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Timing Influence Efforts with Information Processing

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Thanks to technological advancements and global connectivity, the information environment continues to evolve as new information channels emerge. However, despite evolutions in the information environment, the role and nature of information in people's lives have not changed. Even with the advent of social media, the internet, and other technologies that have increased access to information, two principles remain the same. The first principle is that people seek information to reduce the uncertainty associated with their perception of insufficient knowledge.^[1] The second principle is that information processing is a social process.^[2] These principles are explored within the context of timing to facilitate better effects from influence efforts that are sequenced and executed to maximize influence opportunities. The timing of target populations' information-seeking and socialization represents a window of opportunity for influence. As information is socialized and accepted, the attribution of this information becomes part of a shared reality and storied identity.^[3]

The importance of message timing is not new, but the discernment of a clear window to exploit for influence purposes is. The window for exploitation is the period during which information seeking and socialization occur following a crisis. This period is pertinent to all influence practitioners in their timing of messages from initial exposure through socialization. The window of opportunity is relevant for a range of influence activities that include mass, precision, and deception, regardless of the information channel.

Within this window, if influence efforts can be connected to a plan, or a perceived solution to the event, the opportunity to leverage the focusing event for change increases. The golden hour rule in crisis response is intended to ensure people receive sufficient infor-



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mation and avoid turning to other sources or allowing rumors, disinformation, or misinformation to emerge. Delays in response can cause several issues, including loss of audience since they will likely turn to alternate sources. Amplifying the necessity for timely messaging, as time passes, audience reach lessens, and rumors emerge that require practitioners to expend more resources to overcome potential consequences of untimely messaging.

This research explores and discerns information processing durations for information seeking and socializing. The research consisted of an analysis of two published case studies, a third original case study, and the analysis of aggregated data from all three case studies. Based on previous research, the first case study traces information-seeking through support for a policy change that demonstrates the importance of timely messaging.^[4] The second case study expands the findings of the first case study by examining the information-seeking behaviors of three additional crises with daily variables for a more accurate depiction of those behaviors. The third case study, based on previous research, examines the relationship of both information seeking and socialization behaviors in a crisis. The examination of the case studies in aggregate provides a holistic study of information processing behaviors after five crises, specifically illuminating the relationship and timing of information-seeking and socialization behaviors. It amplifies the salience of message timing in both information seeking and socialization. In addition to message timing, the study underscores that messages should be tailored to support the specific information processing window.

The framework of this study is from a communication perspective. It incorporates numerous theories, including uncertainty, the social construction of reality, crisis communication, and narrative. Uncertainty theories explain information processing during periods of



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stress. Information processing is what determines how people understand the world around them. A storyline or narrative emerges as people understand an event and connect it to other events. Influence practitioners who provide relevant information when and where the populace is seeking and socializing that information will more effectively influence how they view the world and subsequently perceive similar events in the future. In order to influence perceptions and behaviors, it is necessary to participate in the conversation as it takes place during both seeking and socialization.

Walter Fisher posited the third narrative paradigm, how a narrative is a rhetorical tool.^[5] As people accept information that explains events around them, it shapes their understanding and the construction of their reality if the story rings true and holds together.^[6] Stories subsume logic and reason and are judged on narrative rationality, including coherence and fidelity.^[7] As a community socializes what an event means, a consensus will be reached. This consensus and the corresponding accepted meaning of the event then becomes a storied part of the community.

The challenge remains for influence practitioners to have a story accepted over other stories competing to explain the same event that supports their influence efforts. Messaging during information processing windows of opportunity increases the probability of an event being connected to themes supporting a narrative.

Literature Review

Influence opportunities center on focusing events, which are sudden, relatively uncommon events that garner the interest and attention of the population.^[8] Focusing events present opportunities for precisely influencing and deceiving the masses. Focusing events produce uncertainty that spurs information processing. A brief review of current literature includes crisis, uncertainty, social construction of reality, and narrative theories to provide a framework for this study.

Crisis

A crisis is an unexpected, non-routine event or series of events that create high levels of uncertainty and a significant perceived or actual threat to goals such as obtaining education, acquiring wealth, or even maintaining family traditions.^[9] Crises cause people to behave differently than they normally would.^[10] They come in many forms, such as natural disasters, manufactured disasters, terrorist attacks, organizational catastrophes, or economic crises. The type of crisis may characterize the level of uncertainty the population is facing. The greater the number of people who experience high levels of uncertainty caused by a crisis, the more people there are to potentially seek information. It is then that people are more susceptible to malicious, adversarial, or even friendly influence efforts that can lead to behavioral and social change.

Crises cause uncertainty by creating an information void that is left to be filled by someone, somehow.^[11] Uncertainty is stress, anxiety, discomfort, or a perceived threat that disorients one's abilities to properly appraise the situation and maintain a state or sense of rational order due to limited knowledge.^[12] The information void caused by the crisis results in uncertainty as people seek to determine what the crisis means. Uncertainty causes people to ask questions about the event and how they view the world.

Focusing Event

A focusing event is a catalyst for information seeking and socialization. Thomas Birkland considered a focusing event as an expansion of the definition of a crisis with additional criteria of concentrated harm in a community of interest and known simultaneously to both the public and the government.^[13] Another aspect of Birkland's criteria is that a focusing event is relatively uncommon. It would be possible for a commonly occurring crisis to no longer be considered a focusing event as people would be desensitized to it.^[14]

Focusing events are tied to issue attention cycles and policy change.^[15] Focusing events often shift attention to the media and unattended or under-attended issues.^[16] Increased coverage following a focusing event elevates issue enthusiasm, which results in agenda space for related issues.^{[17], [18]} After such focusing events, people are looking for a plan of action and turn to relevant media or social structures to learn about plans.

Focusing events can result in identifying new problems or increasing the salience of a dormant issue, leading to possible solutions, especially when a crisis results from a perceived policy failure.^[19] The process of linking focusing events to issues is done to frame the event to support an agenda.^[20] Issue advocates may take advantage of the situation to redefine the issues connected with the event, aiding or exploiting the media in framing the event to current failures and calls for action.^[21] In Nigeria, during significant drops in oil prices between 2011 and 2014, adversarial non-state actors framed the reduction in oil revenue distributions to the history of corruption when it was really the result of a drastic drop in oil prices.^[22]

Even though it was not true, it seemed feasible given the perceived history of corruption; therefore, many in the population believed it.

Birkland and Schattschneider found that group efforts are essential for policy change as they increase the likelihood of more influential participants entering into a policy change discussion.^{[23],[24]} Schattschneider considered group participation a form of pressure or intimidation using “something other than reason and information to induce public authorities to act against their own best judgment.”^[25] Pro-change groups use media-generated symbols of a focusing event to dramatize and evidence a need for change.^[26] A focusing event can shift the balance on an issue, especially when the issue advocates are well organized.^[27] Organizations and social structures have policy agendas that shape how they communicate to the public and interact with media to maximize the opportunity a focusing event provides. Focusing events provide a “window of opportunity” for issue advocates to leverage curated messages and information channels for policy change.

Information

Information plays a significant role in addressing uncertainty. Numerous theories provide insights into understanding human nature and explain corresponding opportunities for influence. Uncertainty theories explain information-seeking behaviors intended to reduce stress and cognitively process uncertainty. Uncertainty presents when there is a perception of insufficient knowledge. Therefore, uncertainty can be reduced by ingesting information about the cause of uncertainty.^[28] Knowledge and information allow people to develop meaning and understand an event as long as the information creates a sense of coherence.^[29] A challenge is that there are many sources of information, and if the information is inadequate, the resulting void may be co-opted.^[30] It is important to note that people are not simply looking for information but a story to manage cognitive and emotional demands.^[31] Information alone can be insufficient to reduce uncertainty.^[32] The significance of information and its role in reducing uncertainty drives people to employ information seeking strategies to meet their cognitive and emotional demands.

People often refer to what they consider to be previous, similar events to help make sense of and understand what current events mean. This behavior includes information seeking of similar, previous events as information about the current event may not initially be available. People look for information relevant to them that tells a story and provides understanding and meaning to the event related to their lives.^[33] If the story coherently explains the event, aligning with their prior understanding and experiences, then that explanation will likely be accepted for socialization—collective information processing. People take different approaches to obtain information with four strategies that govern information-seeking behaviors.

Information-Seeking Strategies and Behavior

The theory of motivated information management considers individual motivation to seek

or avoid information that the individual deems important, resulting in action to adjust uncertainty.^[34] Uncertainty motivates people to communicate by weighing outcome rewards and costs.^[35] Motivation drives people's communication behavior.^[36] Assessing reward versus cost influences the strategy selection, which in turn impacts behavior. Uncertainty alters people's plans, and when plans fail, people alter their approach in ways that require the least cognitive effort.^[37]

There are four information-seeking strategies: passive, active, interactive, and avoidance. Information-seeking behavior manifests information-seeking strategies, which are actions to obtain more information or inactions to avoid information. A passive strategy includes behaviors that involve observations about the uncertainty-causing event to gain insight but not seeking out information. An active strategy includes behaviors that involve taking action to seek information, whether through traditional media or social networks. Interactive information-seeking includes behaviors that involve communication with others, especially with subject-matter experts who are likely the information source, such as a medical doctor, when a patient wants to learn the result of a blood test. Information avoidance is a deliberate effort not to encounter information related to the cause of uncertainty, often due to fear of what the information could be and the potential of greater uncertainty.

In this research, the case studies for information-seeking include only active and interactive information-seeking behaviors. The case study on information-socialization includes interactive, active, and passive information-seeking behaviors. Information socialization allows the information sought from one's social network to reach passive information seekers and potentially influence their attitudes and behaviors.

Information Socialization

Information gathering is a social process.^[38] Interaction and communication about the information is a process of creating shared meaning between people, groups, and communities.^[39] People engage in collaborative information-seeking to resolve a shared information need.^[40] When people are confronted with stress and uncertainty, they seek support from social structures and processes they built.^[41] These social structures include family, friends, social networks, religious institutions and communities, and government. People emotionally crave assurance through dyadic coping to find support, additional information, tools, and keys to decode reality.^[42]

As people engage with other people, they engage in coping and coordinated problem solving with the available information.^[43] As people engage, they experience a sense of clarity and certainty from identifying with a collective.^[44] The structures and social networks people seek support from become a filter of information, providing the information deemed necessary and suited to their perspective. The result is that the collective network shares a common lens to interpret and appraise uncertainty based on shared values and beliefs. The socialization period

increases people's susceptibility to new ideas, misinformation, deception, disinformation, and other influence efforts. The information has already passed through one filter to make it to the socialization stage. The information will be judged based on who presented the information to the social group.

Social Construction of Reality

A common lens and shared sense of reality is the result of the construction of human knowledge through social interaction, as posited by Peter Berger and Thomas Luckmann.^[45] Social construction of reality explores how meaning develops with others. Each group develops meaning and understanding of the world particular to them. The theory of constructionism is how people interact and develop the meaning of events or a social reality. The social reality formulates an interpretative schema for future, similar events. Understanding an audience's interpretative schemes and categorization of previous events can shape persuasive efforts by building on those schemes to influence the interpretation of future events. The ability to influence this approach is from Walter Fisher's Third Narrative Paradigm. Using a narrative as a rhetorical tool, a storied approach of unfolding events provides the needed explanation and meaning. If the narrative is persuasive and socialized, it can inform the construction of human knowledge through social interaction.

A narrative used for persuasive efforts is driven by events, similar events that build a storyline and plot that supports the need for and propels change. A consistent explanation of multiple events within a storyline, a series of events, results in narrative rationality. Narrative rationality is the coherence and fidelity of a narrative—the extent a story hangs together and rings true.^[46] It is how the media and news guide people in understanding their world. The narrative can be a powerfully persuasive tool if it can reach its intended audience and be accepted by their social network during socialization. The story is the primary mode of deception. It can also aid in persuading people to take actions aligned with a narrative by amplifying issues and events related to a theme and providing a plan of action.

The narrative as a rhetorical tool is powerful, but it needs to engage people during the windows of opportunity. Three case studies are explored to understand the windows of opportunity and the duration people engage in active and interactive information seeking.

Case Study 1: A Window of Opportunity for Information Seeking

The crisis opportunity model (COM) examined the relationship between a crisis, its media coverage, how media sources covered the crisis and public opinion on issues connected to the crisis.^[47] The study also examined people's information-seeking tendency following a crisis to fulfill their need for orientation. The crisis in this study was the Sandy Hook school shooting. The study found that people ask questions and seek information for about two weeks, confirming the two-week window in another study that examined behavior following the September 11th, 2001 terrorist attack.^[48] The COM study collected and examined the variables every

week. The study resulted in a model that identified significant relationships between people’s information seeking, media coverage of a crisis, and changes in support for policy change.

Information-seeking provided the path to change. The media amplified the need for change by including coverage of previous shootings as evidence. The study found significant relationships between the media coverage of the crisis with references to previous events and support for change with one exception. The shooting in Tucson, Arizona, did not result in a significant relationship with support for change. Upon further examination, the Tucson media coverage began a full month after the Sandy Hook shooting, while the media coverage of other previous shootings occurred within the initial two weeks following the crisis. This case study provided evidence that messaging within the window of opportunity influenced public opinion, and coverage after this time did not. The study’s implications indicate that the Tucson media coverage was outside the information socialization period. The data structure limited the sensitivity to weekly periods; it lacked the sensitivity to define the number of days a window of opportunity exists. Additionally, it was limited to a single case study.

Case Study 2: A Refined Window of Opportunity for Information Seeking

The first case study found that media coverage of a previous event outside the window of opportunity did not significantly influence gun control support. This second case study posits that to influence change, information must fall within the three days following a crisis while people are actively and interactively seeking information. The second case study builds on the first case study by examining information-seeking behaviors based on Google Trends data that represents Google search intensity per day on a scale of 0-100. In addition to examining the duration of information-seeking, this case study examined three crises: the Boston Marathon bombing, the 2015 Paris attack, and Hurricane Matthew in 2016. Figure 1 reflects the information-seeking intensity resulting from Google searches, as reported by Google Trends.

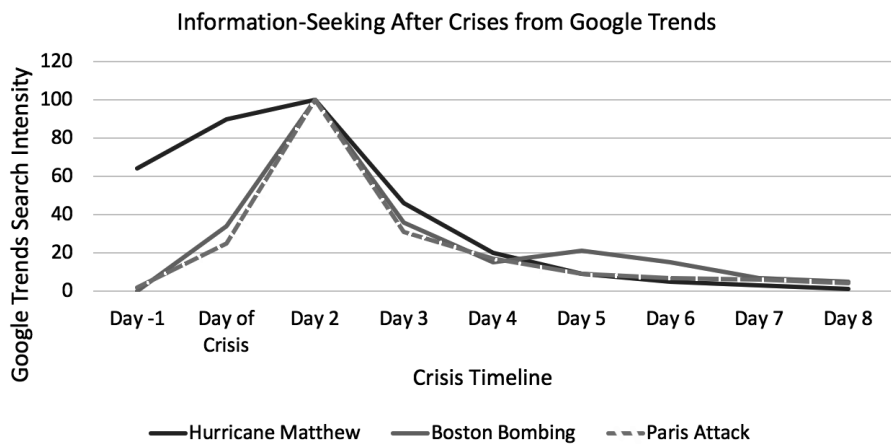


Figure 1. Crises Google Trends Data

The first two crises, the Boston bombing and the Paris attack, examine a similar type of crisis to see if there was any difference based on location. The third crisis, a hurricane, provided a different type of crisis to compare. The fourth crisis from the first case study provided another type of crisis to identify potential relationships. The information-seeking correlations between the crises were all significant.

Table 1. Correlations of Crises Google Trends Data

Variable	Hurricane Matthew	Boston Bombing	Paris Attack	Sandy Hook
Hurricane Matthew				
Pearson <i>r</i>	—	.69*	.70*	.71*
<i>P</i>	—	.039	.035	.033
Boston Bombing				
Pearson <i>r</i>	.70*	—	.99*	.93*
<i>P</i>	.039	—	.000	.000
Paris Attack				
Pearson <i>r</i>	.70*	.99*	—	.91*
<i>P</i>	.035	.000	—	.001
Sandy Hook				
Pearson <i>r</i>	.71*	.93*	.91*	—
<i>P</i>	.033	.000	.001	—

The result was a more refined period of information seeking from two weeks in the crisis opportunity model to three days, including the day of the crisis. When people are information-seeking, they have an increased susceptibility to information, including deception and disinformation^[49] The day following the crisis would likely be most beneficial for message timing effectiveness. Whether the goal is to persuade or deceive a person, exposing the target population to the information during the first three days is essential. The sooner the exposure, the better as other information may fill the information void and terminate the need for orientation- and information-seeking behaviors. This research further refined the duration of active information-seeking behaviors identified in the first case study.

The information obtained in the information-seeking window of opportunity is then socialized. Information socialization is the second stage, and while influence can occur from the first window of opportunity, information is a social process that can produce longer term persuasive effects. Socialization of shared information increases its reach to passive information-seekers.

Case Study 3: A Window of Opportunity for Information Socializing

During the information socialization stage, information is shared with the person’s network for evaluation. Socializing information is an important step in people processing

uncertainty and accepting the information.^[50] People seek information and bring it back to their social networks as a form of dyadic coping to aid in processing the information to understand the crisis and what it means.^[51] People often socialize information as part of dyadic coping to confirm the information and news articles they consume.^[52] Socialization can happen in discussions, social media, and community engagements and events. The timing of socialization peaks about three days after the event and then drastically reduces based on a study by Ney.^[53] The study examined a Twitter data set for a couple of weeks following a tornado in Joplin, MO, using common keywords to the crisis. The estimated volume of tweets was the highest three days after the tornado, with nearly 220,000 tweets. Day four was second, with nearly 90,000 tweets. Day two was the third highest with about 50,000 tweets, then day five with 45,000 tweets. By day nine, tweets were at around 25,000 a day. This is an indicator of the duration of the window of information socialization.

Relationship Between Case Studies

The majority of information-seeking comes the day after the crisis, and the majority of socializing information occurs on the third day after the crisis. In the chart below, the similarities between each crisis are evident. Additionally, the Twitter volume was overlaid on the chart, with the volume ranging from 25,000 to 220,000 tweets a day.

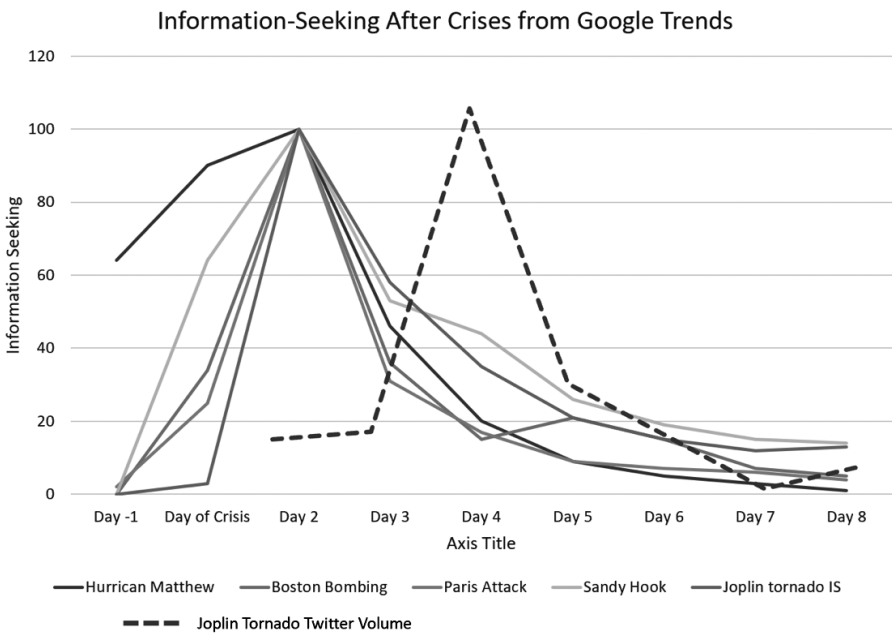


Figure 2. Crises Google Trends Data with Twitter Volume Overlaid

With one exception, the information-seeking between crises correlated with significant relationships ($p < .05$, $r = .693-.986$). A significant relationship was not found between the

tornado and hurricane. The tornado twitter volume correlated with the information-seeking ($p < .01$, $r = .880$). The twitter volume data was adjusted by two days to determine information seeking's influence on information-socialization. The influence of information-seeking on information socialization amplifies the significance of messaging during the initial window of opportunity. Examining the context of the socialized information can yield insights into the messaging's effectiveness during the information-seeking window of opportunity. Each case study amplifies the importance of timing, a limited opportunity due to the uncertainty caused by a focusing event.

Discussion

The two stages of information-seeking and socialization mainly occur over five days. Event-based messaging associated with a narrative approach could demonstrate the effectiveness of the two windows of opportunity by initially determining that the message is received during the first window and then socialized, indicating the initial message was received and considered coherent. Subsequent messages designed explicitly for information-socialization offer opportunities to expand the reach to passive information seekers.

In a complex information environment, numerous groups or actors may attempt to fill the information void supporting a narrative. The importance of information processing should reflect in messaging approaches to increase messaging efficiency and effectiveness during the short windows of opportunity. During the information-seeking stage, messages about the focusing event provide meaning and open dialogue about the event and related issues. Furthermore, if measures of effectiveness are focused on each window, it can help determine if the message was received, accepted, socialized, and accepted by the social network. This provides a more nuanced understanding of the success of the messaging and influence effort.

Implications

The research on information processing informs how to more effectively and efficiently message following significant events that spur information seeking and socialization. The windows are consistent between variations in focusing events. The implications of the windows relative to information processing span the range of influence activities from mass influence to precision, including deception efforts. To maximize messaging effectiveness during those windows, messaging and counter-messaging approaches must be developed well before the crisis or focusing event.

With an overarching narrative established, the planned delivery of the story must include numerous complementary messaging approaches to exploit broad and varied information channels, lines of persuasion, and types of messages. While some crises are not predictable, some have sufficient frequency to warrant deliberate planning in advance of a focusing event with products and messages drafted to ensure timely injection into the information environment during the appropriate windows. During the first window of opportunity, messaging

should focus on explaining the event within a historically consistent frame to support the desired narrative that connects the event to corresponding themes. As the information socialization window begins, messages to social groups through social networking sites and key communicators can accelerate socialization and increase acceptance. The distinct windows of opportunity should also guide message placement and design. The message, the medium, and the timing matter for each window of opportunity: the message development and design process should capture the nuances of each to ensure more deliberate, compelling messages.

Limitations and Future Studies

Future studies could further examine the similarities between crises and information-seeking and socialization. This study was limited and did not include social media data of the other four crises presented. A study that traces a single event through both windows of opportunities change in attitudes and support for an issue is warranted and would further amplify the implications.

CONCLUSION

Information processing following a focusing event presents a unique opportunity to influence. Influence efforts should occur in a short window of time as there are only five days for information processing stages, seeking and socialization. The concept of timely messaging is not new. This research provides a more nuanced understanding of what timely means and establishes that the two windows of opportunity exist. The challenge to fill the information void during this time requires identifying the correct information channels and framing the information most favorable to given objectives that remain meaningful and relevant to the target audience. The inability to fill the information void leaves the interpretation of significant events to others, including those who seek to exploit crises to achieve nefarious or alternative goals.🛡️

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