

**Best Practices: The Use of Social Media Throughout Emergency & Disaster Relief**

**A Capstone Project**

**Submitted to**

**THE FACULTY OF THE PUBLIC COMMUNICATION GRADUATE PROGRAM**

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**SCHOOL OF COMMUNICATION**

**AMERICAN UNIVERSITY**

**WASHINGTON, D.C.**

**In Candidacy for the Degree of**

**Master of Arts**

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**April 28, 2011**

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### **Acknowledgements**

To my mom and Adam for supporting me throughout this process and to Sarah and Kevin for editing and reviewing every page. I am extremely grateful to you all.

### **Abstract**

This study sets out to understand how social media is being used in disaster and emergency situations. Research thus far has established the importance of social media in disaster and crisis communication but neglects to describe why social media are important. To establish best practices of social media use in a disaster and why they should be used, this study interviewed six communication or social media experts in the field of disaster relief. The following four best practices were established: plan for social media use before a disaster occurs, utilize popular and relevant social media tools, localize disasters in social media use, and utilize mapping efforts. These best practices explain the best ways to utilize social media in disaster relief as well as explain why those tools will work best.

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## **Introduction**

Crisis communication is known for its immediate communication with stakeholders and its ability to change at a moment's notice. Social media is also an evolving field. The use of social media is growing at an exponential rate. The number of social media platforms is also growing, from original platforms like Friendster and MySpace to the most popular current platforms like Facebook, Twitter, YouTube, Flickr, and Foursquare. The intersection of these two fields is of great interest to communication researchers and communication strategists. The evolution of social media has led to faster spread of messages and the ability to minimize harm done to an organization in a crisis scenario (Semple, 2009). Social media also has the potential to ruin a company's reputation or expedite the spread of harmful corporate rumors (Semple, 2009).

All organizations need a crisis communication plan that utilizes and understands the importance of social media. Just like any other organization, companies involved in disaster relief efforts need a crisis plan that incorporates social media. Emergency relief organizations play an integral part in aid following a disaster or emergency, and, as such, they are experts in crisis communication. They are first responders in a disaster situation, they facilitate medical care, and they aid in the placement of displaced peoples. Government also plays an important role in disaster relief. Government organizations are, at times, able to provide financial support as well as volunteers in times of disaster. Government organizations are also able to provide

disaster preparation resources for communities. Social media gives all of these organizations the opportunity to communicate in an immediate and direct manner throughout their disaster relief efforts. Just like a corporation in crisis, emergency relief and government organizations need a focused and detailed crisis communication plan for their social media tactics during a disaster.

The purpose of this study is to understand how social media is being used in disaster and emergency situations. It attempts to understand communication throughout a natural disaster and the various ways social media can be used to supplement disaster relief efforts. The study, based on observation and interviews with people in disaster and emergency relief work, sets out the current uses of social media during a disaster. By exploring current social media practices of emergency relief and government organizations, and their successes and failures during a disaster, best practices will be established.

This study focuses solely on emergency relief organizations and government organizations in the United States. Many of the organizations analyzed and interviewed for this study work with developing areas and areas in need of disaster relief outside of the United States, but all organizations are based in the U.S. This study will not explore internal crises of emergency relief or government organizations. The study will also not analyze the use of social media by the general public unless it directly impacts an organization's use of social media during disasters or emergencies. The scope of the study is fairly narrow and examines only a handful of organizations and their social media communication practices during an emergency or disaster.

First, I will begin with a review of relevant literature and research in the fields of crisis communication, social media, the use of social media in crisis communication, and disaster and emergency response with social media. Following this, I will discuss the methods of this study

followed by the results. Finally, I will discuss conclusions that can be drawn from the results and propose best practices for the use of social media during emergency and disaster relief.

## **Literature Review**

### **Crisis Communication**

Crisis communication is an inevitable part of corporate communications (Coombs, 2010). Crises are something corporations and organizations must be prepared to respond to; their response is known as crisis management (Coombs, 2010). In the field of public relations and elsewhere, crisis has been given numerous definitions and criteria (Adkins, 2010; Coombs, 2010; Heath, 2010). In the simplest terms, a crisis is something that can cause harm to any one thing, person or corporation (Heath, 2010). A crisis typically has high stakes and a tight deadline to act quickly. It is also important to note that a true crisis is an event that requires a great amount of attention and resources by those involved (Coombs, 2010). Crises can occur internally or externally to an organization and require action of the organization that is outside normal day-to-day activities (Adkins, 2010; Coombs, 1995). These aspects of crises describe not only an organizational crisis, but also a natural disaster.

Crisis management is the larger umbrella that covers crisis communication (Coombs, 2010). Crisis management allows an organization to possibly prevent, prepare, respond to and analyze a crisis before, during and after the crisis has occurred (Coombs, 2010). Crisis communication is the collection of information, followed by processing that information into knowledge, and finally, the sharing of information with others throughout a crisis situation (Coombs, 2010, p. 25). Crisis communication has been studied for over 30 years. The bulk of that study has emerged from the field of public relations and has received heightened attention in the past decade (An & Cheng, 2010; Coombs, 2010). Crisis communication research is practical



and meant to be put to use in order to improve crisis management practices and crisis communication (Coombs, 2010).

Crisis communication research includes a substantial amount of theoretical research (Coombs, 2010). Crisis communication theory includes: reputation management, attribution of responsibility, and communication response based on crisis type, among many other theories. These areas have been developed and theorized to apply to crisis communication and its best practices. Experiments as well as observational analyses have also become more prevalent in the study of crisis communication (Coombs, 2010).

Following are explanations of several influential crisis communication theories. These theories are important to understand because of their critical view of crisis communication and their attempt to make crisis communication strategic and deliberate. In most ways, these theories do not apply to disaster relief because disaster is rarely the fault of the organization participating in relief. Although the theories may not directly apply to disaster relief, they are important to understand when creating strategic communication plans in case of a disaster because they can help to outline possible strategies for response.

#### *Attribution Theory*

Attribution is an aspect of stakeholder or public response during and after a crisis. Attribution is the “perception or inference of cause” (Kelley & Michela, 1980, p. 458). There are many versions and theories of attribution, but generally attribution is the perception and assignment, by the public, of responsibility for the cause of an event and its subsequent treatment or “reactions” (Kelley & Michela, 1980, p. 458). Crises are sudden and negative and therefore create the need for the public to attribute responsibility (Coombs, 2007, p. 10). Organizations

need to understand how the public will attribute responsibility so they can form the best response possible to ensure they are not seen as the culprit or villain.

Attribution is based on the judgment or perceptions of three criteria: locus (internal or external cause), stability (presence of cause) and controllability (organization's control over cause of crisis) (Coombs, 1995). These are the determinants of the public's perception of a crisis (Coombs, 1995).

#### *Situational Crisis Communication Theory*

Situational Crisis Communication Theory (SCCT) is a theoretical variation of attribution theory that takes attribution theory and applies it directly to crisis communication (Coombs, 2010). SCCT puts forth that an organization's crisis history and its reputation prior to a crisis affects the attribution of responsibility for the crisis, which can threaten the organization's reputation (Coombs, 2010). It also states that the intentions of the public, such as buying intentions and gossiping intentions, which can lead to anger, increase the threat to an organization and its reputation (Coombs, 2010). According to SCCT, these threats should be evaluated to determine the best response strategy. The theory puts forth four possible response strategies (Coombs, 2010). The four response strategies of SCCT are: deny, diminish, rebuild, and a supporting strategy, reinforcing (Coombs, 2010, p. 40).

#### *Image Repair Theory (Image Restoration Theory)*

Another aspect of crisis communication is attempting to maintain a positive image during and after a crisis has occurred. One theory in crisis communication that addresses image and reputation is image repair discourse or theory of image repair (Benoit & Czerwinski, 1997). According to image repair discourse, threats to an image include: being held responsible for an act (internal attribution) and that the act is considered offensive (Benoit & Czerwinski, 1997). If

both of these components are present, image repair discourse is needed (Benoit & Czerwinski, 1997). The theory of image restoration outlines five strategies with which to respond to a crisis that will maintain or improve a person or organization's image during or after a crisis (Benoit & Czerwinski, 1997). The five response strategies of the image repair theory are: denial, evasion of responsibility, reduction of offensiveness, corrective action, and mortification (Benoit & Czerwinski, 1997, p. 40). Each strategy has subsections with specific response strategies (Benoit & Czerwinski, 1997).

### *Contingency Theory*

Contingency theory attempts to encompass all of public relations and how an organization interacts with and responds to the public (Coombs, 2010). Contingency theory explores stance. Stance is how organizations respond to conflicts and competition (Coombs, 2010). The theory uses over 80 variables to evaluate what stance should be taken in different situations, including crises (Coombs, 2010). Different external and internal factors will affect an organization's response or stance (Coombs, 2010). Contingency theory should be used to evaluate numerous variables of a crisis and to establish the best response strategy (Coombs, 2010).

As stated previously, the theories listed here are important theoretical concepts in crisis communication but do not directly apply to disaster relief. Although they may not directly apply, they remind communicators to consider many aspects of a disaster when communicating: the audience, past disaster experience, and a variety of response strategies.

### *Best Practices in Crisis Communication*

Best practices are created to inform and improve the field the practices are designed for (M. W. Seeger, 2006). Best practices should be derived from analyses of many cases, and so it

can be difficult to establish best practices in crisis communication because crises can be rare (M. W. Seeger, 2006). Crises also have many variations, which can make establishing best practices difficult (M. W. Seeger, 2006). Because of these difficulties in establishing crisis communication practices, most best practices are considered guidelines more than explicit steps on what to do in a crisis (M. W. Seeger, 2006). Best practices will be outlined in greater length in the *Best Crisis Communication Practices in a Disaster* section.

### **Social Media**

Social media is user-generated content distributed through the Internet with the intent to be shared and facilitate conversation between users (Wright & Hinson, 2009). Social media is one of the major methods of social interaction around the world today (Wright & Hinson, 2009). In general, the following are considered social media tools and platforms: message boards, photo sharing, podcasts, Really Simple Syndication (RSS), video sharing, Wikis, blogs, social networks and micro-blogging sites (Wright & Hinson, 2009). Newer forms of social media include mapping and geotagging, sometimes known as location services. Although there are many prevalent social media tools, social networking sites and location services will be the tools focused on for this study.

There are many terms related to social media that are important to understand. Computer-mediated communication (CMC) is the conversations facilitated through technology-based social media platforms (Palen, Vieweg, Liu, & Hughes, 2009). Information and communication technology (ICT) is a term that encompasses the Internet and social media (Palen et al., 2009). ICT has simplified finding information in addition to expanding social interactions and communication patterns (Palen et al., 2009).

#### *Social Networking Sites*

Social networking sites are one type of social media (Gupta, Armstrong, & Clayton, 2010). They are characterized by a user's ability to create a public profile which contains demographic and personal information, and is made visible based upon personal privacy settings (Boyd & Ellison, 2008). Social networking sites display a list of who users are connected to within the site (Boyd & Ellison, 2008). Social networking sites also give users the ability to observe their connections and the connections of others on the site (Boyd & Ellison, 2008). These sites are about the facilitation of relationships, relationships that existed before the connection on the site as well as relationships that were created through the social networking site (Li & Bernoff, 2008).

The first recognized social networking site, SixDegrees.com, was launched in 1997 (Boyd & Ellison, 2008, fig. 1). Between 1997 and 2001, social networking sites like LiveJournal, Cyworld, LunarStorm, and Ryze.com were launched around the world (Boyd & Ellison, 2008, fig. 1). In 2002, major social networking sites such as Friendster began to launch. MySpace and LinkedIn launched in 2003, Flickr and Facebook in 2004, YouTube in 2005, and Twitter launched in 2006 (Boyd & Ellison, 2008, p. 212, fig. 1). These sites are only the most prevalent ones that have gained and maintained popularity since their launch. There have been countless sites, some of which still exist, but have not attained the same prestige or use as the ones just listed. Social networking sites are currently a major form of social media use. Twenty-five percent of adults in the United States visit a social networking site at least once a month (Li & Bernoff, 2008).

Social networking sites can serve many uses throughout disaster relief. Social networking sites can gather information in a central location as well as serve as a resource to understand the magnitude of a disaster during the disaster or emergency (Palen et al., 2009). The

use of social networking sites in a disaster will be discussed in the *Social Media in Disasters* section of this study.

### *Mapping*

Another important type of social media is mapping or location services. Ushahidi, OpenStreetMap, and Google Map Maker are some of the tools used to map crises and disasters (Bauduy, 2010; Heard, 2011; United Nations Foundation et al, 2011). Via text messaging, the web, or email, these platforms receive data and plot it on a map which can help disaster responders navigate areas that are in the greatest need of assistance (Bauduy, 2010; United Nations Foundation et al., 2011). Each mapping platform is different; Ushahidi collects information from a group of people in order to map crisis information, creating an “interactive mapping project” (Bauduy, 2010, p. 142). OpenStreetMap uses existing satellite imagery to create a digital map that can be edited by anyone around the world (Bauduy, 2010; Heard, 2011; “OpenStreetMap: The Free Wiki World Map,” 2011; United Nations Foundation et al., 2011). Mapping tools and other collaborative social media resources can help disaster responders by providing information like hospital location, other volunteers’ locations and efforts, and can facilitate the coordination of resource distribution (Bauduy, 2010). Digital maps also help volunteers know what roads are inaccessible or the best ways to reach areas of need (Bauduy, 2010). The uses of mapping in disaster relief will be discussed in greater length in the section, *Mapping in Disasters*.

### *Social Media Research*

Some social media research focuses on best practices.<sup>1</sup> An organization needs to invest time, money and manpower into social media campaigns in order for them to be successful (Pearson & O'Connell, 2010).

Some organizations cannot afford these resources to improve their social media use (Pearson & O'Connell, 2010). When these resources are unavailable, there are important practices for organizations to follow. Organizations should only use social media tools that can contribute to the success of their social media campaigns (Pearson & O'Connell, 2010). In addition, they should only use tools they have the time to plan and execute the use of (Pearson & O'Connell, 2010). Organizations should have a plan for their messages and make those messages clear and coherent (Pearson & O'Connell, 2010). Other best practices include delegating social media tasks only to people in the organization who are aware of the organization's communication strategies (Pearson & O'Connell, 2010). Social media should not be treated as a "low-level task" (Pearson & O'Connell, 2010, p. 43).

When using social media tools, organizations must use them for the appropriate reasons. Social media should not be used for simple dissemination of information (Gunning, 2009). Organizations should listen to their audience, develop friendships with important audiences, and engage audiences in conversations when using social media (Gunning, 2009).

### **Crisis Communication and Social Media**

Studies of crisis communication, and its intersection with social media, explore ways to incorporate social media into crisis communication plans. Social media is seen as an outlet to detect issues that can become crises, a means to communicate during a crisis, and a way to continue communication after a crisis (Borremans, 2010; Semple, 2009). Other discussions of

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<sup>1</sup> The research discussed here is based on political campaigning but can be applied to social media campaigns across the board.

social media integration into crisis communication plans include using social media during crisis drills or exercises at an organization (Baron & Philbin, 2009). Although these studies explore the uses of social media before, during and after a crisis, there is little detail on best practices. In addition, little evidence is given as to why these techniques are important. The use of social media in disasters will be discussed more in the *Social Media in Disasters* section.

### **Disaster and Emergency Relief, Social Media, and Crisis Communication**

Some studies explore disaster or emergency situations in relation to crisis communication and social media. Explorations of crisis communication as well as social media use during a disaster or emergency have grown and are viewed as important fields of communication because of the prevalence of disasters worldwide (Ulmer, Sellnow, & M. Seeger, 2007).

#### *Best Crisis Communication Practices in a Disaster*

In a disaster situation, information must be disseminated quickly to people affected by the disaster as well as to those responding to the disaster (Dougherty, 1992). Communication during a disaster requires many standard crisis communication techniques. But, in order to understand how a crisis and disaster are related, their relationship must be understood (Adkins, 2010; Ulmer et al., 2007). Disasters, unlike crises, are solely external crises caused by natural events in which it is not the fault of an organization (Adkins, 2010).

Current disaster and crisis communication research thus far have used the case study approach, similar to crisis communication research (Adkins, 2010; Coombs, 2010). Case studies of crisis communication during natural disasters have gleaned several results that influence best practices during a disaster.



Best crisis communication practices have been established specifically for techniques used in disasters or public crises (M. W. Seeger, 2006).<sup>2</sup> The following is a list of best practices for crisis communication in a disaster established by Matthew W. Seeger. These strategies were selected because they encompass the best practices of other crisis and risk communication studies (Covello, 2003):

- Plan before the crisis occurs: Planning before a crisis involves understanding possible crises or disasters that may occur, understanding how to reduce the possibility or harm of those events, establishing responses to those crises, and establishing what resources will be needed for the response (M. W. Seeger, 2006, p. 237). These plans should be updated regularly (M. W. Seeger, 2006, p. 238).
- Listen and respond to the concerns of the public or audience: Organizations must understand the public's concerns and respond to them. This type of relationship with the public will establish credibility for an organization, which can lead to trust from the public (M. W. Seeger, 2006, pp. 238-239).
- Be honest and transparent: An organization will benefit most by being honest and open about the crisis at hand (M. W. Seeger, 2006, pp. 239-240). By assessing the crisis for the public and providing facts, an organization maintains credibility and can establish trust with the media and the public (M. W. Seeger, 2006, pp. 239-240).
- Develop strategic relationships pre-crisis: Before a crisis or disaster occurs, organizations should establish relationships with other credible sources, as well as various stakeholders (M. W. Seeger, 2006, p. 240). These relationships will allow for effective crisis

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<sup>2</sup> Best practices from Matthew W. Seeger's study, "Best Practices in Crisis Communication: An Expert Panel Process," were taken from 10 best practices to seven to best fit this study. Some of the practices were grouped together for similarity. Others were eliminated because they do not apply to this study.

communication as well as coordinated communication across platforms if a crisis occurs (M. W. Seeger, 2006, p. 240).

- Be available and accommodating to the media: The media, as a communicator with the public, should be viewed as a resource throughout a crisis (M. W. Seeger, 2006). A designated spokesperson should interact with the media to provide continuity and this person should continue a dialogue with the media throughout the crisis or disaster (M. W. Seeger, 2006, p. 240).
- Communicate with sympathy and understanding: The designated spokesperson should convey these feelings when communicating to the public because it can build credibility and leads the public to respond more positively if they believe the spokesperson understands their situation in the crisis (M. W. Seeger, 2006).
- Provide messages on how the public can avoid risk or harm (“self-efficacy”): Providing the public with actions they can take to avoid risk, or giving them “self-efficacy,” can give the public a sense of control in a disaster situation as well as potentially reduce harm (M. W. Seeger, 2006, p. 242)

### *Social Media in Disasters*

Social media platforms provide new routes of information flow and a means to assist those in need of information during a disaster, such as survivors, responders, volunteers and the general public (Palen et al., 2009). Social media can serve as an effective route of communication for governments to reach individuals and communities, as well as alert responders to where and what type of relief is needed (Huang, Chan, & Hyder, 2010).

Overall, the use of technology during disasters has greatly expanded in the past ten years. In 2001, during the 9/11 attacks in the United States, cell phones were the then-new technology

used to communicate during the emergency for the few minutes they worked inside the buildings after the planes crashed (Nelson, Sigal, & Zambrano, 2010). In the 2004, during the Indian Ocean tsunami, people made use of SMS, or text messaging, during the disaster, which continued to work, even when cell phone service was down (Nelson et al., 2010). SMS and cell phone service mark the beginning of communication technology use by victims of a disaster during the disaster and its subsequent relief efforts (Nelson et al., 2010). In 2005, during Hurricane Katrina, social media became even more prevalent in facilitating disaster relief (Nelson et al., 2010). Through the use of social media during Hurricane Katrina, collective online knowledge was able to help find missing persons, as well as locate emergency housing, and coordinate volunteers participating in disaster relief (Nelson et al., 2010). Similar uses of social media occurred during and after the shootings at the Virginia Tech campus in 2007 (Palen et al., 2009).

Social media has proven to help coordinate and facilitate in disaster relief efforts (Perkins, 2010). Disaster responders can use social media during a disaster to track volunteers, to help reconnect families, and to disseminate critical information (Armour, 2010). Also, in a disaster, social media can be used as an alternative to phones for calls for help (Armour, 2010).

Social media provides a means for people to share partial information in a disaster which may eventually contribute to the fuller understanding of a disaster through the continued addition of information through computer-mediated communication (Palen et al., 2009). During a disaster, social media platforms can be seen as awareness features which alert others of the safety of those affected by the crisis (Palen et al., 2009). Platforms can also serve as peer information sources and information gathering resources (Palen et al., 2009).

In a disaster or crisis, social media can also serve as a frame to understand what type of emergency has occurred and the magnitude or severity of the event (Palen et al., 2009). As social media continues to be used during a crisis, people will receive more information about the disaster regardless of whether they are local to the disaster or not (Palen et al., 2009). Many studies on the use of social media during an emergency use case studies of “federal agencies, national organizations and the media” to understand effective strategies (Tinker, Dumlao, & McLaughlin, 2009, p. 1). Social media can serve several strategic purposes for these organizations. Social media platforms like Twitter and technologies like email and text messaging can be used to create a database of contacts to reach individuals during a disaster or emergency (Tinker et al., 2009). Social media platforms, specifically blogs, YouTube, Twitter, Facebook, Utterli, and the tagging capabilities on those platforms, allow organizations to collect, organize and disseminate information during an emergency or disaster (Tinker et al., 2009). Social media platforms also facilitate sharing across platforms (Tinker et al., 2009). Something that is blogged can also be tweeted and posted on Facebook (Tinker et al., 2009). Platforms, such as Flickr, which can disseminate images from a disaster, can be tools to encourage victims to seek help in a disaster and to encourage others to donate to disaster response efforts (Tinker et al., 2009). These strategies describe a variety of ways social media can be beneficial but do not explain why these techniques are effective. Although there is a fair amount of literature on the use of social media in disaster situations, few of those studies present best practices.

### *Mapping in Disasters*

One of the major issues in disaster relief is the inability to know where help is needed, especially in areas where maps have not been created or maps are outdated (Nelson et al., 2010). Mapping has become a solution to this issue (Nelson et al., 2010). In January 2010 a 7.0

magnitude earthquake hit the country of Haiti and disaster responders, as well as those in need of help after the earthquake, used social media (United Nations Foundation et al., 2011). The Haitian earthquake is a good example of how mapping, as a social media tool, can be used in disaster relief. OpenStreetMap, a free and public map designer that collects digital aerial imagery from public sources to create maps of unmapped areas, was one tool utilized in disaster relief following the earthquake (Nelson et al., 2010). It was used to collect information and create maps, which detailed the locations of those in need of disaster relief (United Nations Foundation et al., 2011). OpenStreetMap also has the Humanitarian OpenStreetMap Team (HOT), which was created before the Haitian earthquake struck, specifically to assist disaster relief efforts navigate the areas in need (Nelson et al., 2010). Ushahidi, another mapping tool, was able to help track volunteers and their efforts during the disaster response in Haiti (Perkins, 2010). Social media, like OpenStreetMap and Ushahidi, were able to provide information from those affected by the disaster to those coordinating disaster relief efforts, no matter what their proximity was to the disaster (Nelson et al., 2010; United Nations Foundation et al., 2011).

There are many benefits to mapping and other information and communication technologies (ICTs), but the issue for disaster response teams and organizations is information management: they are unable to manage all of the mapping and details they receive when trying to assist an area in need (United Nations Foundation et al., 2011). This issue stems not only from more advanced and faster computer technologies, like mapping, but also from the massive increase in cell phone use, which has significantly increased the amount of information available to responders during a disaster (United Nations Foundation et al., 2011). In Haiti, for example, thousands of people affected by the earthquake had access to mobile technology, and the information they disseminated had to be collected, mapped and translated from Creole, French

and English into one language (United Nations Foundation et al., 2011). This new information gathering and mapping, although proving to be at times overwhelming for the disaster relief community, has the potential to significantly improve disaster response (United Nations Foundation et al., 2011).

In order to combat these struggles, crisis management tools, like CrisisCommons.org were developed (Bauduy, 2010). CrisisCommons was developed to help communities and people in times of crisis by supporting “the use of open data and volunteer technologies to catalyze innovation in crisis management and global development” (Dickover, 2010). In simpler terms, CrisisCommons coordinates disaster response by technology volunteers worldwide by creating CrisisCamps (Dickover, 2010, para. 1). CrisisCamps gather volunteers to problem solve through managing of projects, translating information, editing and researching (Dickover, 2010).

Although many studies on mapping explain the burgeoning field and how it currently works, these studies do not detail the best ways to use this tool through social media practices.

### *Social Media in Japan*

The effects of the use of social media in disaster relief were most recently seen in the earthquake and tsunami which struck Japan on March 11, 2011. A 9.0 magnitude earthquake rocked Japan followed by a massive tsunami and a nuclear accident, the repercussions of which are still being assessed (Beech, Birmingham, Dirkse, & Mahr, 2011).

Throughout the disaster, social media were able to disseminate information of the quake faster than any other traditional news source (Ad Age, 2011). Videos, news reports, and response efforts flooded social media sites like YouTube, Twitter, and Google resources within hours of the earthquake (Ad Age, 2011).

Throughout the Japanese disaster, social media contributed significantly to increased donations and awareness about the disaster via text messaging campaigns as well as through social networking sites like Twitter, Facebook, YouTube and LinkedIn (PR Newswire, 2011). Social media also contributed to heightened victim awareness and assistance with social media tools such as Google's Person Finder (PR Newswire, 2011). There has been some description of social media use in disaster relief efforts in Japan but because the disaster occurred less than two months ago, there is limited research and analysis.

### **Research Questions**

This literature review points to a gap in the understanding of the use of social media in disaster situations. The literature addresses theory for crisis communication but does not focus specifically on disaster communication. There are few guidelines established for communicating in a disaster, specifically when using social media. The literature underscores the need for social media and its benefits but in many ways neglects to understand the ways organizations that participate in disaster relief use social media during a disaster, and the areas that could be improved upon. This study attempts to understand the ways in which organizations involved in emergency relief utilize social media, the benefits that can be gained from social media use, and how use can be improved in order to create best practices. This leads to the following research questions:

[RQ1]: What social media platforms are being used during emergency and disaster relief efforts?

[RQ2]: What benefits are gained from social media use during emergency and disaster relief efforts?

[RQ3]: What areas of social media are not being utilized that could be expanded upon to improve disaster and emergency relief efforts?

### **Methodology**

This study was conducted with in-depth telephone interviews. All interviews were unstructured but followed a similar format (Wimmer & Dominick, 2006). Generally, the same questions were used in each interview, unless the interviewee had previously answered the question. This was done to maintain continuity among the interviews and with the aim of gaining understanding of the similarities of social media use between the interviewees and their organizations.

Six communication or social media experts who have worked in organizations that participate in emergency or disaster relief were interviewed for this study. All interviewees manage or analyze a social media platform in some manner and participate in the social media communication for their respective organizations.

All interviews were conducted over the phone during a period of five weeks. Each interview lasted approximately 20 minutes. Notes were taken on each interview during the phone call. The data was analyzed by drawing similarities between each interview and understanding their differences. In addition, the data was explored for holes in the use of social media.

Following the March 11, 2011, earthquake and subsequent tsunami in Japan, social media use by each organization was examined to best understand their social media practices. Social media platforms were analyzed from March 11 to March 31, 2011. This time period was selected to analyze a period closest to the natural disaster. Facebook and Twitter were the only



social media platforms analyzed because they were the platforms that almost all of the organizations that were interviewed utilized.

### *Limitations*

A limitation of this study is the sample size. The small scope of the study should be considered when attempting to generalize the results to other organizations across the globe. Other limitations of the study include the varying definitions of social media held by the candidates interviewed and that each person may have viewed their social media use of the definition of social media differently.

## **Interview Background**

### *Direct Relief International*

Direct Relief International was founded in 1948. It is an organization that provides communities in need with medical supplies and assistance, both in times of crisis and on an ongoing basis (Joyce, 2011). Direct Relief works strategically to provide assistance to countries and areas that are most in need of their help. It works closely with partner organizations to understand what is needed and only sends what aid is needed so as not to overwhelm the area in crisis or provide it with the wrong assistance (Joyce, 2011). Some of Direct Relief International's largest disaster response efforts were after the Indian Ocean tsunami in 2004, Hurricane Katrina in 2005 and Cyclone Nargis in Myanmar (formerly Burma) in 2008 ("Emergency Response, Past Emergencies," n.d.; Joyce, 2011). Currently, Direct Relief uses Facebook, Twitter, YouTube and Social Vibe as their social media platforms (Joyce, 2011).

### *Catholic Medical Mission Board*

The Catholic Medical Mission Board (CMMB) was started in 1928 by Dr. Paluel Flagg ("Our History | 1928-2007 A 79- year Commitment-1928," n.d.). CMMB provides its own

healthcare program in several developing countries. It places and sends volunteers to mission hospitals and countries around the world, and provides medical supplies to hospitals and various organizations in developing countries (“Healing Help Program,” 2010; “Healthcare Programs,” 2010; LaTouche, 2011; “Medical Volunteer Program,” 2010). For the most part, CMMB participates in disaster relief in countries where it already has a strong relationship or presence (LaTouche, 2011). CMMB uses YouTube, Flickr, Twitter, and Facebook, as its social media platforms (LaTouche, 2011).

#### *Humanitarian Information Unit*

The Humanitarian Information Unit (HIU) is a part of the Bureau of Intelligence and Research and is staffed by the U.S. Department of State, the U.S. Agency for International Development, the Department of Defense, and the National Geospatial-Intelligence Agency (NGA) (“Humanitarian Information Unit,” n.d.). The HIU is a U.S. Government department, which collects and disseminates unclassified information on worldwide humanitarian emergencies to government decision-makers in order for them to prepare and respond to those emergencies (“Humanitarian Information Unit,” n.d.). One element of HIU is in support of the U.S. President’s Emergency Plan of AIDS Relief (PEPFAR) (Heard, 2011). Other aspects and responsibilities of some employees of the HIU include support of the Office of the Geographer and Global Issues as well as support of offices developed for complex humanitarian and disaster support (Heard, 2011). The social media use by the Public Health Analyst of the HIU was evaluated for this study. The Public Health Analyst of HIU uses Google Map Maker, OpenStreetMap and Ushahidi, among other shared platforms for map making (Heard, 2011).

#### *Office of the Assistant Secretary for Preparedness and Response*

The Office of the Assistant Secretary for Preparedness and Response (ASPR) is an office within the U.S. Department of Health and Human Services (Elmer, 2011). ASPR was created under the Pandemic and All Hazards Preparedness Act in 2006 (“Office of the Assistant Secretary for Preparedness and Response (ASPR) - PHE,” 2010). ASPR’s goal is to assist the United States in disaster prevention, preparedness, and response for natural disasters or health pandemics (Elmer, 2011; “Office of the Assistant Secretary for Preparedness and Response (ASPR) - PHE,” 2010). ASPR uses Facebook and Twitter for its social media (Elmer, 2011).

#### *World Vision International*

World Vision International (WVI) was open in 1950 by the Rev. Bob Pierce (“World Vision International- History,” 2009). WVI is a Christian organization focused on programming, relief, and advocacy (Geasey, 2011a; “World Vision International - Who We Are,” 2011). Originally, the organization had evangelical roots but currently does not proselytize in any country (Geasey, 2011a). WVI began by focusing on emergency relief efforts in 1970 and has staff and programs in over 100 countries to address “development, emergency relief and promotion of justice” (“World Vision International- History,” 2009, para. 7). Most of World Vision’s social media use occurs on a local level, meaning that each local office manages its own social media platforms and usage (Geasey, 2011a). World Vision International maintains a Twitter account, which is the only platform that is managed from the international level (Geasey, 2011a). Many local chapters and offices of World Vision manage their own Twitter, Facebook and YouTube (Geasey, 2011a). World Vision International occasionally uses YouTube although it is used only to stream the content onto a website, not for viewing in YouTube (Geasey, 2011b).

### **Findings and Discussion**

The only social media platform used across all organizations that participate in emergency and disaster relief is the social networking site Twitter (Bove, 2011; Elmer, 2011; Geasey, 2011a; Joyce, 2011; LaTouche, 2011).<sup>3</sup> Some organizations have more than one Twitter account for their local chapters but each organization utilizes a Twitter account on behalf of the organization (Geasey, 2011a). As stated in the literature review, social media should only be used if the organization using it has the time to plan and dedicate resources to its use (Pearson & O'Connell, 2010). All of the organizations interviewed may use Twitter because it allows for simple and rapid dissemination of information, so they feel as though they have time to plan and execute use of the social networking site. Another reason could simply be that Twitter is simple and easy to use.

CMMB, Direct Relief International and ASPR manage Facebook accounts (Elmer, 2011; Geasey, 2011a; Joyce, 2011; LaTouche, 2011). World Vision International only maintains local chapter Facebook pages (Geasey, 2011a). No Facebook page could be located for HIU. The use of Facebook by most interviewees could be for the same reasons that make Twitter popular: ease of use and the popularity of the site.

Organizations that participate in disaster or emergency relief chose to use social media platforms based on their popularity and access to the vast number of users on each platform (Joyce, 2011; LaTouche, 2011). With a few exceptions, because of organizational structure, all interviewees utilized Facebook, YouTube, or Flickr in some manner (Bove, 2011; Elmer, 2011; Geasey, 2011a; Joyce, 2011; LaTouche, 2011). The reason for selecting each of these sites was their widespread popularity. Many interviewees cited the ability to reach a large population in a

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<sup>3</sup> The Humanitarian Information Unit's Twitter account was not discussed during the interview with the Public Health Analyst of the organization because the management of the account does not fall under his jurisdiction.

format that the public already utilizes (Elmer, 2011; Joyce, 2011; LaTouche, 2011). As discussed in the literature review of this study, organizations should only use social media tools that contribute to the success of their social media campaigns (Pearson & O'Connell, 2010). If organizations are striving to maximize their effectiveness through social media tools and platforms, they should select the tools that give them the most reach or contact with their public. By selecting the most popular and most utilized social media tools, organizations stand to gain the most from the tool and achieve the highest degree of success.

The few resources available to some emergency relief organizations are one of the major factors in the organizations' choice to not use social media during a disaster or emergency (Joyce, 2011; LaTouche, 2011). Direct Relief International and CMMB do not use social media for disaster relief purposes although they sometimes use social media during a disaster (Joyce, 2011; LaTouche, 2011). While organizations dealing with emergency and disaster relief have increased their use of social media, the biggest obstacle facing each organization is the limited amount of time available to dedicate to social media during a disaster (Joyce, 2011; LaTouche, 2011). In addition to lack of time, a small communications staff deters some organizations from using social media during a disaster (Joyce, 2011; LaTouche, 2011). As discussed in the literature review, social media should not be a task that is passed off to a person unfamiliar with the organization's communication plan or to a low-level employee because social media requires dedicated attention in order to be used effectively (Pearson & O'Connell, 2010). These organizations most likely do not use social media during disaster relief efforts because there are not enough employees familiar enough with social media or the appropriate communication strategy to use it effectively.

Another factor in organizations choosing to not use social media during a disaster or emergency is their discovery that phone and email serve as better sources of communication during a disaster (Joyce, 2011; LaTouche, 2011). This could be for many reasons. Phone and email may reach the organization's target demographic more effectively than social media. Another reason could be that organizations have utilized phone and email for a longer period of time and therefore have a larger audience to reach through those platforms.

Although resources are unavailable to some organizations in disaster relief, other organizations use social media for specific purposes when communicating during a disaster. The Public Health Analyst of HIU, the Air Force,<sup>4</sup> ASPR and WVI utilize social media for a variety of purposes during a disaster (Bove, 2011; Geasey, 2011a; Heard, 2011). It can be used throughout a disaster because it immediately disseminates important and critical information (Bove, 2011). Others state that they use social media because it is a tool to encourage donations to assist in disaster relief, which was one of the trends of social media use (Geasey, 2011a). The HIU and ASPR utilize social media in order to map areas during a disaster (Elmer, 2011; Heard, 2011). Mapping was used by these organizations to understand where areas of need are, and to coordinate resources throughout a disaster (Elmer, 2011; Heard, 2011).

There were some common uses in Twitter and Facebook use following the Japanese earthquake and tsunami. Below is a list of the most common uses of social networking sites by these organizations based on analyses of Facebook and Twitter use between March 11 and March 31, 2011:

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<sup>4</sup> The former Digital Media Strategist and Senior Web Developer of the Air Force was interviewed for this study. Current Air Force strategies were not explored for this study but the tactics of the former Digital Media Strategist and his results were included in the study where noted. He held the position at the Air Force from May 2007 to September 2010.

- Facebook and Twitter provided news and information about the disaster. Through retweets and article posts, they were able to describe the disaster situation in Japan. Many of the tweets and posts provided information with news links about the disaster. Some of the tweets were retweeted from other organizations or news sources while some were original content.
- Twitter and Facebook were used to collect donations. Many of the organizations analyzed for this study used Twitter and Facebook to direct social media users to donation sites or to give instructions on how to donate to disaster relief efforts in Japan, mainly to their organization, if they were fundraising.
- Organizations' participation in disaster relief was discussed on Facebook and Twitter. Some Twitter and Facebook posts provided information on the supplies, relief or assistance the organization was sending to those in need in Japan.

An interesting use of social media, that was not widely adopted, was one organization's localization of the disaster. ASPR gave the Japanese disaster a local angle by providing Americans, via Twitter and Facebook, information on the earthquake and how it could directly affect U.S. citizens. In addition, its social media use provided tsunami and nuclear radiation safety and preparedness tips. This use of social media is not a disaster relief effort but a way to engage an audience observing a disaster from afar. This use of social media closely follows the best practices discussed in the literature review on communicating in a disaster or crisis (M. W. Seeger, 2006). By using social media to localize the Japanese disaster, ASPR provided messages on how the public could avoid harm as well as responded to possible concerns the U.S. public may have (M. W. Seeger, 2006).

*Best Practices*

Based on the interviews with the communication experts involved in disaster relief and reviewing relevant literature, the following best practices were established. The best practices stem from the similarities of the social media use by the organizations and the best practices drawn from the literature review. Finally, the practices recognize some of the downfalls of current social media use during disaster relief and addresses those gaps. These practices should be used to establish a social media plan in case of a disaster or emergency. As stated previously, these practices should be used as guidelines because each disaster or crisis varies greatly from any other and cannot be given simple standard (M. W. Seeger, 2006).

- Plan for social media use before a disaster occurs: This can be difficult because it is impossible to know exactly what will occur during a disaster but this will allow organizations which do not have enough time or resources to dedicate to social media the opportunity to still use those tools during a disaster (M. W. Seeger, 2006). Organizations should plan social media tactics in advance and make other people within the organization aware of the communication strategies in order to ensure that social media receives attention during a disaster (Pearson & O'Connell, 2010). If social media is given the proper time and resources throughout a disaster it can allow organizations participating in emergency relief to interact with others and obtain, as well as disseminate, important information (Tinker et al., 2009).
- Utilize popular and relevant social media tools: It is important for organizations to use social media tools that will contribute to the success of their campaigns. This should be done through reaching as many people as possible on popular social media platforms (Pearson & O'Connell, 2010).



- Localize disasters in social media use: Organizations involved in disaster relief should explain the disaster at hand to the public in a way that applies directly to them. This will address the fears of the local audience even though an organization may be dealing with a disaster that is overseas (M. W. Seeger, 2006). This tactic could lead to opportunities to engage the local audience in the organization's disaster relief efforts.
- Utilize mapping efforts: Mapping tools are a new form of social media, and may play a central role in the future of disaster relief and social media (Bove, 2011; Elmer, 2011; Geasey, 2011a; Heard, 2011). Mapping technologies should be utilized by organizations involved in disaster relief to gather information on areas in need during a disaster (United Nations Foundation et al., 2011).

These best practices establish not only how to use social media throughout disaster relief but also why these practices are important. It is essential for organizations involved in disaster relief to understand both the best ways they can use social media tools, and why those tools work best for them.

### **Conclusion**

Based on relevant literature and interviews with communication practitioners in the field of disaster relief, this study established best practices for the use of social media by organizations involved in disaster relief. These best practices identify ways in which organizations can maximize the success of their social media use throughout a disaster. In addition, they identify areas in which organizations can improve their social media use during a disaster. These findings are important to improve the use of social media in a disaster in order to better gather and disseminate information.

This study suggests many areas for future research. More research should be conducted on the types of social media messages that should be disseminated throughout a disaster. The ways in which the public that is not involved in disaster relief uses social media during a disaster or crisis could also be studied. Research on why social media should be used in a disaster could also be greatly expanded. Finally, the best practices of mapping tools could be researched in greater detail, as its applications continue to expand.

### References

- Ad Age, S. (2011). Global citizens, marketers rely on social media after Japanese quake. *Advertising Age*, 82(11), 2-21. doi:Article.
- Adkins, G. L. (2010). Organizational Networks in Disaster Response: An Examination of the US Government Network's Efforts in Hurricane Katrina. In W. T. Coombs & S. J. Holladay (Eds.), *The Handbook of Crisis Communication* (pp. 93-114). United Kingdom: Blackwell Publishing.
- An, S.-K., & Cheng, I.-H. (2010). Crisis Communication Research in Public Relations Journals: Tracking Research Trends Over Thirty Years. In W. T. Coombs & S. J. Holladay (Eds.), *The Handbook of Crisis Communication* (pp. 64-90). United Kingdom: Blackwell Publishing.
- Armour, G. (2010). Communities Communicating with Formal and Informal Systems: Being More Resilient in Times of Need. *Bulletin of the American Society for Information Science & Technology*, 36(5), 34-38. doi:Article.

Baron, G., & Philbin, J. (2009). Social media in crisis communication: Start with a drill. *PR Tactics*.

Bauduy, J. (2010). Mapping a Crisis, One Text Message at a Time. *Social Education*, 74(3), 142-143. doi:Article.

Beech, H., Birmingham, L., Dirkse, T., & Mahr, K. (2011). How Japan Will Reawaken. *Time*, 177(12), 42-47. doi:Article.

Benoit, W. L., & Czerwinski, A. (1997). A Critical Analysis of USAir's Image Repair Discourse. *Business Communication Quarterly*, 60(3), 38-57. doi:Article.

Borremans, P. (2010). Ready for anything. *Communication World*, 27(4), 31-33. doi:Article.

Bove, P. (2011, April 1). Personal Communication.

Boyd, D. M., & Ellison, N. B. (2008). Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication*, 13(1), 210-230. doi:Article.

Coombs, W. T. (1995). Choosing the right words. *Management Communication Quarterly*, 8(4), 447. doi:Article.

Coombs, W. T. (2007). Crisis Management and Communications. *Institute for Public Relations*. Retrieved from [http://www.instituteforpr.com/essential\\_knowledge/detail/crisis\\_management\\_and\\_communications/](http://www.instituteforpr.com/essential_knowledge/detail/crisis_management_and_communications/)

Coombs, W. T. (2010). Parameters for Crisis Communication. In W. T. Coombs & S. J. Holladay (Eds.), *The Handbook of Crisis Communication* (pp. 17-53). United Kingdom: Blackwell Publishing.

Covello, V. T. (2003). Best Practices in Public Health Risk and Crisis Communication. *Journal of Health Communication*, 8, 5. doi:Article.

- Dickover, N. (2010, March 6). About CrisisCommons. *CrisisCommons*. Retrieved April 19, 2011, from <http://crisiscommons.org/about/>
- Dougherty, D. (1992). *Crisis communications: what every executive needs to know*. New York: Walker.
- Elmer, S. (2011, March 21). Personal Communication.
- Emergency Response, Past Emergencies. (n.d.). *Direct Relief International*. Retrieved March 6, 2011, from <http://directrelief.org/EmergencyResponse/2010/History.aspx>
- Geasey, C. (2011a, April 6). Personal Communication.
- Geasey, C. (2011b, April 8). American University Capstone Research. Personal Communication.
- Gunning, P. (2009). Social Media Reality Check. *MediaWeek*, 19(23), 18. doi:Opinion.
- Gupta, S., Armstrong, K., & Clayton, Z. (2010). Social Media. *Harvard Business School*.
- Healing Help Program. (2010). *Catholic Medical Mission Board*. Retrieved April 2, 2011, from <http://www.cmmb.org/healing-help-program>
- Healthcare Programs. (2010). *Catholic Medical Mission Board*. Retrieved April 2, 2011, from <http://www.cmmb.org/healthcare-programs>
- Heard, N. (2011, March 11). Personal Communication.
- Heath, R. L. (2010). Introduction Crisis Communication: Defining the Beast and Demarginalizing Key Publics. In W. T. Coombs & S. J. Holladay (Eds.), *The Handbook of Crisis Communication* (pp. 1-13). United Kingdom: Blackwell Publishing.
- Huang, C.-M., Chan, E., & Hyder, A. A. (2010). Web 2.0 and Internet Social Networking: A New tool for Disaster Management? -- Lessons from Taiwan. *BMC Medical Informatics & Decision Making*, 10, 57-61. doi:Article.

Humanitarian Information Unit. (n.d.). *U.S. Department of State*. Government Website.

Retrieved April 2, 2011, from <http://www.state.gov/s/inr/hiu/>

Joyce, A. (2011, March 4). Personal Communication.

Kelley, H. H., & Michela, J. L. (1980). ATTRIBUTION THEORY AND RESEARCH. *Annual Review of Psychology*, 31, 457-501. doi:Article.

LaTouche, K. (2011, March 7). Personal Communication.

Li, C., & Bernoff, J. (2008). *Groundswell: Winning in a World Transformed by Social Technologies*. Harvard Business School Review Press.

Medical Volunteer Program. (2010). *Catholic Medical Mission Board*. Retrieved April 2, 2011, from <http://www.cmmb.org/medical-volunteer-program>

Nelson, A., Sigal, I., & Zambrano, D. (2010). *Media, Information Systems and Communities: Lessons from Haiti*. Retrieved from [http://www.knightfoundation.org/research\\_publications/2011-01-haiti/kf\\_haiti\\_report\\_english\\_cx2.pdf](http://www.knightfoundation.org/research_publications/2011-01-haiti/kf_haiti_report_english_cx2.pdf)

Office of the Assistant Secretary for Preparedness and Response (ASPR) - PHE. (2010, October 19). *U.S. Department of Health and Human Services*. Government Website, . Retrieved April 3, 2011, from <http://www.phe.gov/about/aspr/Pages/default.aspx>

OpenStreetMap: The Free Wiki World Map. (2011). *OpenStreetMap*. Retrieved April 19, 2011, from <http://www.openstreetmap.org/>

Our History | 1928-2007 A 79- year Commitment-1928. (n.d.). *Catholic Medical Mission Board*. Retrieved April 24, 2011, from <http://www.cmmb.org/our-history>

- Palen, L., Vieweg, S., Liu, S. B., & Hughes, A. L. (2009). Crisis in a Networked World: Features of Computer-Mediated Communication in the April 16, 2007, Virginia Tech Event. *Social Science Computer Review*, 27(4), 467-480. doi:Article
- Pearson, S., & O'Connell, F. (2010). Avoiding Social Media Pitfalls. *Politics (Campaigns & Elections)*, 31(294), 43. doi:Article.
- Perkins, B. (2010). Social Media to the Rescue. *Computerworld*, 44(17), 16. doi:Opinion.
- PR Newswire. (2011, March 31). Japan, and the Critical Three Ways Social Media Plays During a Crisis. Y. Retrieved from <http://proxyau.wrlc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bwh&AN=201103310900PR.NEWS.USPR.NE74397&site=ehost-live>
- Seeger, M. W. (2006). Best Practices in Crisis Communication: An Expert Panel Process. *Journal of Applied Communication Research*, 34(3), 232-244. doi:Article.
- Semple, E. (2009). UPDATE YOUR CRISIS COMMS PLAN WITH SOCIAL MEDIA. *Strategic Communication Management*, 13(5), 7. doi:Article.
- Tinker, T. L., Dumlao, M., & McLaughlin, G. (2009). Effective Social Media Strategies During Times of Crisis: Learning from the CDC, HHS, FEMA, the American Red Cross and NPR. *Public Relations Strategist*.
- Ulmer, R., Sellnow, T., & Seeger, M. (2007). *Effective Crisis Communication Moving From Crisis to Opportunity*. SAGE Publications.
- United Nations Foundation, Vodafone Foundation, OCHA, & Harvard Humanitarian Initiative. (2011). *Disaster Relief 2.0: The Future of Information Sharing in Humanitarian Emergencies*. Retrieved from [http://www.globalproblems-globalsolutions-files.org/gpgs\\_files/pdf/2011/DisasterResponse.pdf](http://www.globalproblems-globalsolutions-files.org/gpgs_files/pdf/2011/DisasterResponse.pdf)

Wimmer, R. D., & Dominick, J. R. (2006). *Mass Media Research: An Introduction* (9th ed.). Belmont, CA: Wadsworth.

World Vision International - Who We Are. (2011). *World Vision International*. Retrieved April 8, 2011, from <http://www.wvi.org/wvi/wviweb.nsf/maindocs/3F50B250D66B76298825736400663F21?opendocument>

World Vision International- History. (2009, February 10). *World Vision International*. Retrieved April 8, 2011, from <http://www.wvi.org/wvi/wviweb.nsf/maindocs/E7809E562722923A88257375007659B0?opendocument>

Wright, D., & Hinson, M. (2009). An Updated Look at the Impact of Social Media on Public Relations Practice. *Public Relations Journal*, 3(2), 27.