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Social media in disaster communication: A case study of strategies, barriers, and ethical implications

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The manuscript investigates how social media were used during a flood disaster managed by public affairs officers. We conducted high-level "elite" interviews with the state's top emergency managers about their social media policies, practices, and use in both media relations and citizen communication. We explored the strategies and communication models implemented, challenges and barriers for effective adoption of these platforms, and ethical implications in the use social media during natural disasters. The study investigates gaps between theories and practice, adopting a multidisciplinary perspective that involves public relations, social media studies, government/public affairs, and public sector communication. Recommendations are offered to improve disaster communication via social media including dedicated staff and resources, evaluation, symmetry, and the use of ethical communication to quell rumors or misinformation during a disaster.

1 | INTRODUCTION

Social media has reframed communication as rapidly emerging, without geographic boundaries, and interactive on both a societal and individual scale. Rapid communication is a challenge to manage, and that challenge is exacerbated in the most exigent situations: emergencies and disasters to be managed by public sector organizations (PSOs) and by public affairs specialists (Bowen, Rawlins, & Martin, 2019).

Social media serves as a powerful tool for emergency management and disaster relief in many recent emergency situations worldwide, such as Hurricanes Sandy and Harvey in the United States, the tsunami in Japan, earthquakes in Italy and Chile, and the Queensland floods in Australia. We focus on the role of social media as used by government agencies and PSOs (i.e., public departments, officials, and other government agencies) as part of their emergency and disaster response.

This case study examines a disaster in which eleven trillion gallons of water fell in South Carolina (SC), United States, causing massive flooding in residential areas; results included fatalities, massive infrastructure damage including road and bridge collapses, evacuations, and prolonged loss of energy in October 2015. The death toll was 17 and property damage totaled $1.2 billion. Social media took a prominent place during the flood in interactions between PSOs, media, and citizens. Messages were disseminated on social media to inform news media and citizens, and to coordinate disaster operations.

Emergency communication and disaster response is not optional for elected officials, organizations, and government entities at every level: national, state, county, and city. In the United States, there were 137 major disasters in 2017 and 79 in 2018's hurricane season (FEMA, 2018). The flood in SC was only one of the major disasters in 2015 but offers a unique opportunity to examine disaster response and social media use from the perspective of the communication function in numerous government entities with high-level (elite) public affairs officers (PAOs). We examined social media around this disaster from a perspective of crisis management (Coombs, 2019) and public relations (Grunig & Hunt, 1984), in addition to research on digital impact in PSOs (Canel & Luoma-aho, 2019; Falco & Kleinhans, 2018), focusing on the gaps and misalignments between theory and practice.

2 | PUBLIC RELATIONS AND CRISIS MANAGEMENT

Crisis management is the implementation of a response to an issue that has become reality such as a natural disaster, accident, or man-made crisis (Coombs, 2014; Seeger, Sellnow, & Ulmer, 2003). Crisis

response is best when planned so that contingencies can be anticipated, response streamlined, and communication can be both rapid and accurate (Coombs, 2007). Reality has shown that it is impossible to anticipate all contingencies contained in a crisis scenario (Seeger, Sellnow, & Ulmer, 1998). An additional challenge is that various types of disasters can create greater problems through unforeseen consequences and outcomes (Seeger et al., 1998). Additionally, there is a weighty ethical responsibility for public sector communicators that is enhanced during crises (Bowen, 2010).

Social media has given emergency managers a tool that can offer exceptionally rapid and effective response to changing conditions, offering the opportunity for real-time updates of situations (Coombs, 2016). Citizens seek information on social media during crisis for information and checking with family and relatives; yet, they also may be discouraged by information overload during such situations (Austin, Liu, & Jin, 2012).

The media is also using social media to issue news releases, offering a valuable resource for media, citizens, and other emergency managers. The live videos provided on social media show situations on the ground in detail that reports from law enforcement or the National Guard often cannot capture. These videos can be extremely helpful to citizens, but a greater value may be realized in informing the actual management of the crisis in the emergency operations center. Disaster communicators can respond by providing journalists with statistics, operations updates, and other data that the media will not have access to independently (Heath & O'Hair, 2009). The symmetrical nature of that relationship makes the communication a two-way symmetrical approach of mutual benefit (Grunig & Hunt, 1984).

Although such relationships are ideal, research found that a counterproductive antagonism exists between communicators and journalists (Maguire, Phillips, & Hardy, 2001) based upon competing self-interests rather than shared community interest. Antagonism and distrust appear to interfere with communication even in times of crisis or disaster (Veil, 2012). Bowen (2016) found that greater ethical expertise and articulation of those analyses by communicators could help engender more effective working relationships with journalists, which would in turn enhance crisis response effectiveness. Building relationships based on ethics, candor, and contextual disclosure can result in trust, best built before the time pressure of a disaster.

2.1 | Social media environment of disasters

The digital media revolution produced transformations in PSO communications worldwide (Canel & Luoma-aho, 2019; Mergel, 2013, 2015). Capozzi and Ricci (2013) argued "it has become increasingly critical for organizations … to create an online presence extending beyond a website into social media. In doing so, they can reap the benefits of direct access to stakeholders" (p. 3).

Indeed, social media enhances the dialogue between PSOs and citizens (Lovari & Parisi, 2015) instead of adopting a one-way, public information model to simply disseminate information (Falco & Kleinhans, 2018; Grunig & Hunt, 1984). Social media has also enabled innovative practices for cultivating relationships with journalists (Supa, 2014). News releases turn into disintermediated communication, aiming at favoring ethical assets such as authenticity, transparency, and instilling a sense of trust in institutions (Kent & Taylor, 2014). Further, citizens now expect to hear directly from organizations (Men & Bowen, 2017).

Scholars have focused attention on the potential benefits of social media, such as increased transparency, accountability, and access to services (Bertot, Jaeger, & Grimes, 2010). Other researchers studied how social media can enhance participation, promote civic engagement, and revitalize forms of democracy (Haro-de-Rosario et al., 2018; Kent, 2013). However, PSOs tend to favor asymmetrical, one-way dissemination strategies, despite the opportunity offered for communicating with citizens in a dialogical way (Grunig, 2009; Lovari & Parisi, 2015; Waters & Williams, 2011).

Scholars investigated the use of social media by governments and PSOs in order to strategically manage crisis situations from routine use to critical events, such as natural disasters (Bruns, Burgess, Crawford, & Shaw, 2012; Kavanaugh et al., 2012). Social media also allows PSOs to collect requests for rescue and assistance to enhance public order during the disaster, to reduce uncertainty, and to raise civic support (Sutton et al., 2014; White, 2011).

Digital volunteers can offer relevant help for disaster response (Park and Johnston, 2017), but the presence of official social media channels directly managed by PSOs can be crucial because it could counteract the information overload produced during emergencies. Focusing public attention on verified information can be an ethical use of social media to avoid the spread of false information, as seen during the 2010 earthquake in Chile or the tsunami in Japan (Acar & Muraki, 2011; Mendoza, Poblete, & Castillo, 2010).

There are also barriers for an effective use of social media during a disaster. Typical resistance to change in bureaucracies makes the adoption of social media problematic for PSOs, with clear difficulties in realigning processes, responsibilities, and procedures with the rapidity and visibility of social media channels (Mergel, 2015). Hilts, Kushma, and Plotnik (2014) identified three barriers with U.S. public sector emergency managers: (a) lack of personnel in charge of social media, (b) lack of policies and guidelines, and (c) concerns about the trustworthiness of crowdsourced data. Similar barriers where found by Comunello and Mulargia (2017) as well as the informal nature of social media that collides with PSO bureaucracy. These barriers influence social media use and the quality of digital communication between government, citizens, nongovernmental organizations (NGOs), and media.

2.2 | Inequities, problematics, and ethics

During a disaster, connectivity is imperfect and cannot be relied upon, especially in areas such as subway systems. Large-scale weather disasters can render utilities inoperative for a matter of days or weeks. Further problematics include the fragility of the technology, the requirement of manual dexterity, digital literacy, and actual literacy to use the technology. Thus, the infirm, elderly, and those with physical challenges or linguistic barriers can be left out by the digital divide (Madianou, 2015). Additionally, electronic devices can be destroyed during disasters, making the technology unreliable in numerous types of such events.

More troubling from an ethical perspective: affluence and education divide those who have access to the Internet and those who do not. This concept, termed the "digital divide" (Gunkel, 2003), is apparent even in the heavily wired United States, but is especially prevalent in lesser-developed nations. Lower-income individuals, rural adults, young children, the physically challenged, and senior citizens may not have access to a smart device or even Internet technology (International Telecommunication Union, 2015). Therefore, social media cannot be reliably expected to meet the information needs of these populations; thus, PSOs must rely on a multichannel strategy to spread information in more accessible ways.

Moreover, ethical concerns extend beyond the concerns of the digital divide to include the veracity of information itself. Veracity is maintained in through contextual full disclosure, frankness, authenticity, and honest communication that maintains respect for rights, fairness, and dignity (Bowen, 2016). During a disaster, we know that individuals frame communication in terms of uncertainty and have a high demand for knowledge of both the risk and of emergency response. Credibility and trust influence publics' "ability to communicate knowledgeably on the facts and issues surrounding any specific risk" (Palenchar, 2005, p. 754).

Further complicating these matters of credibility, trust, and veracity are the factors associated with how quickly rumors and misinformation (Jack, 2017) spread via social media due to their lack of editorial gatekeeping (Hung-Baesecke & Bowen, 2017). Misinformation represents a potential threat for citizens and media. Ethical guidelines for social media use exist (Bowen, 2013) and codes of ethics for professional communicators routinely deal with ethics for social media. Seeger et al. (2003) argued, "truthfulness, honesty, deception, and even lying become even more complex moral issues during a crisis" (p. 234).

Further, because of rapid dissemination and few credibility checks, misleading, inaccurate, or otherwise damaging information can spread quickly on social media in emergency situations. It is difficult for PAOs to quell the spread of inaccurate information during a crisis. Scholars find that rumors can be persistent and transmitted in a viral manner that is exceptionally difficult to correct (Kimmel, 2004; Vraga & Bode, 2018). Ethics is a vital consideration in crisis and disaster communications.

3 | RESEARCH QUESTIONS

Little research has been conducted in the area of disaster response in relation to the effective use of social media by PSOs using a qualitative approach for deep understanding. Cheng and Cameron (2017) reported that the majority of articles published in public relations and communication journals (70%) investigated the diffusion of patterns of information in emergency situations using quantitative methods, and only 3% of those used interviews. Although some guidelines for disaster media relations have been published (Veil, Buehner, & Palenchar, 2011), few studies have been developed from the PAO/emergency manager perspective (Hiltz & Gonzales, 2012; Hiltz, Kushma, & Plotnick, 2014). Little research has been conducted from public affairs' point of view, focusing on the relationships with citizens, media, and other departments outside the organization or on their use of social media during disasters (Comunello & Mulargia, 2017).

We do not know the extent to which emergency managers feel equipped to handle communication via social media, how they use citizen generated material, or what perceived problems exist with the use of social media during an emergency. Due to the lack of a robust body of knowledge, we do not know if emergency communication specialists use social media in a one-way or two-way model of communication (Grunig, 2009; Grunig & Hunt, 1984) and to what extent ethics enters their considerations. Therefore, we pose the following research questions:

RQ1: How did PSOs use social media during the South Carolina flood? (Probe: Was the use of social media primarily one-way or two-way communication?)

RQ2: What challenges and barriers did communicators face in using social media in this disaster response?

RQ3: To what extent were concerns of ethics, rumors, or misinformation prevalent on social media in this emergency response?

4 | METHOD

Government officials' disaster responses are explored through interviews with PAOs/emergency response officials. These were crisis communicators, risk managers, PAOs, and other top-level or elite (Hertz & Imber, 1995) specialists who managed disaster response efforts via social media during the flood.

We conducted in-depth interviews with 10 professionals leading their organization's emergency response for state agencies, military or law enforcement, and local or city government. Participants were recruited from a list of all state agencies involved in the Governor's Emergency Management Division (EMD). In-depth interviews were conducted in person with each participant and were digitally audio recorded and transcribed. In-depth interviews were chosen as a research method to study one particular event in all of the rich detail participants could offer (Johnson, 2001).

Participants include five who were the head of public information for state governmental departments, three who were the chief communicator of the city or county level, one as the chief communicator of a large university in the disaster zone, and one who was a regional head for a national NGO for disaster relief. The high level of information provided by these elite communication professionals was crucial in our study (Hertz & Imber, 1995). Most of those interviewed were present in the EMD's emergency operations center. To protect the identity of respondents, we do not identify them by agency name. The emergency response group in South Carolina is publicly available information, so we used a code sheet to categorize comments by type of PSO.

Each semistructured interview lasted an hour, with a range of 40 to 120 minutes; notes were taken by two researchers. Field notes and preliminary conclusions were discussed among the researchers who solved alternate explanations to resolve discordant conclusions and

conducted member checks by following up to clarify interpretations with the participants. Several participants supplemented their interviews by providing additional documentation. A textual analysis was conducted for main themes.

Qualitative data analysis was conducted by pattern matching (Strauss, 1987) of both the interview transcripts and the field notes and theoretical memos recorded by the researchers. Data reduction and display matrices were created to validate or collapse emergent themes. Once patterns emerged from the data, the most salient points were grouped as main findings after discussion of their potential theoretical significance as standalone concepts or in support of larger themes. To maintain validity of the data, each researcher drew independent preliminary conclusions from both text and interviews. These independent conclusions were discussed, collapsed, and discordant items rectified.

5 | RESULTS AND DISCUSSIONS

An overview of the manner in which this event unfolded can help to understand the organization of emergency response and how each PAO was involved. When the combination of Hurricane Joaquin meeting two other storms led to weather forecasts of unprecedented levels of rain, Governor Haley declared a state of emergency, at which time she became the head of disaster management for the state, along with the Adjutant General of the SC National Guard, Major General Livingston.

This operation was headed by the SC EMD, who operated the Emergency Operations Center, including representatives and chief communication officers from the Department of Transportation, Department of Administration, State Law Enforcement Division, Federal Emergency Management Agency, the National Guard, the Department of Health and Environmental Control, and other state agencies.

5.1 | Communication strategies toward citizens and media

Social media was used extensively across various government agencies. For example, one head of an SC department's emergency communications offered that the location of a collapsed bridge reported by SC Highway Patrol would be retweeted by the Department of Transportation, and normally would be further disseminated by media members and citizens. Dissemination of messages across agencies was an important part of a rapidly unfolding situation in which evacuations and emergency rescues were dominating the crisis. Dissemination of messages across multiple agencies allowed for a rapid and flexible approach that was adapted to real-time situations, focusing efforts on the communities that held the most risk at any given time.

On the other hand, dissemination across departments and levels of government was not seamless. Other important officials seemed to be excluded from the operation center, so they autonomously decided to use social media to convey information, without coordinating with the state departments. However, they also used those sources for official information to share on Facebook and Twitter and incorporated messages coming from the operation center in their digital communications.

Some of the PAOs said that social media was the most important channel to reach publics. Facebook and Twitter were the most-used social media to convey information to citizens and media, as reported in the following interview excerpt:

> *"We pushed out on social, we had two photographers out there. We put every release linked through social to the website. We posted it every 4 hours. Facebook comments said it was helpful and the media retweeted it" (State Infrastructure Management).*

Some participants praised the fact that social media increased their ability to accurately and rapidly perform media relations by sending information directly to reporters, especially via Twitter. Other emergency communicators thought that social media was not dominant but just one tool within a holistic and multichannel strategy. For instance,

> *"Strategy was to maintain open lines of communication and manage the crisis in the most efficient way possible. Social media was just one tool in the strategy" (State Administration Office).*

They stressed this point due to the fact that PSOs are financed by tax payers so they must inform citizens with different media to limit inequalities and difficulties of access to emergency information. This discrepancy often depended on the government agency of the communication professional and several noted the extent to which South Carolina is a rural state, making social media an unreliable means of reaching low-income and aged populations as highlighted in the following excerpts:

> *"Sometimes, we used social media but older people are still on radio. So, we focused on SC Radio and AM radio" (Military-type Organization).*

> *"We're trying to get it out on all platforms. A large number of people don't have internet in their homes. Taxpayers come in all ages" (County Government).*

> *"You can't rely on one form of communication to reach multiple constituencies. Experience told us to put signs up on the water fountains that the water was not drinkable until we had flushed all lines. Social media just can't replace that form of communication" (Education).*

Many participants noted that traditional news releases were far too slow as a means to update publics on the unfolding disaster. Most of the participants said that their office used social media to push media messages, but they also tried to create a dialogue with reporters by answering questions and messages, although adjusting to the speed needed in an emergency.

One participant commented that a news release would be outdated by the time it was disseminated, whereas others used social media to link reporters to rapidly written news releases posted on their websites. News update and links to news releases via Twitter

quickly began using the hashtag #SCFlood that was created by one of our interviewees, but not formally adopted by every PSO in the study. By including a codified hashtag in posts, emergency communicators informed not only the media as news broke, but also citizens seeking information through the hashtag.

Social media was used during this emergency communication response in a predominantly one-way, dissemination model (Grunig, 2009). Emergency information was spread in Spanish and English due to the presence of Spanish-speaking communities. This action clearly emphasizes the strategic perspective adopted by at least four of the PSOs to reach the highest number of inhabitants potentially limited by linguistic barriers.

Two-way communication was used primarily in the media relations area, rather than with citizens. Many participants explained that they answered online questions from reporters and tried to relate to the media through direct messages on Facebook or Twitter, such as the following:

> *"We use news releases to media on social media. Facebook and Twitter were big part of the first few days of the event" (County Government).*

> *"We get the info to our Twitter feed. Media are like wolves, retweeting us in seconds" (State Infrastructure Management).*

This study explored the extent to which two-way communication was used through crowdsourced videos of flooded areas. Emergency communicators preferred not to use grassroots information because they were concerned with message verification and the privacy rights of individuals being rescued, although participants noted that requests for rescue or assistance were responded to via direct message. For example,

> *"We do not typically retweet other people's stuff. It was difficult to confirm information. To know what was accurate" (County Government).*

> *"Social media helped in painting the picture. But it takes a lot of time, and we're faced with the inability to respond" (State Administration Office).*

> *"One of the things people expect in social media is a 24/7 real time response, and it is impossible to get the word out in the early stages of an emergency" (NGO).*

A few participants indicated that it would not be ethical to use crowdsourced materials from the perspective of a state agency because it inferred a state endorsement or verification of the messages. Others simply said it would be unethical to use citizen's content in their own social media. Some raise ethical questions about using citizen-sourced information, and most offered that their agency had a policy against using privately created materials in their own communications. Thus, emergency situations could limit citizens' engagement in two-way communication; conversely, a one-way approach can contribute to conveying information in a more ethical way, avoiding the risk of unreliable or inaccurate messages being spread.

Media relations, however, was more symmetrical; two-way communication was often conducted with journalists, favoring more personal relationships. Participants often indicated that they believed media-sourced information was credible enough to pass along through their social media channels without further quality control. In addition, communicators often indicated that they sent information to specific reporters' social media accounts because of previously existing relationships with them. In this sense, the cultivation of quality relationships with journalists made an enormous difference in terms of mutual exchange of information and credibility.

5.2 | Challenges and barriers

In a level of agreement rare in qualitative studies, every PAO in this study indicated a need for more trained personnel to handle social media. Respondents highlighted the need of more communicators to manage media relations via social media, to respond to direct messages, and forward requests for help that came in via social media. This demand clearly emerged during interviews as follows:

> *"We were behind, not staffed, no budget for that" (Military-type Organization).*

> *"We were going around the clock for* weeks, *having three people in 8-hr shifts for 24-hr response" (State Infrastructure Management).*

> *"It's a staffing issue. Getting more buy-in from our County Council on how social media can be important and efficient in partnerships with emergency management" (County Government).*

Many of the interviewees indicated that staff had not been trained in the use of social media, or they simply did not have enough staff to manage the response adequately during and after the flood. Every participant mentioned a desire to have trained communicators before an emergency unfolded.

> *"Having the staff up and trained in advance during a disaster to help with social media is key to being ready to go" (NGO).*

Another challenge was the lack of coordination across platforms. Communication managers varied in the experience and skills level with social media, and often they did not have staff to handle multiple platforms consistently. This lack of message integration led to some confusion and spotty updating of information as it came in from the field.

Finally, little evaluation research was conducted to measure the impact of social media in crises response. Several participants stated that their agencies ran analytics, and some participants provided the researchers with copies of their collected data. However, evaluation remains strictly anchored to vanity metrics, such as counting the number of fans. For instance,

"We saw an increase in followers on all of our platforms during the flood, but we've not yet done evaluations more than that" (NGO).

"We've not done any analytics. Our follow-up of the crisis was looking at branding issues so people will know what we do and how we can help them" (Regulatory Agency).

Among participants, no qualitative evaluation was carried out after the flood to understand to what extent the needs of media members and citizens were met via the use of social media. Such information could be exceptionally valuable in planning for future emergency and disaster, also for establishing collaborative communication flow across agencies.

5.3 | Ethical implications for disaster response

The participants indicated that they had to gauge the trustworthiness of messages and were very concerned about rumor control in these situations. The veracity of citizen-sourced information is difficult to judge. In using citizen-provided information, the danger would be that official emergency information could be intertwined with misinformation or inaccurate messages. Private and public contexts inevitably tend to collapse in the entropic emergency communication flow spread on social media, but PSOs communication managers avoided to give visibility to contents they were not able to verify in the acute phase of the disaster.

A surprising finding was the extent to which social media were used to identify and quell rumors and misinformation by strategically listening to citizen sources. It appeared that the emergency communicators in our study use social media routinely to push out information to news sources, but the second most common use of the medium was rumor control, as highlighted in these interviews' excerpts as follows:

"We correct misinformation on social media all the time. A large part of what we do is verify, correct, use the right definitions" (State Infrastructure Management).

"Social media can be lifesaving. We used it a great deal for rumor control, quelling rumors is part of any disaster. Twitter especially helped us control rumors" (State Administration Office).

"Social media is a faster medium. We used it for rumor control" (Regulatory Agency).

Indeed, all but one participant mentioned the use of social media to identify and stop rumors, to correct erroneous reports, and to provide official sources of truthful, verified, and accurate information. Several participants argued that in situations of emergency in crisis response, it is important to quell rumors to prevent panic and make decisions based on the most accurate and truthful information available. Communicators noted the difficulty of controlling rumors and prevention of misinformation on social media, raising ethical concerns as reported by several respondents as follows:

"Using social media involve ethics and transparency in state government" (Regulatory Agency).

"There's a big ethical responsibility. I'm not sure anyone knows how to correct misinformation on social media. Mainstream media has an ethical responsibility to verify the information they're putting out. Most do, some don't because there are many journalists who push out information, confirmed or not. It can create confusion. But they're not bound by the same legal and ethical constraints as we are" (Education).

One participant emphasized his process of contacting media members with whom he has a personal relationship to help disseminate accurate information in quelling of rumors that appear to have a potential to go viral. All participants mentioned a dual role of social media channels to be more connected with what people were saying on the ground, yet also to monitor that communication for veracity. Quelling rumors with honest information was important for both media relations and communication to publics. Congruent with arguments in our conceptualization (Bowen, 2010, 2013, 2016), these PAOs viewed honesty as the most essential component of social media communication.

6 | CONCLUSIONS

This study represents an elite observation of how governmental and PSOs have practiced disaster communication in social media in the context of the SC flood, describing gaps and areas of realignment between theory and practice. In-depth interviews allowed us to investigate organizations' awareness in strategic use of social media during emergencies and disasters. Based on this rare qualitative insight, we discuss theoretical implications as well as practical recommendations that can be used in disaster situations. Although this study has obvious limitations, such as being constrained to one state in a specific disaster situation, we find the level of insight gained through elite interviews in this qualitative research stunning in the sense that we can offer numerous suggestions to improve the social media effectiveness of disaster situations, and to reflect on the impact of these platforms on public sector communication (Canel & Luoma-aho, 2019).

Two-way communication, emphasizing listening, is an integral part of the social media management process that can be conveyed to risk, crisis, and disaster communication. It encourages a responsive organization by helping to identify the concerns and problems of publics for potential inclusion in planning and resolution. Likewise, evaluating the disaster response via social media can help to facilitate more effective and agile social media use during the next emergency or disaster faced by these agencies. Interviews showed that PSOs underutilized evaluation research. They are either too pressed for time and staff or are not yet fully aware of the importance of evaluating social media impact after a disaster. They noticed an increase in followers, but they did not give specific meanings to social media analytics. This weakness should be surmounted because evaluating the effectiveness of social media offers input into strategic management. Evaluation of impact

is a crucial activity that needs to be integrated in broader organizational listening procedures to improve the quality of relationships with digital publics (Lovari & Parisi, 2015).

Having staff trained and ready was a weighty concern for most PSOs, confirming previous studies (Falco & Kleinhans, 2018). All of the PAOs complained of a lack of funds for training specialists in social media during an emergency (Hiltz et al., 2014).

Emergency drills could also involve social media use by singular agencies or coordinating the efforts with other departments, adopting guidelines to manage citizen-sourced content and media relations, and also identifying possible lack of training of the existing staff. At the same time, communication specialists "should be careful and deliberate use of social media, while not neglecting traditional media in crisis responses" (Austin et al., 2012, p. 203). This case study confirmed how a multichannel approach is the appropriate one to inform and engage with the general populations (Kavanaugh et al., 2012; Vanderford, Nastoff, Telfer, & Bonzo, 2007), not fostering further divides among citizens (Madianou, 2015).

Scenario building precrisis is an important part of understanding how social media can be employed in both information dissemination as well as strategic listening for information gathering and monitoring for rumors in media ecologies intoxicated by inaccurate information. For instance, it could be useful to organize meetings with local media to listen to their information's needs during emergencies, proposing guidelines for disaster communication to improve the relations between communicators and journalists, respecting both roles to act ethically.

Ethical concerns of presenting honest and accurate information in order to prevent and quell rumors were a central concern in the use of social media (Bowen, 2016) for all of the emergency communicators in this study. This research recommends that processes be examined in which these concerns are addressed across emergency and disaster scenarios to resolve the weaknesses mentioned above. Planning best process measures for social media during disasters can help improve response speed, lessen uncertainty, and have an outcome of increased efficacy of communication in advance of the next event.

The use of social media was considered a positive tool in the disaster of the SC floods, despite some lack of coordination among the governmental agencies and public sector bodies (Mergel, 2013, 2015). This lack of coordination could be overcome favoring the creation of networks to share best practices and emergency communication protocols (i.e., identification of codified hashtags and agencies' postcrossing rules) to be used in emergencies. Many improvements can be made integrating social media in disaster communication planning and identifying a social media task force, composed by trained staff, to strategically deal with these events, before, during, and after an emergency. Future studies could investigate these challenges or study social media use to ethically manage rumors or misinformation, better handle media relations, conduct evaluation, and to develop a more effective two-way engagement with citizens during emergency response.

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