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**Preliminary Observations of Government Social Media Use During the
Stages of Disaster**

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Stages of Disaster**

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Report

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Dedication

This report is dedicated to my dad who has edited every paper I have ever written since I was in the 6th grade. And who inspires me each and every day to think and work harder in everything I do.

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Abstract

Preliminary Observations of Government Social Media Use During the Stages of Disaster

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The University of Texas at Austin, 2014

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Communities have come to rely on technology to enhance public safety and communication during disasters. With nearly one-third of online adults receiving information from government organizations using digital tools other than websites, it is no surprise that increasingly government organizations are leveraging social media to push out information to their communities. My interest in the topic of government use of social media during disasters began when I began managing social media platforms for a city emergency medical services system. My hope for the research is to reveal how government organizations are using social media for emergency management and to discover what they have learned. This paper reviews literature about community use of social media during various stages of disasters, and includes findings from interviews with five government organizations regarding their social media use during emergency

events. The goal of the research is to develop a deeper conversation among government and emergency management professionals to establish a direction for further research. Eventually, this ongoing research will better quantify the value of social media use by government organizations during disasters so they can make informed decisions on how government can best utilize social media platforms.

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INTRODUCTION

The use of technology within communities is not confined to merely daily personal social interactions. Increasingly, communities have come to rely on technology to enhance public safety and communication in times of urgent need. Large-scale emergencies, such as hurricanes, wildfires, earthquakes, and tsunamis, affect communities in significant ways. Lives are lost, homes are destroyed, and families are separated. The results are often devastating and individuals and communities are left to pick up the pieces. While every emergency is different, communities are discovering new ways to cope, before, during, and after disasters strike. No doubt a large part of how communities cope with disasters has to do with how official organizations and emergency managers communicate with them. However, the communication process can be very complex. Local government agencies, along with federal organizations and non-profits such as FEMA and the Red Cross all play roles in preparing and assisting communities in the face of emergencies. Today, with 73% of online adults using a social networking site of some kind, social media has emerged as a tool these organizations can use to connect with communities (Duggan and Smith, 2013) and of the adults online, nearly one-third get information from government agencies or officials from digital tools other than websites (Smith, 2010).

The role of social media during emergencies became a topic of interest for me in the fall of 2011 when I began working for a city emergency medical services system in their first ever marketing and communications position. At the time, social media was not a significant communication priority for the department. We had a Facebook and Twitter account, which were rarely updated. The Facebook page had fewer than 200 “likes” and the Twitter account had less than 200 “followers”. Working alongside our Public Information Officer (PIO), we spent a month discussing social media and how it might better be leveraged as a communication tool for our department. The PIO, a position that appears in most departments within government organizations, is responsible for all public information requests. PIOs typically coordinate the interaction with traditional media (newspaper, radio and television), usually via phone and email, though a paging system is also used to notify reporters and others of incidents occurring throughout our system. From our discussion, we determined that Twitter should be used to tweet out major incidents to ensure both the media and the public were receiving accurate information from our department as an official information provider and our Facebook account would provide general community outreach and safety tips. We also adopted HootSuite, a social media management dashboard, to manage direct messages, mentions, and follower growth specifically for Twitter. From this experience, I

recognized the significant role social media can play in local emergency management communication.

Today, three years later, our Facebook account has grown to over 2,000 “likes” and our Twitter account has increased to 5,000 “followers”. Our goal of connecting to the local media has also been reached. All of the major news stations in Austin follow us and will respond via Twitter to validate information concerning incidents. And perhaps more important than our growth is the enhanced engagement we have witnessed, specifically during major events. Our Facebook posts, especially photos, receive a multitude of likes and comments, and our tweets are regularly retweeted. For example, when heavy rain led to flooding in a section of the city, we tweeted throughout the entire event, sending out 57 tweets over an 18 hour period, gaining 214 followers, and were retweeted 453 times. Several questions were asked and responded to; including questions about the whereabouts of first responders and the location of reported incidents.

While these results show that community engagement occurred via our social media channels, we still face challenges. One challenge that was recently resolved concerned the number of staff responsible for tweeting and posting to Facebook. While tweeting or posting may only take a few minutes, having our one PIO devote his time to tweet and respond to questions distracted from other duties. In response to this, the

department has increased the number of staff members dedicated to each social media channel, assigning two for Twitter and five for Facebook. All seven staff members have had some experience in social media due to personal use, however professional organizational use of social media requires some special considerations. To enhance the effectiveness of social media, the department developed a training program, along with social media guidelines. Our guidelines address the direction of our department's mission, and include information that clarifies the appropriate messages to post to each channel, suggests when a post should be deleted (which is rare), and specifies the kind of tone to use in posts (conversational).

While the department continues to use Facebook to push out preparedness and safety tips, the majority of our emergency management communication is achieved through Twitter, which comes with its own challenges. Incidents, of course, occur 24/7 and while our PIO team will often tweet out major incidents that occur in the middle of the night, they are not monitoring Twitter 24/7, day to day, though it is monitored 24/7 during major incidents. For me personally, as the staff member who reviews social media analytics and reports social media usage to the teams after major incidents, my greatest challenge is establishing our goals and how they should tie to our strategic plan. While I can say based on the number of Twitter followers we now have and the retweets and questions that get asked via Twitter, there is indeed value for us in using

Twitter as a communication platform, I cannot quantify the value. Did our tweet directing followers to the winter weather safety tips actually prevent someone from driving their car in those conditions? Did our response to a media question during an incident save the city and the press time in dispersing the information (or was it merely more convenient)? Did we gain 200 Twitter followers after the flooding because they felt the information we were pushing out was directly helpful to them, or were followers simply digital rubberneckers? These questions have caused me to seek out information about how other governments and organizations were using social media for emergency management and discover what they have learned through their own experiences.

This paper will first review the literature about community use of social media during the various stages of a disaster. If the goal of government organizations is to provide information to communities via social media, it is important to understand how communities are actually using social media and to identify the kinds of information citizens require. The second part of my study involved in-depth interviews with staff assigned social media management roles within government organizations. The goal of these interviews was to discover how governments and support organizations are using social media during emergencies and what they have discovered during their usage. My hope is that this research will begin a deeper conversation among government and

emergency management professionals to establish a direction for further research. Eventually, the research hopes to better quantify the value of social media usage by government agencies assisting communities during disasters so that they can make informed decisions when it comes to how social media is utilized as a platform.

LITERATURE REVIEW

Stages of Disaster Management

Disasters come in many shapes and sizes. They can be man-made, such as a bombing or a school shooting, or natural, such as an earthquake or hurricane. What they have in common is property and personal loss and destruction, and the necessary time and effort to get the impacted community back to normalcy. They also share a common structure in that every disaster goes through stages; and while a variety of disaster management frameworks currently exist, they all fall into three basic stages: before, during, and after. Moe and Pathranarakul (2006) discuss the five generic phases of disaster management including: prediction, warning, emergency relief, rehabilitation, and reconstruction, Within these phases vital activities are conducted including mitigation and preparedness, response, and recovery.

Mitigation and Preparedness

Preparing for disasters is often not on individuals' radars until they see the immediate threat. According to Jim McKay, editor of Emergency Management magazine, this lack of preparedness is due to Americans' false sense of security and most are missing the urgent message to prepare for disasters, or the wrong message is being sent (2012). Ana-Marie Jones, executive director of the nonprofit organization

Collaborating Agencies Responding to Disasters (CARD), was one of 85 preparedness experts invited to a two-day event hosted by FEMA and the American Red Cross in 2011 that discussed how to engage the public when it came to preparedness. According to Jones, the majority of attendees saw the messages going out as flawed. Even FEMA Administrator Craig Fugate acknowledged the preparedness message has been unsuccessful. Many believe that the problem is that preparedness is a top down message generally based on fear. And while emergency managers should continue to educate communities on how to prepare, Jones states that people need to also hear these messages from those they trust and believe in (McKay, 2012). “People are much more connected today to groups of like interests than ever before, and if we as emergency managers are focused on the leaders of those groups, then they can pass the preparedness message down to citizens” (McKay 2012, p. 36).

The Ready campaign, launched by FEMA in 2003, asked people to do three things: “(1) build an emergency supply kit, (2) make a family emergency plan and (3) be informed about the different types of emergencies that could occur and their appropriate responses.” (About the Ready Campaign, n.d. para. 2). Yet a study by the Ad Council in 2012 revealed only 17 percent of respondents said they were very prepared for an emergency situation (McKay, 2012). And while some believe community groups may be the best source for message notification, a study by Perez-Lugo claims

traditional media should still be considered an important management tool during disasters because they can get information about hazards, preparedness, and recovery stages to a wide audience quickly, becoming a link between the public and government. “Disaster researchers view the media as management tools that have the potential to change people’s preparedness behaviors as well as their response to natural disasters” (Perez-Lugo 2004, p. 210). The study also found that the relationship between community members and media, not surprisingly, changed during different stages of a disaster. Interviewees stated that they followed standard safety recommendations not because they were told to do it, but because it was common sense based on previous experiences with hurricanes. In fact, the main reason community members turned to the media, or information providers, during the preparedness phase was to find out specific information about the event (such as where the hurricane was located) (Perez-Lugo, 2012).

When looking at the types of information “information providers” provide during the mitigation and preparedness phase, Moe and Pathranarakul (2006) discuss the proactive and reactive approach to disaster management. The proactive approach includes planned activities before the impact of a disaster to minimize negative impacts, while the reactive approach includes responses and recovery. Of course, one of the greatest problems here is the onset time of disasters. Some disasters have a slow onset,

offering opportunities for a proactive approach, while other events have very little lead time and in these cases the mitigation and preparedness is practically impossible (Moe and Pathranarakul, 2006).

Literature seems to suggest that one of the greatest challenges of communication during mitigation and preparedness is that messages on preparedness are often not reaching the intended audience. There could be several reasons for this. One might be that the wrong people are communicating the messages as suggested above, that community groups may be better suited for this type of communication because they better understand the situation of others in their own community. The other reason could have to do with timing. Disasters with fast onset make it difficult to get preparedness messages out in time, and pre-disaster messaging is sent when the disaster's impact is not fully appreciated and therefore is more likely to be ignored by communities until they actually experience the disaster. Lastly, for many who live in areas that have been repeatedly affected by certain types of disasters, they may already know how best to prepare for the next similar event

Response

While in the midst of disaster, communities have a brief amount of time to determine how to quickly respond to stay safe. Political scientist Daniel Aldrich has studied how communities respond to natural disasters. His research concludes that the

most important variable when it comes to resilience in responding to disasters is social networks. From examining a variety of disasters, he discovered a pattern that showed communities with established relationships with each other and local government fared much better than communities that were unconnected (Aldrich, 2012). But, this sense of community does not always have to be preexisting, in fact, Perez-Lugo's study found that during the response phase of disasters, communities turned to media for emotional support and social connection (2004). Certain communications technologies also have the ability to create strong ties to facilitate interaction between people with similar interests and often can become the only tie those affected by disasters have with the outside world (Perez-Lugo, 2004). Research by Shklovski, Buker, Kisler, and Kraut (2010) focuses on how technology adoption and use affected a specific New Orleans community, namely musicians, after Hurricane Katrina. They conducted a longitudinal, qualitative study interviewing 40 musicians, a mix of performers and music professionals living in New Orleans at the time of Hurricane Katrina. The initial interviews were in 2006 with the second interviews conducted in 2007. Shklovski et al. reference a 2006 study which showed online city resources and town web portals did in fact increase civic engagement and participation in certain communities. Looking back to Aldrich's research, local government and community association programs that support community building events help foster community discussion and encourage

volunteering which have proven to increase civic engagement, resulting in successful community participation and assistance required during times of urgent need (2012). Aldrich's focus is on what one might consider traditional means of face-to-face engagement and connection, while Shklovski et al. look at how technology use after disaster increased community engagement and community assistance. While community engagement is vital during all stages of disasters, two specific studies suggest that this community engagement builds as response begins and more and more people go online to get information about what to do and how to stay safe.

The importance of connecting with information during the response phase of disasters is critical and Koh and Cadigan (2008) discuss the importance of trust building when it comes to this information sharing and communication. They recommend special attention and investment be made when it comes to planning to prepare for and respond to disasters as "such investments may well be helping to build a more cohesive, integrated, prepared national and global community where all understand their interdependence in the midst of crisis" (Koh and Cadigan 2008, p. 283). This idea of trust building is also an important factor with online communities. A study by Wu, Chen, and Chung found that shared values of members in a virtual community have a positive impact on trust and relationship commitment (Wu et al., 20010).

Information and communication technologies (ICT) have made the role of a community's involvement in a disaster more visible. Today, people directly affected by disaster and those outside of it are going online to "provide, seek and broker information". People seek information from multiple sources, typically relying on their own social networks to validate and interpret the information coming from more formal sources to figure out how they will respond to a disaster (Palen and Liu, 2007). Potts discusses the importance of these more formal sources in relation to the Actor-Network Theory (ANT). This theory looks at a network of "actors", which can be people or technologies, and examines how information flows between these actors. At the hub of a network is an anchor actor who mobilizes the other actors and recruits them into the network to provide and share information. The anchor actor typically becomes the main source of trusted information for the actors within the network (Potts, 2012). Pathways of communication run between different groups, or what Potts might call actors, during the response space, between peers (or peer-to-peer), members of the public affected by the disaster and those outside of it, and between official information providers and members of the public. Increasingly, with both official and unofficial information providers providing information, it is important to find ways to align these two sources of information to understand what is correct and incorrect (Palen and Liu, 2007).

Validation of information during the response phase of disaster is crucial, especially when it comes to the instantaneous nature of social media. Validating information can occur in different ways. Potts discusses a photo taken and posted to Flickr during the London Bombings, validated by pieces of data taken from a variety of sources to confirm the photo was in fact from the Underground during the bombing (2012). Validation also occurs due to self-regulation of information shared and posted, in the sense that individuals directly affected by an event are more aware of the seriousness of posting information publicly. After the shooting occurred on the Virginia Tech campus in 2007, a set of websites were developed to identify victims of the crisis. Virginia Tech confirmed 32 dead, plus the shooter, at 2:13 pm and between Facebook groups, Wikipedia, and other sites and news outlets, the compiled information on all lists was correct before the names were released to the public. Individuals that did post information were asked to source where they got it before it was accepted as validated information. Interestingly, the names were not copied from platform to platform and no list was fully complete, showing that information gathering was occurring concurrently (Palen et. al, 2007). “Though the few central citizen-generated victim lists were compiled in different sequences, they were never incorrect. Participants in the list-building activities self-policed, and they knew that adding a name to the list was a serious statement indeed. Accuracy, verification, and gravitas ruled the interaction on these focal point sites” (Palen et. al 2007, p. 2). Other crises situations show that with microblogging platforms, such as Twitter, false information and rumors are more likely to be questioned than truthful information (Medoza, Poblete, & Castillo, 2010). And while false information during a crisis is much more detrimental than it might be during day to day

communications, past studies on social media credibility have shown that “the utility of information tends to affect the degree of efforts individuals exert to discern the quality of information.” (Kang 2010, p. 22). This suggests that while false information may be shared during crises, because of the importance of reliable information during crisis situations, consumers of information are more likely to confirm truthful information and point out false information.

When communities are in the middle of disasters, retrieving information on how to stay safe is vital, and any false information could be particularly dangerous. Both “official” information providers that are putting out validated information and community members who validate and regulate information are vital to communities. Another interesting component of communication during disasters is offered by Perez-Lugo who discusses how individuals turn to their preferred medium to get information until they lose connection, meaning that many lost electricity at some point and could only rely on battery operated devices, such as radios. Today, with so many people having access to mobile devices, it makes sense that social media and the Internet would be their primary medium for information seeking during disasters. At the same time, organizations must be careful about relying on social media as a sole source of communication because of potential loss of electricity which often means that a loss of internet connection will also occur, and when that happens, communication has to revert to the basics.

Recovery

After disasters, communities are often left in disarray. Recovery can include counting lives lost, delivering necessary supplies to those affected, making sure loved ones are okay, keeping track and repairing destruction that has occurred, and making needed repairs. Recovery is not a task that occurs quickly, as it takes time for communities to get back to how they were before the disaster, and the length of time it takes can often span over many years.

During Katrina, online connection became pertinent as disruption of telephone landlines and cell phones forced victims to pursue other methods of connecting. Communities often find that when lacking traditional communication, going online and forming discussion boards and forums can be a way to stay connected, and help each other during recovery. Shklovski et al. discovered in their study that the community of New Orleans musicians was doing just that. People with New Orleans area codes quickly found they could not receive calls on their mobile phones and therefore the only way to communicate was through text messages, a technology new to many at the time. In addition, many New Orleans residents relied on the Internet to deal with the disaster. Some individuals had more access and technology knowledge than others and became “information collectors”, creating websites with “safe lists” of people who had checked in with someone (Shklovski et al., 2010). “The safe lists not only provided vital information about the safety and whereabouts of friends and family but created a sense

of community presence and hope” (Shklovski et al. 2010, p. 1236). The safe lists became a forum where people could stay in touch and find each other. After Katrina, the local newspaper *New Orleans Times-Picayune* began a website featuring discussion boards arranged by neighborhoods where many of the subjects in Shklovski et al.’s study said they found at least some of their information. According to one respondent, a neighborhood organization even had somebody come back and take pictures and report back on the web (Shklovski et al., 2010). Shklovski et al.’s study illustrates how a specific community in time of trouble used various forms of technology in a way that connected them during a time of great disconnect.

In addition to social media, web applications also offer communities the opportunity to connect in new ways. See Click Fix is a web application allowing citizens to report 311 issues online. Citizens are able to post images or notes via the Internet or their mobile device when they discover a local issue that needs addressing, but in the aftermath of Hurricane Sandy it is doing much more. Not only has it leveraged crowdsourcing to report downed power lines, blackouts, and other issues, it allows websites like Huffington Post to embed widgets showing where problems are located and has revealed houses that need repair to the Federal Emergency Management Agency (FEMA) . In addition, it includes a tool that can coordinate volunteer efforts. In

Crisfold, Maryland, the technology was used to coordinate a clean-up activity where the community got together to fix problems reported online (Collins, 2012).

Ushahidi, an open-source Web platform using crowd-sourced information, was used after Haiti's 2010 earthquake. The platform linked health care providers needing supplies to those who had them, and allowed trapped victims to use Facebook to attain help (Merchant et al. 2011). In the aftermath of Hurricane Sandy, community organizer Fred Forzione, along with volunteers, not only went door to door helping people, he created a "Rebuild Staten Island" Facebook page to share information and help those in need. In addition, Twitter users on Staten Island began to congregate on Twitter with hashtags #SIRecovers and #SIOpen where tweets about needs for items such as blankets and cleaning supplies had been posted (Dewey, 2012). One of the benefits of social media, according to Merchant et al. is it provides "opportunities for engaging citizens...both by 'pushing' information to the public and by 'pulling' information from bystanders" (2011, p. 290). A Google doc shared on Twitter by e-democracy guru Steven Clift contained a list of over 80 Facebook pages and groups created by citizens after Hurricane Sandy (Clift, 2012).

Literature tends to focus on community generated and crowd-sourced information as a popular means for people to receive and share information after a disaster occurs. Perhaps because after disaster is when organizations are more focused

on the actual recovery efforts than providing information. There have also been instances where organizations have not been thoughtful when it comes to how to use the technology effectively. After Hurricane Katrina, FEMA's website directed visitors to the Red Cross website for locating missing persons, but when visitors left FEMA's site, they were directed to the Red Cross home page instead of the list of missing persons (Potts, 2012). "If visiting the FEMA website was the interactive equivalent of asking, 'How can I find my loved on?' then FEMA's link was the equivalent of shrugging shoulders and replying, 'How should we know?' (Potts 2012, p. 55)". This is a great reminder that more effective planning is required for organizations to better use social media and the Internet in order to serve citizens during emergency events. And it is vital that emergency information be provided by official information providers because according to Perez-Lugo, people expect these formal officials to provide information about the conditions of the affected communities (2004).

Community engagement is an important part of every phase of disaster, but it seems that recovery is where communities seem to band together the most to aid in recovery efforts. And while crowd sourced information has proven to be extremely valuable, communities are still looking to organizations for official information and to provide guidance on recovery efforts.

THE RESEARCH FOCUS

It is evident that the onset of new information and communications technologies (ICTs) has greatly changed the way people stay connected with each other and with their community. In the past, officials physically posted information to community bulletin boards to communicate during and after disasters. This could include government messages or postings to find missing family members. Today, these community boards are virtual. Online discussion boards are allowing far greater reach to connect people together. When phone lines go down and cell service gets spotty, people have turned to text messaging to communicate. When people are unable to get the timely information they need from traditional sources, they turn to social media and send Twitter messages to emergency organizations. A study by the American Red Cross showed that many people use Facebook and Twitter to seek help, in fact, 69 percent of respondents surveyed expect emergency response agencies to monitor their social media networks regularly and 18 percent said they would turn to social media if their 911 call did not go through (Bain, 2010).

When Katrina hit in 2004, Facebook was in its infancy and Twitter did not exist, but in recent years they have become an important tool for connecting communities and providing communities with information. Today, more than 40 million Americans

use social media sites multiple times per day (Merchant et al., 2011). Many public safety, government, and emergency management organizations, or “official” information providers have gone through at least one emergency or disaster using some of these newer social media platforms, such as Twitter, Instagram and Flickr, and now have a better understanding of how to effectively serve serving their community. Past research tends to focus on general information needs of communities during the various stages of a disaster, yet we know little about how these “official” information providers are using social media and providing information

In order to better understand how government organizations have used social media in disasters and to begin to understand the value they provide to a community, interviews were conducted with five government officials who manage social media for a variety of government and emergency management organizations. By analyzing their practical use of social media and looking at the similarities and differences of how they are communicating via these platforms this research hopes to better understand how government organizations are using social media to assist a community before, during, and after a disaster. The hope is that these interviews and my analysis will drive forward a conversation to help social media scholars and practitioners develop better strategies and communication plans that not only offer value to the community members seeking

information through social media, but also help us to evaluate how to manage different platforms.

METHODOLOGY

This study was conducted through in-depth telephone interviews with five government organizations, specifically interviewing the primary government staff person responsible for managing and posting to the organization's social media platforms. While an interview protocol was developed, the protocol allowed for flexibility in the interview process; and many interviews ended up being conversational with participants volunteering details and information before a question was asked. The five organizations included City Government, County Government, a local Federal Government organization and State Government, with most of the government entities specific to emergency management.

Each interview lasted approximately 45 minutes and the sessions were recorded for future analysis, in addition to notes being taken. Analysis of the interviews involved comparing how the different organizations were using social media during, and in response to, disasters or emergencies; and to identify similar trends in use of social media. In addition, the interviews solicited information on how the government organizations were interacting with their communities during the different phases of specific major events they faced.

FINDINGS

Social Media Use Day to Day

The organizations examined through the interviews had much in common regarding general social media usage. All organizations claimed they primarily used Twitter and Facebook, though some also utilized YouTube, Vimeo, Pinterest, and Instagram; however, the latter platforms were used less frequently, if at all. Some interviewees reported the organization had simply opened an account to have the social media tool available, but had not yet determined how they would utilize the platform. All organizations also had a website presence and leveraged additional tools such as Google Maps to post information such as road closures, power outages, and other localized information. The organizations stated they typically posted daily on both Twitter and Facebook, with a higher frequency on Twitter than Facebook. Types of posts included information such as general safety tips, photos of events in the community, as well as weather and traffic updates.

Discussion around social media usage focused on Twitter and Facebook as these were the two platforms used most frequently, and consistently. Other tools used to manage the social media accounts included HootSuite and TweetDeck, while many reported they simply logged into the native platforms to post. Every person interviewed

was in a communication or public information role with social media management as a large component of their job duties.

So what were the organizations' first forays into social media? The platforms were adopted before any disaster or emergency hit, and most stated that they began using social media because they knew many of their community members were using it or saw other government departments using it. Many had little professional knowledge of, or training in, social media except for their own personal use. One organization did obtain a grant that allowed them to hire someone specifically for setting up their accounts and managing them, but once the grant ended, existing staff took over the management role. Another respondent reported working with social media in a previous position and had relevant experience due to that. Similar to my own experiences with my government department, the need for training and learning the platform was a key task discussed by most respondents. Some respondents were more advanced in their knowledge of social media when they initially began their job, but all had become very familiar with how the tools worked and were open to try new platforms as they were deployed. While the interviews did not delve into specifics of other communications tools used, one organization mentioned the city employed an alert system which can leave voicemail or text messages for community members with essential information, and another discussed how they conducted in-person community

meetings. Another talked about their blog and “hub and spoke” model used where pertinent information was posted to their blog and then broken into chunks and posted on Facebook and Twitter. All respondents discussed how social media was leveraged as an additional form of communication, part of a comprehensive communication plan consisting of many communication channels to reach the public.

The interviews revealed a number of commonalities among the organizations’ use of social media. They all posted primarily on Facebook and Twitter, often posting the same information for each site, but in a slightly different way. Many interview participants discussed how Facebook allowed for more information and interaction while Twitter is set up for more frequent posting, but shorter bits of information. All organizations were aware of these differences between the platforms and posted the appropriate message to each platform. In addition, respondents reported that posts to Facebook were made with much less frequency when compared to Twitter.

When looking specifically at the differences between day to day posting practices versus strategies for posting during an emergency or disaster, every interview participant suggested their organization posted 24/7 during an emergency or disaster in comparison to their general posting which occurred every few days or intermittently during the day. A primary reason for this 24/7 posting during the emergency is due to the operational setup of government agencies. During an emergency, an Emergency

Operations Center (EOC) is typically established where public safety, emergency management, and other organizations coordinate planning during the event (Department of Homeland Security, n.d.). Along with the EOC , communities often deploy a Joint Information Center (JIC) where “personnel with public information responsibilities perform critical emergency information functions, crisis communications and public affairs functions” (FEMA, n.d., para 4). The EOC and JIC are entities every interviewee discussed and are important management considerations in analyzing how effective communication occurs between government agencies during an emergency or disaster. Respondents discussed their participation in the EOC and JIC during past events and a key finding from this discussion was that many organizations do not have a written communications plan in place that includes a specific component dedicated to social media. In most instances communication planning is informal and adaptable, due to the fact that the professional social media communicators are together at the EOC or JIC and therefore communication coordination is accomplished in a more organic way and requires flexibility to respond to the changing dynamics of the emergency or disaster.

Social Media Use during Mitigation and Preparedness

When speaking to the interview participants about their organizations’ mitigation and preparedness communications via social media, it was evident this

activity actually took place more often during their normal day to day communications. Respondents stated they believed that many of their community members had lived through several events depending on region (floods, hurricanes, tornadoes, and wildfires were all mentioned) and therefore had firsthand experience on how best to react. One respondent said that while they understand there are people that have lived through past events and therefore were more prepared, they continue to push out preparedness messages because they can never assume that everyone knows what to do. In addition, this same respondent felt that continuous public safety promotion for preparedness is important because of an ongoing need to inform new residents.

In relation to the proactive approaches to information strategies touted by Moe and Pathranarakul, respondents shared that communication planning for specific emergency events was difficult since they could not predict exactly what type of emergency might occur (2006). Because of this, it makes sense that all respondents reported they promoted preparedness consistently throughout the year, ramping up messaging during specific seasons when events like tornados, hurricanes, flooding, and wildfires were more likely to occur. These messages provided information to the community on items to include in emergency kits, guidance and information on where to take shelter if needed, and other safety tips. What was evident across the board was that the traditional preparedness messages resulted in much less interaction with the

public than the organizations experienced during an actual emergency. One respondent did say that before certain predicted weather emergencies they would get questions via social media from the community about ensuring catch basins were unclogged so they could drain properly during heavy rain, but no other respondents has specific interactions they remembered based on preparedness messaging. All respondents also said that as the expected emergency grew closer to the affected communities, public interaction increased exponentially.

When addressing interaction and engagement specifically for Twitter, all organizations looked at mentions, questions, replies, and retweets. Based on my experience with Twitter, mentions can be used to ask a question publicly or could simply be a comment about the organization. Replies are another way in which people can ask a public question. Retweets would simply be a way to share information posted. Because of the complicated nature of social media interactions, is difficult to verify the value and effectiveness of each interaction. For example, if a message gets retweeted by 20 followers and each of those followers has 200 followers, then the potential reach is 4,000 people, but there's no guarantee those 4,000 people are on Twitter when the message gets retweeted. All respondents seemed to put more value on actual engagement, when followers asked a question. While questions allow organizations to respond directly back to followers and provide the specific information sought by a

citizen, this most likely has a much smaller impact. However, if it's a question that many in the public have an interest in, the response can impact more than just the one person asking the question since it is replied to and posted publicly for all followers to see.

Social Media Use during Response

Literature suggests that trust building and validation of information is crucial during emergencies, and all of the respondents spoke about ensuring the information sent out via social media was relevant and validated. It was interesting that while all respondents had similar strategies of pushing out information during an emergency response, they also showed some distinct differences. During an emergency, all organizations confirmed they monitored social media 24/7 with four of the five organizations having one dedicated person set up for this task at the EOC or JIC. The one outlier was the federal government organization which did not monitor as frequently, however, they did confirm their staff was in constant contact with fellow staff members at the EOC or JIC during a major event. While all respondents used both Facebook and Twitter regularly, the majority of information sharing and interaction took place on Twitter during the event. One respondent stated that part of the reason Facebook was used less frequently was because they viewed it as more static and saw Twitter as more immediate. This may have to do with the type of content typically posted to the two different platforms. Facebook is more of a platform where users login to share

information and connect with friends, the information posted and received often does not have an urgency to it, whereas Twitter is very short bits of information and is often seen as a news feed.

Similar to how Potts discussed anchor actors as the hubs of information; all five organizations saw themselves as an important hub of information. They accomplished this role in different ways, however. Although all five emergency organizations had one person in charge of their Twitter account at any given time, the way in which information flowed through their network was slightly different. One County organization explained their role as similar to a funnel. While many departments within the County had their own social media presence, these disparate departments would coordinate and retweet the posts from the main County Twitter account during an emergency, becoming what Potts would call an anchor actor. In addition to this, the organization also saw their role as being the eyes and ears on Twitter, retrieving information from the community as the event was happening and verifying or alerting the community about events in real time and correcting any false information within the community (this was accomplished by using TweetDeck to monitor ongoing conversations). Past research has shown how communities often use multiple sources to verify and validate information; and it was clear government organizations are a good source for validated information. This makes practical sense based on the government

organization's unique knowledge of events since during major events they have access to experts engaged with the event as they have emergency personnel on the ground level experiencing the event. Part of the ability for the county to funnel information through one source, or actor, was due to the fact that those responsible for social media in government organizations are typically personnel with public information responsibilities and are physically at the EOC or JIC together and have the ability to sift through details and interact prior to pushing out information to the community.

Another interviewed organization, a local organization that is part of the federal government, also focused on using Twitter during an event. Like the other organizations interviewed, the federal agency had a person staffed 24/7 during major events. However, unlike the other four organizations the staff member was not physically at the EOC or JIC, though they were in continuous contact with those at the EOC or JIC providing information to officials during events, both via phone and social media. This organization had no rules or guidelines when it came to posting information on social media during a major event, but they did train their employees to use social media by setting up scenarios and having them simulate messaging on Twitter during the exercise.

When responding to a real tornado event, this federal government organization tweeted every two to three minutes as their goal was to get as much information as

possible out to the community to enhance safety. While their strategy focused more on pushing out information than responding to citizen queries, they discovered that the most frequent request from the community was how they were going to be affected, as the community desired detailed information about where exactly the tornado was in order to protect themselves. Perez-Lugo examined how a community turns to information during preparedness to find specific information about an event, such as when it will hit, though it also seems that this type of information can roll into the response phase as well. Most likely this is dependent on the actual event, for example a tornado that moves fairly quickly through a location would give little time between preparedness and response.

When interviewing the state government participant, they highlighted how their agency concentrated on getting accurate information out on social media sites and how they coordinated with local government and Public Information Officers to determine what type of content would be retweeted and shared during an emergency. This organization was the one that used their blog as the main information hub, with social media sharing information from the blog. The respondent stated that during a past emergency activation they saw 175,000 page views a day on their blog. This group also discovered that between Facebook and Twitter, Twitter had the most traffic and engagement during emergency events. Recently, the organization sent out a

preparedness tweet about what to do before, during, and after flooding, which was retweeted by three other government organization, with a potential reach of 39,000 (or more depending on how many retweets were made by their followers). Once the event hits the area, Twitter is monitored 24/7 and the state has a policy in place to reply to every mention and direct message as well as monitor all the major agencies' social media accounts via mobile notifications. In addition, the social media manager for the state agency used a variety of tools to monitor what was happening during major events by looking at feeds of other social media accounts. This was accomplished by setting up Google alerts with different keywords for emergencies, monitoring media and community groups that were created, as well as using monitoring tools specific to Twitter such as HootSuite, TweetDeck, Social Mention, and Tweet Bridge. The state agency's use of social media seems to follow Potts' definition of an anchor actor, as during the response to an emergency, they see their role as pushing the community to official information, sharing crucial information about what is happening in the community and who is responding, and letting citizens know what other accounts they should monitor. Due to their established policy, their protocol is to only share or retweet information from state agencies. They will not share or retweet any unverified information that comes from the news media, community members, or community groups, as they only share official information. Based on their description of how

information is shared, they truly seem to be a hub for official information and serve as a connecting network so communities know where to get accurate official information. At the same time, they will reply to anyone and attempt to verify information is accurate from the media, community, and local partners.

The first of the two city government organizations that were interviewed also had precise communication plans in place. During an event, they too were physically at the EOC where an individual would monitor and post to Twitter 24/7, using HootSuite to monitor activities. During the response to a hurricane, the city government used Twitter and Facebook to broadcast how people could stay safe, as well as utilize tools to review the inflow of information. The inflow of information included questions about what people should do and when it might be safe to go out, or reporting damage that needed attention. The city government official interviewed reported that during a severe event there seemed to be little interaction with citizens during the event, but citizen interaction began to pick up during recovery. The concept of the city government as an information hub was apparent with this organization, too. While they had various departments with their own unique social media presence, during an event, information is routed and funneled through two main Twitter accounts for the city and the individual departments would retweet the information from the main sources, once again playing the role of an anchor actor and validator of information. In fact, this participant

discussed a blackout during a major event, resulting in rumors about it being a terrorist attack. The city's main Twitter account was able to quickly inform followers that it was in fact merely a power outage by posting that information immediately, with the hope of preventing panic.

The second city government organization interviewed, spoke about hierarchy when it came to social media messaging during the response phase of disasters. Similar to the hub model, this city government had one person in charge who approved messages via social media to ensure consistency among the varying social media accounts tied to the city. This organization was one of the few using Instagram and had figured out a way to tie it into emergency events by posting photos of the EOC or JIC during the emergency event to reassure the community city government was still functioning and managing the event. In essence, this became another form of validation, reassuring the community that government is there 24/7 providing critical information and communicating with the citizenry.

Social Media Usage during Recovery

Research suggests that recovery after a disaster is often bottom up, with communities working together to crowd source information, keeping track of who is safe and who is not, and figuring out how to help each other. Literature seems to focus

on community based efforts, such as SeeClickFix and Ushahidi, which have also been used extensively in recovery efforts after a disaster. When talking to participants about social media use during recovery efforts it was stated that interaction greatly increased during this stage and the role of most organizations continued to be official information providers. However, in some cases, emergency service organizations became information brokers as well. Some interactions were simply citizens seeking answers, such as “how long before my food spoils with no electricity?” But the majority of interactions according to the organizations interviewed included reporting of conditions such as power outages, trees down, flooding locations, and connecting people with resources. This included answers to questions like “how can I help?”, “where can I volunteer to help and/or provide assistance?”, and “where can I get assistance?” Perez-Lugo discussed how people expect officials to provide information about the conditions of the affected communities during recovery, and while emergency service organizations certainly used social media for general recovery information, they were more focused on recovery operations and routing information to the appropriate companies and agencies (for example, if electricity was out somewhere, informing the power company).

ANALYSIS

Literature on disasters and emergencies offer insight into the types of information communities are looking for during these events. The interviews confirm that government organizations are providing the type of information communities are looking for from official information providers before, during, and after disasters, and the interviewees spoke about success in terms of interaction and engagement is occurring with their followers, as evidenced by mentions, questions, and retweets on Twitter and likes, comments, and shares on Facebook. The organizations interviewed offered a broad range of examples for how they were using social media throughout the different stages of an emergency.

The results of this research reveal some issues that occur during the mitigation and preparedness phase of a disaster. One is that it is often not possible to be proactive because some emergencies can hit without warning or they quickly become more severe than expected. In addition, the literature highlights that in some communities citizens may be more trusting of information from those they are socially connected to when it comes to communication on preparedness and safety. Other research shows that only a small percentage of people are truly prepared for emergencies. Despite this limitation, every organization interviewed stated they send out preparedness messages

consistently year round and ramp up when emergency events are more likely. As one respondent suggested, there really is no way of knowing how many people are fully prepared for emergencies. Some government organizations do see questions from the public seeking precise preparedness information, such as items to include in their emergency kit. So while disaster preparedness messages may not be as beneficial to the entire community, it seems that general preparedness messaging as part of the government organization's communication plan will continue to be of value.

As emergencies hit communities and the response phase begins, it is evident from both personal experience and the interviews that government organizations feel that their role is to push out information and respond to questions and comments 24/7. One of the biggest obstacles at this stage is manpower. One respondent discussed the hope to have two people monitoring and using social media during their next event so they could have one person pushing out information and another focused on responding to messages. Another participant discussed their Virtual Operations Support Team (VOST), a group of people located outside the community that helps them monitor social media 24/7 when an emergency hits. This team consists of a group of volunteers that are assigned to a Public Information Officer liaison within the organization so that they can contact the liaison with any questions or information that comes up that needs to be handled immediately. This allows them to have monitoring

24/7, so if an urgent question comes up at 2am, there is someone there to see it and provide guidance. Another respondent who had been the sole person in charge of social media for their organization recently hired a new staff member to assist with communication efforts. Another organization reported they had multiple staff available to post to their accounts during emergencies. In addition, many respondents confirmed Facebook and Twitter were the preferred platforms, not only because they fully understood how to use them, but also because a majority of citizens were on those platforms. It should be noted that some of those interviewed reported they did not have the bandwidth or time to test new social media platforms. This suggests that as government organizations continue to use social media, there is a need for monitoring social media more closely, enhancing the expertise of staff members devoted to social media, and exploring the use of additional platforms besides Facebook and Twitter. So while it may initially seem more time efficient to use social media to get messages out because of the speed in which you can post, it actually ends up being more costly because organizations are monitoring 24/7 and need additional resources for support as their communication role during emergencies is not merely posting and listening on social media.

One of the major questions that stems from this 24/7 monitoring is what is the value and cost of these interactions? Like my personal experiences with social media at

my organization, it is difficult to accurately gauge the true value of each individual engagement. Using Twitter as an example, if a follower asks whether it safe for them to go outside, and the official Twitter response is “no”, this interaction is now out in the public and could potentially be seen by all of the Twitter followers. But there is no way to actually know how many people see that post and make an informed decision based on it. For the government organization, the only value they can actually claim from that interaction is that one person had their question answered. You can add up each of these individual interactions over one emergency event and estimate the value based on responding to questions from 100 people, but if those 100 interactions took 24 hours of manpower time to does it make social media more or less efficient a communication tool than the telephone, television, or radio? What is the cost of engaging with these 100 individuals who ask when it is safe to go out, versus the cost of broadcasting general messages on the radio requesting that people stay indoors until further notice? And is one more impactful than the other? Government officials need to explore the many types of communications channels available to them and determine which ones can make the greatest impact.

Perez-Lugo’s research focuses on how communities turn to traditional media or information sources for both emotional support and social connection. But citizens are also seeking information from multiple sources during disasters and often use their

social networks to validate and verify the information they receive. This concept of network and validation is apparent in the Actor-Network Theory (ANT), which looks at these various actors, or information sources, and how information flows between them. The interviews offered an interesting perspective on how officials were pushing out information to the community and validating this information before it was sent out. The organizations all had different ways of accomplishing this. All organizations discussed how they had one or two Twitter accounts that became the hub for official, validated information that was funneled either inward or outward (some were pulling official information from other agencies and retweeting and sharing while other organizations became the official, centralized source of information). These differences of course had a lot to do with the particular type of government organization, for example a major city government agency is more likely to be the primary source of information, with smaller departments more likely to be the ones retweeting. These organizations seem to fit the description of anchor actors discussed by Potts, as they are vital hubs of information that are connecting and verifying information from different sources, yet whether the community values them as these anchor actors is not known. While some research addresses self-regulation and validation from community members themselves, it seems that in the case of these government organizations,

many followers could be using them as their main source of information, especially if they know that the information has already been vetted and validated.

Recovery begins when the event has passed and the community is left to pick up the pieces. Recovery can last as little as a few hours or as long as years depending on the event, and many different communication technologies have been used during this stage in addition to social media. Safe lists are created on both social media sites and websites, while web apps such as SeeClickFix and Ushahidi are used to find people and report areas that need repairs, though typically much of this information is crowd sourced from the community. The government organizations interviewed confirmed they continued their social media usage during the recovery stage and all seemed to become “brokers” of information. Often community members would tweet information about power outages, flooding, etc. and government officials monitoring social media would route that information to the proper sources. One respondent said these interactions were similar to how community members would call 311 in the past, so essentially the community was using social media as a functional equivalent of a phone call. A few respondents also said they received messages from family members checking on loved ones, and again, the emergency organizations would connect those individuals to the right resources. In addition, the organizations were also putting out information for the community on how to get assistance and provided additional safety information

that might be necessary (such as what foods needed to be thrown out due to power outage). None of those interviewed spoke about safe lists, though when viewing one of the organization's Twitter accounts, they tweeted out a hotline to call, website to visit, and Twitter handle to reply to for reporting missing people. In response to this, a follower Tweeted back with the link to the Red Cross's website that also contained a safe list.

CONCLUSION

What is evident from both the literature and interviews with government organizations is that social media is a significant communication tool used to provide information to communities when emergencies hit. When asked about lessons learned from using social media during emergency events, every organization interviewed said based on their experience with social media and the fact that their community connects to them through social media, there is evidence that social media is a valuable tool they should continue using in order to effectively communicate and share information. As my organization discovered after a major event, and confirmed by the government entities researched in this report, social media use during a disaster results in a huge influx in the number of followers to government Twitter accounts during and after the emergency event. This suggests that the community values the information and interaction provided by government organizations prompting citizens to continue seeking information from official government sources by following them directly instead of receiving information through a secondary source. But as I have discovered in my own role working with social media in government, the specific value and impact of social media cannot be quantified at this time.

It is also important to note some additional comments made by the organizations that were interviewed for this study. First, interviewees reported that Internet connections can often fail when emergencies occur, so social media cannot be the sole channel of communication. One respondent talked about the importance of using different tools to communicate information and how regions of the state can have spotty cell service, so traditional face-to-face community meetings and flyers continue to be an important communications tool. In fact, they stated the most impactful communication they've seen in the past few years include these community meetings where the community can ask officials directly what is going on and what to expect. Another organization echoed this with data to back it up. They participated in a social media fire drill where they posted a test alert about a Tornado to Facebook. Fifteen minutes after the alert, over 46,000 people had seen it, but it took hours for the message to spread, with 800,000 people reached over 12 hours after the initial post. It is important to note that Facebook calculates reach is when a post is shown in a news feed, so while the post may have appeared on the news feed of 800,000 people, one cannot confirm that all 800,000 people actually saw the post. In addition, the majority of those reached viewed the message because someone shared or liked it, which highlights the value of individual networking in addition to official government communication. As part of the experimental fire drill, the same message was posted to Twitter and received

over 1,100 retweets, with the majority of retweets occurring within half an hour of the initial post. The retweets indicated a potential reach of over 650,000 (this is calculated by looking at the number of followers for each account that retweets the original message, but does not take into account secondary retweets, so the potential reach can often be much larger). This virtual fire drill demonstrates that Facebook may not be the ideal tool to push out time sensitive information, and while Twitter may offer more immediate reach, calculating potential reach with Twitter is much more time consuming than with Facebook (since Facebook has built in analytics), and with both, reach does not necessarily mean actual views.

Another important comment made by several respondents was that communicating information quickly is important to a community facing a disaster, but not if you risk putting out false information. Next, those interviewed share that it is crucial that organizations concentrate on the social media platforms utilized throughout the year to build community relationships and trust with day to day connections. This is imperative if governments want to establish trust that can be sustained during emergency events. Officials also mentioned that emergency service organizations have to be flexible with technology, as the platforms are constantly changing and evolving. Finally one of the most important comments from all interviewees was that social media

requires plain, informal language in order to effectively communicate with a broad range of the community

ADVANCING THE CONVERSATION

While all of the organizations interviewed saw social media fitting into their comprehensive communication plan, less than half actually had a social media section written into their plan. This would be a great starting point for conversation among government organizations. Respondents spoke about how they communicated and many had different ways in which the information was shared or gathered. For example, in some cases, the government organization was the one pushing out original information and in others, they were retweeting information from other official information providers. Comparing and contrasting these communication paths and time management for each would help us as government officials better determine where the most time is spent and look closer at the impact of different information paths (government to citizen, citizen to government, organization to organization, state to local, etc). Considering how we can quantify the value and impact of social media communication for community members is going to be a vital area for us to explore. Many government organizations are hiring more people and spending more time on social media platforms, but have yet to actually calculate the time it takes to monitor the platforms, engage with each individual, and measure the impact and success of each interaction. For example, one area to look deeper at would be recovery. Many

organizations talked about monitoring social media during the recovery phase and routing information to the appropriate companies and agencies. The time spent to do this involves not only the monitoring of the platform to see when people share information; it also involves contacting the appropriate agency and sharing information. In this case, we might consider ways to make it easier to categorize information so that we spend less time filtering through the messages, such as asking individuals to use specific hashtags for needed repairs so that we can sort those interactions more quickly.

In addition, past research tells us there are many sources of information that individuals turn to during disasters, and while I along with my government colleagues feel that it is important for government organizations to continue a social media presence, we need to develop reliable best practices for using these platforms to enhance disaster management. Future research should lead the effort in building these best practices to help government include social media as a critical component of their emergency management communication plan. In addition, scholars should look beyond social media as a mere communication channel from government to citizen, and explore the complexity of social media messaging in and across government, institutions, and individuals.

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