $t(131) = -3.09$, $p = .002$, and the Coast Guard's reputation, $t(134) = 2.12$, $p = .036$. For the two narrative evidence groups (narrative evidence/low majority influence, narrative evidence/high majority influence), no significant differences emerged. For the two visual evidence groups (visual evidence/low majority influence, visual evidence/high majority influence), significant differences emerged in the following variables: the Coast Guard's credibility, $t(130) = 1.99$, $p = .048$, and willingness to retweet factual crisis information, $t(133) = 2.45$, $p = .015$.

DISCUSSION

At its core, the driving purpose of this study was to examine the attributes and cognitive processes that affect individuals' attitudes toward compliance, behavioral intentions, and perceptions of factual crisis information and misleading rumors on Twitter. Social networking sites like Twitter represent an increasingly popular source of news and up-to-the-minute crisis updates, especially for young adults, but they also serve as conduits for misinformation (Chen & Cheng, 2019). False rumors can sour attitudes toward complying with governmental guidance and dissuade endangered individuals from taking potentially life-saving actions, such as seeking shelter during a hurricane (Hunt et al., 2020) or receiving a vaccine against a deadly disease (van der Meer & Jin, 2020). From a public relations standpoint, specious rumors can also damage relationships with stakeholders by undermining an organization's trustworthiness and reputation (Coombs, 2007, 2014a).

Guided by the principles of the ELM, the researcher hypothesized the effects of motivation and ability variables on cognitive processing and perceptions of credibility. The first motivational factor tested was personal relevance. As anticipated, the participants who found the presented crisis information more meaningful, interesting, and valuable were more likely to process the information centrally and successfully distinguish between credible arguments and specious rumors. Although the correlation between personal relevance and central processing was statistically significant, personal relevance lacked the large effect size usually associated with this variable (e.g., Petty et al., 1981, 1983). This may be due to the researcher's operationalization of personal relevance as a measured, not manipulated, variable. For example, instead of telling some participants that Hurricane Alice had made

landfall in their local area and others that the hurricane had struck a distant part of the country, as in classic ELM studies, the researcher presented all subjects with the same scenario and measured their levels of involvement and interest in the stimuli. By measuring the perceived personal relevance of information, the author may have tapped into value-relevant, ego-focused involvement more so than outcome-related, situational involvement, or perhaps a mixture thereof (Johnson & Eagly, 1989). Whether they were fueled by intrinsic interest in the stimuli or transported by the hypothetical scenario and its imagined personal consequences, personal relevance motivated this study's participants to think more critically and compare arguments more carefully than those who reported feeling less involved.

By drawing a sample of college students living in the southwestern U.S., the researcher selected a group relatively uninformed and inexperienced with hurricanes. However, the lack of significant correlations between prior knowledge, experience, central processing, and peripheral processing showed that participants' knowledge and experience deficiencies did not affect their cognitive processing style. That is, participants were not significantly more or less likely to carefully scrutinize the presented arguments based on their relative lack of knowledge and/or experience. Furthermore, prior knowledge directly predicted subjects' ability to discern a difference in credibility between factual information and spurious rumors, implying that even modest levels of knowledge about a specific topic can boost one's ability to distinguish between truth and falsehoods on social media. As a moderator, however, prior knowledge exerted a negative influence on overall credibility assessments via its interaction with central processing. This result demonstrates the biasing power of prior knowledge, an effect that is especially pronounced when people encounter a set of messages presenting two sides of an issue, like the opposing tweets presented in this study (Fiske & Taylor, 2013; Petty & Cacioppo, 1986).

Although need for cognition and media literacy were moderately correlated, these variables evinced drastically different effects on central processing and credibility assessments. Instead of directly predicting central processing, NFC predicted peripheral processing, which contradicts the ELM principle that people high in NFC are more likely to laboriously consider the merits of issue-relevant arguments than they are to use heuristic cues like source attractiveness, number of arguments, and audience reactions (Petty & Cacioppo,

1986). This discrepant result may be at least partly due to the imbalance of overall central processing (M = 1.84, SD = 2.35) and peripheral processing (M = 3.25, SD = 2.74) demonstrated by this study's participants, or to stress, anxiety, and other negative emotions evoked by the scenario that hindered central processing, even for high-NFC individuals (Cacioppo et al., 1996). As for credibility assessments, NFC did not correlate with or predict subjects' ability to distinguish factual crisis information from misleading rumors, another result that clashed with ELM postulates. Preexisting, negative attitudes toward complying with governmental guidance may be at play here; although not statistically significant, a negative correlation between NFC and preexisting attitudes ($r(464) = -0.85$, $p = .066$) suggests that those higher in NFC may have been more resistant to the Coast Guard's instructions and less inclined to rate the government agency's message as more credible than an average user's tweet. In contrast, media literacy predicted both central processing and accurate message credibility evaluations, suggesting that in some contexts, the challenge of navigating the quagmire of (mis)information on social media may overwhelm even the cognitive capacity of high-NFC individuals (Kavanagh & Rich, 2018), demanding media literacy skills geared specifically toward critical consumption of digital content (Koc & Barut, 2016).

Based on the foundational ELM principle that attitudes formed along the central route to persuasion are more resistant to change and more predictive of actual behavior, the researcher examined the effects of central processing on attitudes and behavioral intentions pertaining to crisis communication consumed on social media. Overall, central processing did not correlate with or predict positive attitudes toward compliance or behavioral intentions to comply with governmental guidance. When examining the effects of specific subcategories, the researcher found that positive central processing, which consisted of positive, supportive thoughts directed toward message content and/or the topic of complying with the government, predicted positive attitudes and intentions to retweet factual crisis information, as well as reluctance to retweet misinformation. Similarly, while significant relationships between central processing, trustworthiness, and organizational reputation failed to emerge, positive central processing contributed significantly to the Coast Guard's

trustworthiness and repute. These findings emphasize the importance of valence, suggesting that the close scrutiny of arguments alone may not be enough to elicit desirable attitudes, behavioral intentions, and perceptions of an organization when key publics encounter two sides of an argument. Under such circumstances, outcomes of persuasive efforts depend mainly on the predominant valence of the receiver's issue-relevant thoughts (O'Keefe, 2013). Because this study's subjects engaged in positive central processing less than any other type of cognitive processing, the meager support for H6–H7 is unsurprising.

To understand the features that render a rumor more convincing or credible, the researcher tested the effects of statistical, narrative, and visual evidence. Narrative evidence, which was operationalized as an average Twitter user's personal anecdote claiming the Coast Guard had willfully abandoned him and his dogs, arose as the most persuasive of the three evidence types. Participants who read the anecdotal tweet were significantly more likely to experience a negative attitude change toward complying with governmental guidance and more willing to retweet the false rumor than those who read tweets containing specious statistics or photographs. Narrative evidence also greatly influenced participants' credibility assessments; those who read the anecdotal tweet believed it to be significantly more credible than did those who read other tweets. Most troubling, subjects who saw the narrative tweet were significantly worse at discerning a difference in credibility between the factual Coast Guard tweet and the anecdotal rumor. Contrary to prior research (e.g., Zebregs et al., 2015), this study found that narrative evidence affected attitudes and behavioral intentions, completely eclipsing statistical and visual evidence. The vividness, or transportive quality, of the personal anecdote may have been heightened by the crisis scenario, strengthening the anecdote's persuasive power (Nisbett & Ross, 1980). This study's crisis context may have also detracted from the potency of statistical evidence; considering their collective inexperience with hurricanes, participants may not have inferred the relevant benefits and consequences from the data featured in the statistical tweet.

Majority influence, which the author operationalized as low or high numbers of likes and retweets, seemingly functioned as a salient peripheral cue; those who saw a tweet featuring high majority influence were significantly less likely to process information

centrally than were those who saw low majority influence. Participants who saw high majority influence had significantly more negative attitudes toward compliance, were less willing to comply with governmental guidance, and were more willing to retweet specious rumors. While these results are unsettling, according to Petty and Cacioppo (1986), attitudes and behavioral intentions formed using peripheral cues are more fleeting and temporary than those forged by central processing. Thus, it stands to reason that exposure to more factual information could shift or reshape negative attitudes and intentions. However, sharing information on social media takes only one instant, one click. In real life, those swayed by majority influence may contribute to the spread of misinformation by acting reflexively on hastily-formed attitudes and intentions. For example, even though statistical evidence was the least persuasive of the three evidence types tested herein, statistical evidence paired with high amounts of likes and retweets exerted significantly more influence on subjects' cognitive processing, attitudes, credibility assessments, and behavioral intentions than statistical evidence paired with low majority influence. This shows that people may trust, absorb, and spread even the most dubious, poorly-constructed rumors if the messages boast high enough numbers of likes and retweets (Fu & Sim, 2011; Hong & Cameron, 2018; Pee & Lee, 2016).

Implications for Research

Theoretically, this study contributes to persuasion research by applying traditional ELM concepts in an atypical context: online crisis communication. While most ELM studies test the persuasiveness or other effects of one message, this experiment presented participants with diametrically opposed tweets. This is distinct from research examining two-sided messages (see Allen, 1991; O'Keefe, 1999), which typically compares the persuasiveness of refutations and non-refutational arguments, and research testing the effects of similar arguments from multiple sources (e.g., Harkins & Petty, 1987). While two tweets is hardly representative of the flood of information routinely encountered by social media users, this study adopted a more organic approach to message exposure than traditional ELM experiments, paving the way for persuasion researchers exploring similar contexts. Moreover, the unique inclusion of two separate, opposing arguments allowed the researcher

to uncover the influence of personal relevance, prior knowledge, and experience in increasing or decreasing participants' ability to distinguish facts from baseless rumors. In addition, this study integrated an unorthodox individual differences variable not typically tested in ELM studies: media literacy.

Congruent with previous research (Austin et al., 2016; Maksl et al., 2015; Tully & Vraga, 2018), this study unearthed a positive connection between media literacy and need for cognition. Surprisingly, though, NFC did not directly predict greater central processing or accurate credibility assessments, while media literacy did. As seen in this study, NFC's correlation with peripheral processing may be tied to the social media context. One tweet contains a plethora of potential peripheral cues: the user's profile picture, engagement metrics, amount and typographic style of text, the presence or absence of a verification checkmark, hashtags, and time stamps, to name a few. As pointed out by Kavanagh & Rich (2018), the preponderance of these cues may overwhelm even a high-NFC individual's cognitive capacity and fail to motivate deep argument scrutiny along the central route. This study's results may encourage other persuasion scholars to apply the ELM framework to social media-based information environments and to test the effects of media literacy, which can be conceptualized as a more specialized, technical version of NFC, within those environments.

Most previous research testing the effects of persuasive evidence compared statistical and narrative evidence (Han & Fink, 2012; Kazoleas, 1993; Slater & Rouner, 1996), or a combination thereof (Allen et al., 2000), yielding mixed results. In addition to those two constructs, this study also incorporated visual evidence, operationalized as a photo posted out of context to bolster the credibility of a misleading rumor. Although narrative evidence reigned as the most persuasive and beguiling of the three, the inclusion of visual evidence was a befitting addition given the visual nature of misinformation created and spread online today (Brennan et al., 2020; Department of Homeland Security, 2018; Krafft & Donovan, 2020). Visual evidence did elicit one noteworthy effect in this study: participants who saw the tweet featuring a photo found the message significantly more credible than did subjects

who saw statistical evidence. This finding begs further testing of visual evidence against statistical and narrative evidence, especially in social media-focused research.

By investigating the cognitive processes by which people evaluate opposing crisis messages on social media, this study offers implications for crisis communication research. Specifically, by uncovering a connection between a particular type of central processing—positive central processing—and organizational reputation, this study fashioned a theoretical bridge between ELM and crisis communication research principles. Participants in this study who thought deeply and positively about the presented messages and/or the overall topic of complying with the government were more likely to perceive the Coast Guard as a trustworthy and reputable organization. The connection between this specific type of central processing and desirable perceptions of organizational reputation may be of interest to crisis communication researchers, especially since "the primary focus of most crisis models appears to be reputation management, as opposed to predicting audience compliance with safety messages" (Freberg, 2012, p. 417). Beyond that, this study demonstrates the value of targeting positive central processing, positive attitudes toward compliance, and compliant behavioral intentions in crisis communication research, rather than focusing solely on reputation.

Also of interest to crisis communication scholars, trustworthiness and organizational reputation were positively correlated with attitudes toward compliance, positive attitude change, congruent behavioral intentions, and accurate credibility assessments. These findings provide impetus for crisis communication researchers to examine whether organizational reputation functions like personal relevance in the ELM, motivating message recipients who think highly of an organization to centrally process messages from that organization. While neither reputation nor trustworthiness significantly predicted central processing in this research, that may differ for studies featuring different crisis types and organizations. This study also theoretically advances individual differences in a crisis context by showing that stakeholders develop different cognitive reactions when confronted with factual guidance and false rumors on social media. For example, participants with higher media literacy were more likely to develop positive perceptions of organizational reputation and trustworthiness, and

more likely to distinguish between truthful information and spurious rumors. This demonstrates the importance of media literacy skills in the online crisis communication context and echoes Holladay and Coombs's (2013) call for a focus on public relations literacy, a subset of media literacy designed to empower people to adeptly process public relations messages and actively participate in democracy.

Instead of testing misinformation correction strategies, this study primarily examined specific features (evidence types, amounts of likes and retweets) that make rumors more persuasive and dangerous in the online crisis communication context. The author accomplished this by directly measuring individuals' cognitive reactions and responses to crisis information and interpreting the data using the ELM as a guiding framework. Researchers can expand upon this exploration by interpreting individuals' cognitive reactions to crisis response strategies like those outlined by SCCT (see Coombs, 2007). Considering the robust effects of narrative evidence in this study, it may also be worthwhile to test the utility of anecdotal messages in conveying official guidance or debunking false rumors from the organizational perspective (Sangalang et al., 2019).

Implications for Practice

Rumors are a particularly slippery type of misinformation that propagates swiftly on social media (Paek & Hove, 2019), impacting attitudes, behavioral intentions, and perceptions of organizational reputation. During crises, rumors built on false evidence can deter safe behavior and endanger lives (DiFonzo & Bordia, 2007). With publics' well-being and safety in the balance, it is imperative for public relations practitioners to understand and recognize the message features that render rumors more persuasive, specifically on social media. To this end, Paek and Hove (2019) tested thematically different rumors and found that people were more likely to share rumors criticizing the government's actions during a crisis than rumors hinting at negative or fearful consequences related to a crisis. Another way to categorize rumors is by the type of evidence their creators use to feign credibility or provide a valid reference point (Fragale & Heath, 2004). In exploring the effects of statistical, narrative, and visual evidence as attached to specious rumors, this study found that the

narrative rumor was by far the most deceptive and persuasive. Additionally, this study found that rumors associated with higher amounts of likes and retweets significantly detracted from positive attitudes, deterred behavioral intentions, and encouraged participants to retweet the false information.

This is valuable insight for practitioners charged with managing social media channels during crises. Many organizations lack adequate public relations personnel needed to manage the volume of information and communication that swells on social media, especially during severe crises and disasters (Avery, 2017; Avery et al., 2010). As revealed by Levenshus's (2016) ethnographic study on government communication, insufficient staffing routinely inhibits Coast Guard public affairs practitioners from keeping up with social media engagement, a deficiency exacerbated by crisis situations. Nonetheless, practitioners must navigate an online information environment flooded with rumors, misinformation, and blatant lies, pinpoint the biggest threats to their organization and stakeholders, and decide how to respond (Nekmat & Kong, 2019). This study's findings mainly contribute to the second step of the process: identifying the biggest threats. Crisis communicators should carefully scrutinize personal anecdotes used to defame their organization or contradict valid crisis information, especially if the message is gaining popularity. Rumors using statistical evidence, such as dubious numerical data, or visual evidence, such as photos plucked from Google Images, may be less cause for concern. Instead, practitioners should focus their investigative efforts on narrative rumors aimed at contradicting factual guidance or dissuading public compliance, then decide whether to address or ignore the false claim (Alba, 2019; Kaplan, 2019).

In addition to bolstering communicators' misinformation filtering skills, this study reinforces the need for segmenting publics and stakeholders in crisis communication practice. A fundamental part of successful crisis communication is understanding how publics react to information, including negative word of mouth about involved organizations and false rumors (Coombs, 2007). As outlined by the ELM and demonstrated by this study's results, an individual's prior knowledge, experience, media literacy, and perceived personal relevance affect how they cognitively process crisis information posted on social media. Notably, these

factors also influence an individual's credibility assessments, attitude toward compliance, behavioral intentions, and estimations of organizational trustworthiness and reputation, all outcomes of interest for practitioners. Segmenting relevant publics by their knowledge and experience, involvement, and media literacy may aid practitioners in developing nuanced crisis management plans, motivating these groups to process information centrally, and ultimately persuading at-risk individuals to keep themselves and others safe.

Limitations and Directions for Future Research

This study does have limitations, including the use of a convenience sample with limited diversity in age, gender, and education. Young adults frequently use social media as a news source and are vulnerable to misinformation based on a high rate of exposure, marking them as an apt sample for this study. Yet there are biases inherent in any college student sample (Gosling et al., 2004), which may have limited the scope of results yielded by this research. As with any convenience sample, one must be cautious generalizing these results to broader populations. Future research should target more representative and specific samples (e.g., inhabitants of regions more prone to certain crises, older adults), as well as investigate possible moderating variables (e.g., gender, education, political affiliation) to account for a broader range of individual differences that may affect how people process conflicting crisis information.

The researcher chose a hurricane as a focal crisis type for two main reasons: (1) non-causality crises like natural disasters cannot typically be traced to singular organizations and tend to entail lower levels of organizational attribution and reputational threat (Coombs, 2007; Fortunato, 2018); and (2) the need for information intensifies during natural disasters, adding consequence to affected publics' cognitive, attitudinal, and behavioral responses to official guidance and false rumors (Spence et al. 2011). By featuring a natural disaster largely unfamiliar to the study sample, however, the researcher risked diluting the effects of personal relevance, prior knowledge, and experience. Future studies on persuasive crisis (mis)information should implement crisis types more likely to capture richer variations in involvement and prior knowledge, or present a variety of scenarios to the same sample.

While this study's use of a fictional crisis scenario may reduce its external validity, it does not necessarily constitute a threat to internal validity. Measurements of the stimuli's perceived plausibility suggest that participants found Hurricane Alice and the presented tweets highly realistic, an assessment that did not vary significantly among experimental cells. However, given that real crises reduce individuals' cognitive capacity in a way unlikely mimicked by text-based scenarios (Bundy et al., 2017), future research should try to heighten the realism of crisis scenarios by using multimedia presentations (e.g., De Waele et al., 2018; Xiaoa et al., 2018) or virtual environments (e.g., Bakker et al., 2018; Gillath et al., 2008).

Also worth noting is this study's use of thought-listing, which represents both a methodological strength and a weakness. Rather than using this technique to categorically define subjects' cognitive activity as central or peripheral, the author created nuanced indices to describe the extent to which people scrutinized issue-relevant information and/or focused on heuristic cues (Petty et al., 1987). Yet it is possible that subjects were unwilling to report their thoughts candidly or unable to recall their feelings and impressions accurately, potentially skewing the results (Cacioppo et al., 1997). Another related limitation was this study's focus on one potential peripheral cue: majority influence. The author varied majority influence by attaching low likes and retweets to half of the rumor messages and high likes and retweets to the rest, a manipulation that yielded compelling results. While the tweets were crafted to look as realistic as possible, participants had to assess the messages' credibility without the breadth of contextual cues available in actual social media platforms. To determine whether engagement metrics are truly as salient and influential as this study's findings suggest, future research should embed conflicting (mis)information in simulated Twitter feeds, Facebook timelines, or other imitations more representative of actual platforms (e.g., Bode et al., 2020; Tully et al., 2020).

CONCLUSION

During Hurricane Harvey, the U.S.'s "first social media storm" (Rhodan, 2017), social networking sites provided first responders and volunteers alternate ways to sidestep faltering channels and connect with people in desperate need of help. Unfortunately, social media also enabled and expedited the spread of outright lies, false narratives, and misleading rumors, potentially contributing to the confusion, attitudes, and decisions of endangered publics. The tendency of misleading rumors to surge during crises has only increased since then; during the COVID-19 pandemic, for instance, false claims about the actions of public officials and the government represented 39% of all misinformation spread online (Brennen et al., 2020). This trend is unsettling for public relations practitioners, government communicators, and on a larger scale, democracy itself (Bradshaw & Howard, 2019).

This study sought to gain a richer understanding of how one type of misinformation —false rumors—affects individuals' cognitive processing of information, attitudes toward compliance, and intentions to comply with governmental guidance during a crisis. Instead of studying the issue from an organizational perspective, the author applied Elaboration Likelihood Model principles and examined specific features that make rumors more persuasive and damaging. Congruent with ELM scholarship, this study found the personal relevance of crisis information encouraged central processing and objective credibility assessments, while prior knowledge had a negative, biasing effect. Media literacy emerged as a positive influence on cognitive activity and credibility evaluations, but surprisingly, need for cognition did not. Of the three types tested, narrative evidence elicited the most negative attitude change, deterred compliant behavioral intentions, and hampered participants' ability to distinguish between facts and false rumors. Similarly, rumors adorned with high numbers of likes and retweets triggered superficial thinking, negative attitudes, and undesirable behavioral intentions, such as retweeting specious rumors.

As unsettling as these results may be, a clearer understanding of false rumors and the mechanisms by which they deter compliance is integral to strategically monitoring and squashing them. By integrating the ELM framework and mapping the cognitive processes by which people interpret not only rumors, but organizational responses to rumors, crisis communication researchers can expand practitioners' collective ability to fight falsehoods and mitigate the detrimental effects of misinformation on society.

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APPENDIX A

PRETEST QUESTIONNAIRE

Need for Cognition Scale (Cacioppo et al., 1984)

For each of the statements below, please indicate whether the statement is characteristic of you or what you believe. You should use the following scale as you rate each of the statements below: 1 = extremely uncharacteristic of me, 2 = somewhat uncharacteristic of me, 3 = uncertain, 4 = somewhat characteristic of me, 5 = extremely characteristic of me.

1. I prefer complex to simple problems.
2. I like to have the responsibility of handling a situation that requires a lot of thinking.
3. Thinking is not my idea of fun.
4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.
5. I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.
6. I find satisfaction in deliberating hard and for long hours.
7. I only think as hard as I have to.
8. I prefer to think about small daily projects to long term ones.
9. I like tasks that require little thought once I've learned them.
10. The idea of relying on thought to make my way to the top appeals to me.
11. I really enjoy a task that involves coming up with new solutions to problems.
12. Learning new ways to think doesn't excite me very much.
13. I prefer my life to be filled with puzzles I must solve.
14. The notion of thinking abstractly is appealing to me.
15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
16. I feel relief rather than satisfaction after completing a task that requires a lot of mental effort.
17. It's enough for me that something gets the job done; I don't care how or why it works.
18. I usually end up deliberating about issues even when they do not affect me personally.

Generalized Attitude Measure (McCroskey, 1966)

Please indicate your feelings about complying with guidance or instructions from the government. (Five-point semantic differential scale)

1. Good ___ ___ ___ ___ ___ Bad
2. Wrong ___ ___ ___ ___ ___ Right
3. Harmful ___ ___ ___ ___ ___ Beneficial

4. Fair ___ ___ ___ ___ ___ Unfair
5. Wise ___ ___ ___ ___ ___ Foolish
6. Negative ___ ___ ___ ___ ___ Positive

Subjective Knowledge Scale (Yoo, 2014)
Please rate how much you know about hurricanes. (Five-point semantic differential scale)
1. Not familiar ___ ___ ___ ___ ___ Familiar
2. Don't know ___ ___ ___ ___ ___ Know a lot
3. Unaware ___ ___ ___ ___ ___ Aware

Prior Experience Scale (Pee & Lee, 2016)
For each of the statements below, please indicate whether the statement is characteristic of you. You should use the following scale as you rate each of the statements below: 1 = extremely uncharacteristic of me, 2 = somewhat uncharacteristic of me, 3 = uncertain, 4 = somewhat characteristic of me, 5 = extremely characteristic of me.
1. I have professional expertise related to hurricanes.
2. I have personally experienced the effects of hurricanes.
3. I have spent a lot of time reading about hurricanes.

New Media Literacy Scale (Koc & Barut, 2016)
The term "media" used in the following items, unless otherwise specified, refers to current digital technology platforms including but not limited to web sites, online forums, social networks, video sharing sites and virtual worlds in which anyone can share any digital content. Please indicate how you feel about your knowledge and skills for each statement using the following scale: 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree.
1. I can distinguish different functions of media (communication, entertainment, etc.).
2. I am able to determine whether or not media contents have commercial messages.
3. I manage to classify media messages based on their producers, types, purposes and so on.
4. I can compare news and information across different media environments.
5. I can combine media messages with my own opinions.
6. I consider media rating symbols to choose which media contents to use.
7. It is easy for me to make decision about the accuracy of media messages.
8. I am able to analyze positive and negative effects of media contents on individuals.
9. I can evaluate media in terms of legal and ethical rules (copyright, human rights, etc.).
10. I can assess media in terms of credibility, reliability, objectivity and currency.
11. I manage to fend myself from the risks and consequences caused by media contents.

News-Consumption Tendencies
During a typical week, I consume news from: (Select all that apply)
1. Talking to people I know
2. Paper newspaper
3. Radio

4. Online news source (CNN, FOX, Washington Post, etc.)
5. Online news blogs or media aggregate (BuzzFeed, Reddit, Google News, etc.)
6. TV news
7. Facebook
8. Twitter
8. Other (Fill in the blank)

When a crisis, natural disaster, incident, or unusual event occurs, I tend to consume news from… (Select all that apply)
1. Talking to people I know
2. Paper newspaper
3. Radio
4. Online news source (CNN, FOX, Washington Post, etc.)
5. Online news blogs or media aggregate (BuzzFeed, Reddit, Google News, etc.)
6. TV news
7. Facebook
8. Twitter
8. Other (Fill in the blank)

How often do you typically consume news? (Select one)
1. More than once an hour
2. Once an hour
3. Several times a day
4. Once a day
5. Once a week
6. Less than once a week

Social Media Usage
During a typical week, I use the following social media sites: (Select all that apply)
1. Facebook
2. Twitter
3. Instagram
4. Snapchat
5. TikTok
6. YouTube
7. LinkedIn
8. Other (Fill in the blank)

How often, on average, do you spend on social media each day? (Select one)
1. Less than 3 hours
2. 3 to 6 hours
3. 7 to 10 hours
4. More than 10 hours

5. I don't use social media

Is the time you spend on social media for personal or business use? (Select one)
1. Personal
2. Business
3. Mixture of both
4. I don’t use social media

Demographics
My gender is: (Select one)
1. Male
2. Female
3. Other (Fill in the blank)

My age is: (Fill in the blank)

What is the highest degree or level of education you have completed? (Select one)
1. Some high school
2. High school
3. Associate's degree
4. Bachelor's degree
5. Master's degree
6. Ph.D. or higher

My ethnicity is: (Select one)
1. White
2. Black or African American
3. Latinx
4. Hispanic
5. Asian
6. American Indian or Alaska Native
7. Native Hawaiian or Other Pacific Islander
8. Other (Fill in the blank)

Generally speaking, I consider myself a: (Select one)
1. Republican
2. Democrat
3. Independent
4. Something else

APPENDIX B

CRISIS SCENARIO

Participants, please note: The following scenario was created for the purposes of this study. Please read the below passage entirely before moving to the next step.

Hurricane Alice is a slow-moving, Category 4 hurricane that just made landfall and is unleashing record-breaking rainfall across your region. Local officials did not issue a mandatory evacuation order prior to Hurricane Alice's landfall, so many residents are experiencing flooding in their homes while they hunker down and wait for the storm to pass.

Imagine that you are living in an area affected by the storm. Your house is still undamaged, and your power is still on, but the street outside is starting to flood.

You decide to use social media to find the latest updates and news about the hurricane. You log onto **Twitter** and start using the trending **#HurricaneAlice** hashtag to gather information.

APPENDIX C

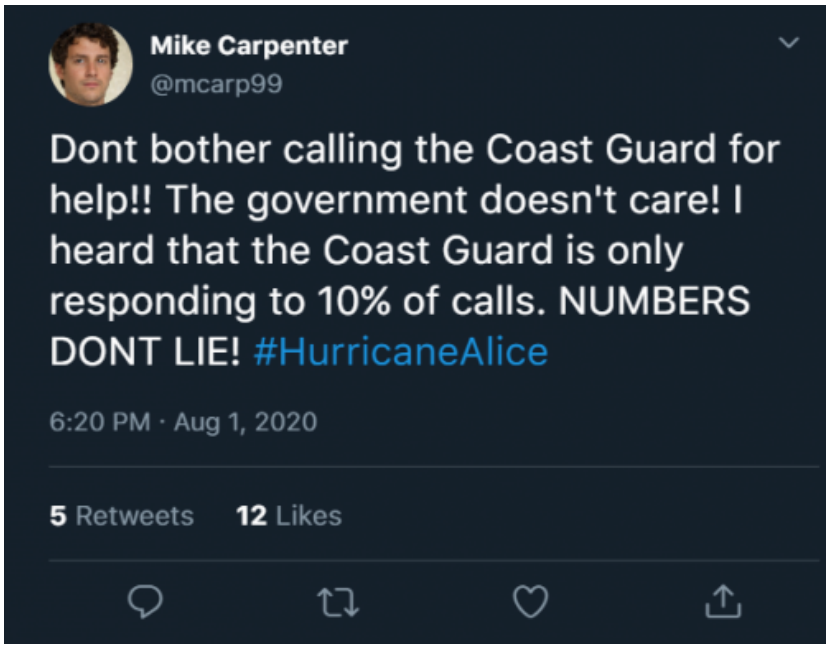
EXPERIMENTAL STIMULI

(Factual tweet seen by all participants)

Please review the following post in its entirety before moving to the next step.

(Statistical evidence, low likes/retweets)

Please review the following post in its entirety before moving on to the next step.

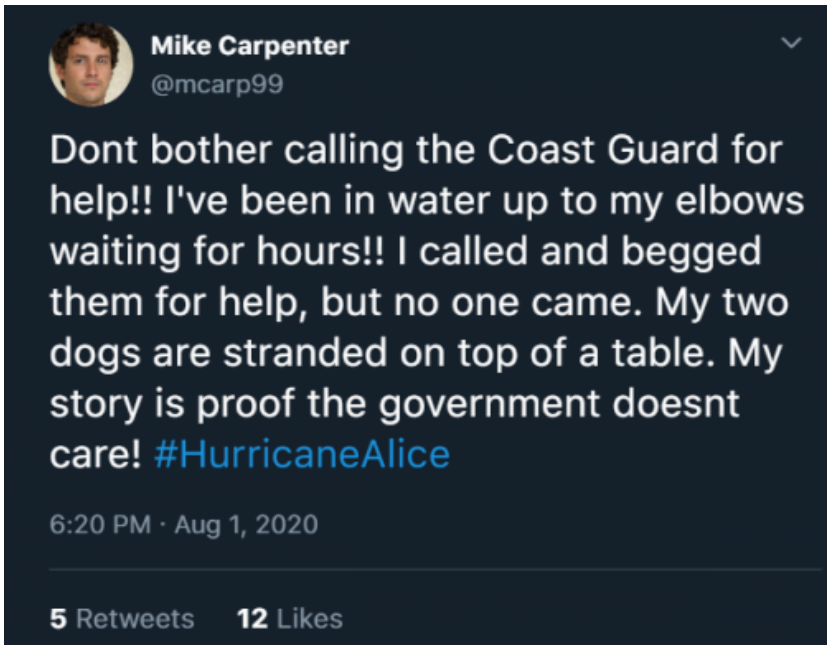


(Statistical evidence, high likes/retweets)

Please review the following post in its entirety before moving on to the next step.

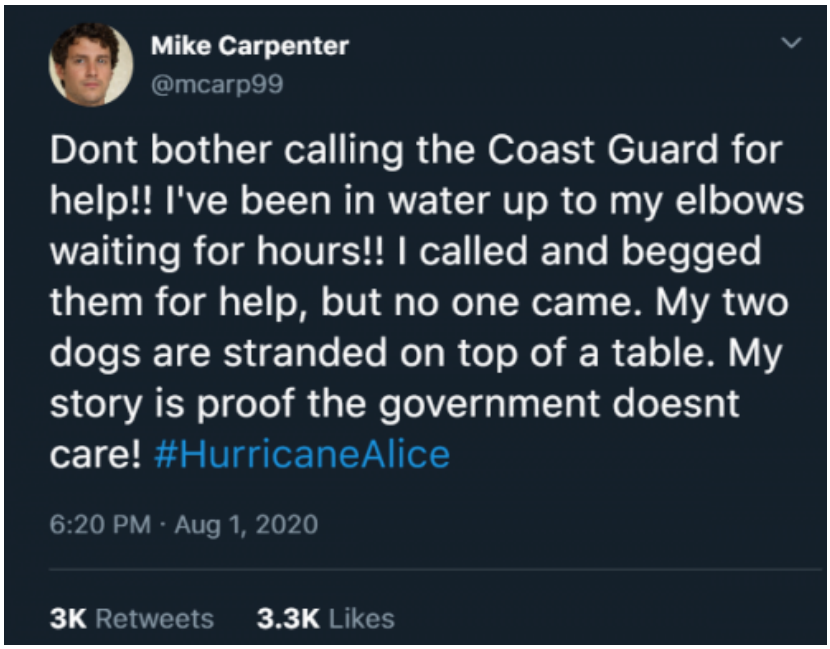
(Narrative evidence, low likes/retweets)

Please review the following post in its entirety before moving on to the next step.



(Narrative evidence, high likes/retweets)

Please review the following post in its entirety before moving on to the next step.



(Visual evidence, low likes/retweets)

Please review the following post in its entirety before moving on to the next step.

(Visual evidence, high likes/retweets)

Please review the following post in its entirety before moving on to the next step.

APPENDIX D

POSTTEST QUESTIONNAIRE

Thought-Listing (Petty & Cacioppo, 1977)
We are now interested in what you were thinking about during the last few minutes. You might have had ideas all favorable to the recommendations in the tweets you read, all opposed, all irrelevant to the recommendations, or a mixture of the three. Any case is fine; simply list what it was that you were thinking during the last few minutes. Below is the form we have prepared for you to use to record your thoughts and ideas. Simply write down the first idea that comes to mind in the first box, the second idea in the second box, etc. Please put only one idea or thought in a box. You should try to record only those ideas that you were thinking during the last few minutes. Please state your thoughts and ideas as concisely as possible; a phrase is sufficient. Ignore spelling, grammar, and punctuation. You will have 3 minutes to write your thoughts; after 3 minutes, you will be able to advance to the next page. We have deliberately provided more space than we think most people will need to ensure that everyone would have plenty of room to write the ideas they had during the message. So don't worry if you don't fill every space. Just write down whatever your thoughts were during the last few minutes. Please be completely honest and list all the thoughts that you had.

(10 blank boxes, no character limits)

Message Credibility Scale (Appelman & Sundar, 2016)
How well do the following adjectives describe the Coast Guard's tweet? (from 1 = describes very poorly to 5 = describes very well):
1. Accurate
2. Authentic
3. Believable

IF YOU ONLY SAW THE COAST GUARD'S TWEET, SKIP THIS QUESTION
How well do the following adjectives describe Mike Carpenter's tweet? (from 1 = describes very poorly to 5 = describes very well):
1. Accurate
2. Authentic
3. Believable

Generalized Attitude Measure (McCroskey, 1966)

Please indicate your feelings about complying with guidance or instructions from the government. (Five-point semantic differential scale)

1. Good ___ ___ ___ ___ ___ Bad
2. Wrong ___ ___ ___ ___ ___ Right
3. Harmful ___ ___ ___ ___ ___ Beneficial
4. Fair ___ ___ ___ ___ ___ Unfair
5. Wise ___ ___ ___ ___ ___ Foolish
6. Negative ___ ___ ___ ___ ___ Positive

Behavioral Intention Scale (Song et al., 2014)

Please rate the following statements using the following scale: 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree.

1. I would intend to comply with the Coast Guard's recommended actions.
2. It is highly likely that I would follow the Coast Guard's recommended actions.
3. I would comply with the Coast Guard's recommendations.

Intent to Retweet

1. *Please rate the likelihood that you would retweet the Coast Guard's tweet. The responses range from 1 = very unlikely to 5 = very likely.*

2. ***IF YOU ONLY SAW THE COAST GUARD'S TWEET, SKIP THIS QUESTION** Please rate the likelihood that you would retweet Mike Carpenter's tweet. The responses range from 1 = very unlikely to 5 = very likely.*

Personal Involvement Inventory (Zaichkowsky, 1994)

To me, the tweet(s) I read are: (Five-point semantic differential scale)

1. Important ___ ___ ___ ___ ___ Unimportant
2. Boring ___ ___ ___ ___ ___ Interesting
3. Relevant ___ ___ ___ ___ ___ Irrelevant
4. Exciting ___ ___ ___ ___ ___ Unexciting
5. Means nothing ___ ___ ___ ___ ___ Means a lot to me
6. Appealing ___ ___ ___ ___ ___ Unappealing
7. Fascinating ___ ___ ___ ___ ___ Mundane
8. Worthless ___ ___ ___ ___ ___ Valuable
9. Involving ___ ___ ___ ___ ___ Uninvolving
10. Not needed ___ ___ ___ ___ ___ Needed

Organizational Reputation Scale (Coombs & Holladay, 1996)

Think about the tweet(s) you just read. The items below concern your impression of the Coast Guard. The responses range from 1 = strongly disagree to 5 = strongly agree.

1. The Coast Guard is basically honest.
2. The Coast Guard is concerned with the well-being of its publics.
3. I do trust the Coast Guard to tell the truth about an incident.

4. I would prefer to have NOTHING to do with the Coast Guard.
5. Under most circumstances, I WOULD NOT be likely to believe what the Coast Guard says.
6. The Coast Guard is basically DISHONEST.
7. I do NOT trust the Coast Guard to tell the truth about an incident.
8. Under most circumstances, I would be likely to believe what the Coast Guard says.
9. I would seek services or assistance from the Coast Guard.
10. The Coast Guard is NOT concerned with the well-being of its publics.

Trustworthiness Scale (Touré-Tillery & McGill, 2015)
To me, the Coast Guard is: (Five-point semantic differential scale)
1. Dishonest ___ ___ ___ ___ ___ Honest
2. Unethical ___ ___ ___ ___ ___ Ethical
3. Phony ___ ___ ___ ___ ___ Genuine
4. Untrustworthy ___ ___ ___ ___ ___ Trustworthy

Perceived Realism Scale (Cho et al., 2014)
Please think about the tweet(s) you just read and rate the below statements. The responses range from 1 = strongly disagree to 5 = strongly agree.
1. The tweet(s) described something that could possibly happen in real life.
2. Events in the tweet(s) portrayed possible real-life situations.
3. The story in the tweet(s) could actually happen in real life.
4. Never in real life would what was described in the tweet(s) happen.
5. Real people would not do the things described in the tweet(s).

Additional Realism Item (Nekmat & Kong, 2019)
Please think about the crisis scenario presented to you in this study and rate the below statement. The responses range from 1 = very unrealistic to 5 = very realistic.
1. How realistic do you think the crisis scenario is?

Manipulation Check #1 (Independent variable: Evidence type)
In this study, I saw: (Select one)
1. Only a tweet by the Coast Guard.
2. A tweet by the Coast Guard followed by another tweet in which someone used a PERCENTAGE to contradict the Coast Guard.
3. A tweet by the Coast Guard followed by another tweet in which someone told a DETAILED PERSONAL STORY to contradict the Coast Guard.
4. A tweet by the Coast Guard followed by another tweet in which someone posted a PICTURE to contradict the Coast Guard.
5. I don't remember.

Manipulation Check #2 (Independent variable: Amount of likes/retweets)
In this study, I saw: (Select one)

1. Only a tweet by the Coast Guard.
2. A tweet by the Coast Guard followed by another tweet that had LESS THAN 50 retweets and 50 likes.
3. A tweet by the Coast Guard followed by another tweet that had MORE THAN 50 retweets and 50 likes.
4. I don’t remember.