Walden Dissertations and Doctoral Studies

2015

Factors Affecting Emergency Manager, First Responder, and Citizen Disaster Preparedness

Tiffany Cooks
Walden University

Walden University

College of Management and Technology

This is to certify that the doctoral dissertation by

Tiffany Cooks

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Robert Levasseur, Committee Chairperson, Management Faculty
Dr. David Banner, Committee Member, Management Faculty
Dr. James Bowman, University Reviewer, Management Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2015

Abstract

Factors Affecting Emergency Manager, First Responder,

and Citizen Disaster Preparedness

by

Tiffany Cooks

MBA, Ashford University, 2008

BA, Hilbert University, 1998

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

Walden University

November 2015

Abstract

Despite the increased frequency of natural and man-made disasters, there is a problem in the level of preparedness of emergency managers, responders, and citizens to address them. The purpose of this grounded theory study was to explore the factors that affect these groups' preparedness to inform the development of better emergency plans to handle emergency incidences. The conceptual framework for the study was knowledge management, which was used with a grounded theory approach. The study was guided by primary research questions that focused on understanding psychological, material, temporal, organizational, and other factors that affect the preparedness of emergency managers, first responders, and citizens, and on identifying measures for improving those levels of preparedness. Interview data were collected from a purposeful sample of emergency managers ($n = 11$), first responders ($n = 26$), and citizens ($n = 26$) from South Carolina who had experienced disasters. Secondary data from 6 disasters, 3 emergency operations plans, and 2 standard operating procedure guides were also collected. The constant comparative method was used to analyze data, informing the development of a theory that suggests emergency managers, first responders, and citizens must act collaboratively to prepare for and respond more effectively to disasters, in addition to their independent work. This study promotes positive social change by providing emergency management agencies with information necessary for developing better emergency preparedness plans, thus reducing the personal and economic impact of future disasters.

Factors Affecting Emergency Manager, First Responder,

and Citizen Disaster Preparedness

by

Tiffany Cooks

MBA, Ashford University, 2008

BA, Hilbert University, 1998

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

Walden University

November 2015

Dedication

First and foremost, I would like to give thanks to my Lord and Savior Jesus Christ, who has given me the strength to get through this challenging process in my life. I would also like to acknowledge my mother and father, who believed in me when I did not believe in myself. Thank you, also, to my daughter Sondrae E. Davis, and to my goddaughter, Jameia T. Mack, who had to make sacrifices as I fulfilled the mandate God gave me to complete this journey. I would also like to thank the Williamsburg County Emergency Management Agency staff for believing in me and my abilities as a leader, and for providing encouraging words when I thought I could not lead an agency. I would also like to thank Apostle Ron Carpenter of the Redemption World Outreach Center. You do not know me as one of your members, but your words resonated through the screen and provided me the strength to make it through this. Last but not least, I am thankful to all of the prayer warriors who kept the faith and belief that anything is possible through our Lord, Jesus Christ.

Acknowledgments

I would like to acknowledge and thank the Walden University professors who took the time to help me achieve this personal goal. In particular, I would like to acknowledge and give special thanks to the members of my dissertations committee: Dr. Robert Levasseur, my committee chair who made all this possible, and whose academic encouragement helped me immensely. Dr. David Banner, my content specialist, was tough but fair. If he and Dr. Levasseur agreed that something would work, then it did. Their dedication to duty, honesty, integrity, and professionalism kept me on track through this long process. I am forever in their debt because they reminded me that "the dissertation process is not a race but a marathon," and that diligence and consistency would result in success. I would also like to give thanks to my editor, Anna Gelbman Edmonds, for working so hard at helping me to obtain my goals. This challenge has come to end, and it's time to take on new challenges, armed with the knowledge of my research for creating social change.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Background

Natural and human-induced disasters have severely affected the United States in the past few decades. Although disasters cannot be prevented, steps can be taken to minimize their negative impact (Seneviratne, Baldry, & Pathirage, 2010). A lack of preparedness for disasters, however, has contributed to high death tolls, major property damage, and economic hardship throughout the United States (Donahue & Joyce, 2001; Seneviratne et al., 2010).

Despite the many opportunities for training, public education, and other mechanisms available to increase awareness (e.g., emergency communication networks, neighborhood siren alerts, special weather bulletins, and media press conferences), adequate disaster preparedness is still lacking (Helsloot & Ruitenburg, 2004; Kapucu, 2008). Citizens, first responders, and emergency managers have been responsible for this lack of preparedness (Asproth & Nystrom, 2010). The aim of this study is to identify factors that affect the ability of citizens, first responders, and emergency managers to prepare for disasters.

The United States has faced many natural and human-made disasters over the past two decades. Religious fundamentalism, nationalism, ethnic conflicts, and the effects of global warming have all perpetuated the need to be prepared (Flood & Cahoon, 2011; Segal, 2003). The World Trade Center air craft bombing, the Oklahoma City bombing, and Hurricane Katrina are just a few of the disasters that have had a major impact on the

United States over the past few decades (Housman, Hanlon, & Seal, 2007; Federal

Bureau of Investigation [FBI], n.d.). These events have caused significant loss of life and

property and have had negative consequences on the general economy (Seneviratne et al.,

2010).

Local, state, and federal agencies in the United States have traditionally planned

for disasters according to preparedness stages (Seneviratne et al., 2010). These

preparedness stages are defined as "activities, programs, and systems developed in

advance of a disaster designed to build and enhance capabilities at an individual,

business, community, state and federal level to support response to and recover from

disaster" (Federal Emergency Management Agency [FEMA], 2010, p. 1). The

preparedness stages include mitigation, planning, response, and recovery (FEMA), 2010;

Seneviratne et al., 2010).

The mitigation stage refers to any activity that can reduce or eliminate the risk of

a potential hazard occurring (FEMA, 2010). The planning stage refers to developing

emergency operation plans and standard operating procedures that address potential

hazards (Department of Homeland Security [DHS], 2010). The next stage—the response

phase—begins as soon as the disaster occurs (FEMA, 2010). This stage includes the

coordination of emergency first responders, the activation of the emergency operation

plans, and any other plans that are pertinent to the emergency reponse effort (FEMA,

2010). The final stage includes recovery operations that address the basic needs of those

affected by the disaster and restoration of the community to pre-incident conditions or as

close to pre-incident conditions as possible (FEMA, 2010). These stages are addressed in all emergency operations plans to ensure adequate responses to all disastrous events.

Disasters are events requiring a collaborative response effort from citizens, first responders, and emergency managers (Henstra, 2010). Some disasters and disaster-created hazards that require this type of response are tornadoes, hurricanes, earthquakes, terrorist attacks, floods, severe thunderstorms, train derailments, and hazardous material emissions (Henstra, 2010). Disasters may be large-scale events that require a large response, or they may be relatively small in scale and require only a small response (Flanagan, Gregory, Hallisey, Heitgerd, & Lewis, 2011). Irrespective of scale, being prepared for disasters is critical to surviving one.

A timely and accurate response to a disaster includes having the proper personnel and equipment to contend with the threat. It also includes coordinating resources so that they can be used in the most effective way (Schafer et al., 2008). An effective emergency management effort requires the collaboration of first responders, citizens, and emergency management agencies. The absence of a collaborative effort can result in lack of communication, improper resource allocation, and repetition of efforts by different entities involved in the response (Schafer et al., 2008). Local emergency management agencies in the United States are responsible for developing plans to facilitate a timely and accurate response to a disaster with respect to its identified potential hazards (Schafer, Carroll, Haynes, & Abrams, 2008).

Overall, people in the United States have not taken the steps needed to prepare for disasters (Housman et al., 2007). An example is Hurricane Katrina, which in 2005 hit the US coast near the Louisiana-Mississippi border at approximately 125 miles per hour (Drye, 2005). Katrina's front-right quadrant, which contained the strongest wind and peak storm surge, slammed into Biloxi and Gulfport, Mississippi, destroying much of both cities; a major levee in New Orleans also failed during the same storm (Drye, 2005). Katrina was considered the worst storm in the past 100 years in the United States (National Oceanic and Atmospheric Administration, 2005). It also highlighted many deficiencies in the level of preparedness of emergency management agencies, first responders, and citizens. The after-action review, which was a detailed report of events that occurred during the response efforts to Hurricane Katrina, cited six major problems:

- Clear objectives were not established for responding agencies.

- Organizational structure and incident command systems failed.

- Information flow and management were inadequate.

- Public health practices were not in place.

- There was a lack of public awareness and evacuations.

- There was a lack of training and exercise initiatives designed to test people's ability to respond to emergency situations in a training environment (Besser, 2006).

In the Oklahoma City bombing of 1995, a parked truck loaded with explosives blew up the Alfred P. Murrah Federal Building. This attack revealed that the American people are not impervious to terrorist attacks (Wilentz, 2011). The after-action review said that Timothy McVeigh, who perpetrated the attack, was acting in retaliation for the government's siege on a compound in Waco, Texas, two years earlier (Kaplan, 2011). This incident uncovered many deficiencies in preparedness efforts and changed how the United States viewed terrorism (Wilentz, 2011).

The after-action review showed that the federal government's response plans for disasters needed to be revised to incorporate plans for federal law enforcement, and that state and local plans needed to mirror the federal and regional response plans (FBI, n.d.). It also identified a need to conduct training among federal, state, and local emergency management with local fire and law enforcement services (FBI, n.d.). Finally, the after-action review deemed integration of federal, state, and local cooperative partnerships to be essential for managing acts of terrorism (FBI, n.d.).

Several terrorist attacks that took place on September 11, 2001, also known as 9/11, showed that the United States was not impervious to attacks on its native soil using commercial aircraft as weapons. On this day, two passenger planes flew into the north and south towers of the World Trade Center; a third flew into the Pentagon; and another crashed landed in a field in Pennsylvania (9/11 Commission, 2004). This timed event, like the Oklahoma City bombing previously mentioned, further showed that plans and

actions taken by emergency and law enforcement agencies in the United States in the past were inadequate to deal with these new threats (9/11 Commission, 2004).

Problem Statement

This study addressed the problem of the lack of preparedness demonstrated by emergency managers, first responders, and citizens in the United States prior to major catastrophic incidents (Harrington, 2010; Penades, Borgas, Vivacqua, Canos, & Solis, 2011). Although voluminous information is available on the Internet and other information sources, regarding the need to be prepared, the efforts taken by various local, county, and state emergency management agencies and communities have a demonstrated a history of inadequately preparing these entities for disastrous situations such as earthquakes, tornadoes, terrorist attacks, train derailment, hurricanes, and floods. Preparedness is "a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action in an effort to ensure effective coordination during incident response" (DHS, 2010, p. 1).

Hurricane Katrina, the post-9/11 New Hampshire anthrax incident, Oklahoma City Bombing, and the World Trade Center aircraft attacks, have shown that people in the United States often do not prepare adequately for disastrous events. In each of these incidents, a lack of preparedness accounted for a greater loss of lives and property than necessary (Uhr, Johansson, & Fredholm, 2008). It remains unclear why it is so difficult to capture the attention of citizens, emergency managers, and first responders so that they adhere to these guidelines. This study was designed to address this research gap.

Purpose of the Study

Natural and human-induced disasters are growing in frequency in the 21st century (Kiltz, 2011). In such situations, the need to respond and take appropriate action in advance is paramount. Harrington (2010) argued that lack of prior crisis management training has hindered the response of some public safety managers to emergencies such as disasters, and further stated that by failing to detect and respond proactively to critical incidents, public safety managers can inhibit the response to a crisis. The purpose of this qualitative research study was to explore the level of preparedness of emergency managers, first responders, and citizens to handle disastrous situations. The goal is to use this information to develop a theory on the interactions among various factors and to make recommendations to enhance preparedness.

Harrington (2010) studied the lack of preparedness on the part of the public safety managers who oversee the day-to-day activities of first responders. However, Harrington did not take into account the level of preparedness that should be shared by emergency managers, first responders, and citizens to handle disastrous situations collaboratively, thereby creating a research gap. This exploration of why some emergency managers, first responders, and citizens are not prepared was designed to address this gap and to assist in developing better collaborative and comprehensive plans to address these gaps in preparedness measures.

Research Questions

Four research questions guided this study:

RQ1. What factors—psychological, material, temporal, organizational, or other—

significantly affect the preparedness of emergency managers in responding

to disasters?

RQ2. What factors—psychological, material, temporal, organizational, or other—

significantly affect the preparedness of first responders in responding to

disasters?

RQ3. What factors—psychological, material, temporal, organizational, or other—

significantly affect the preparedness of citizens in responding to disasters?

RQ4. What measures can emergency managers, first responders, and citizens take

to improve their respective levels of preparedness in responding to

disasters?

Conceptual Framework

This study used knowledge management as its conceptual framework. This

framework argues that an organization can achieve its goals if all parts of the

organization are brought together to achieve a common purpose and share information to

that end (Seneviratne et al., 2010). The ideas prescribed in knowledge management are

applicable to preparing for, mitigating, responding to, and recovering from a disaster in a

way that fosters the collective knowledge of all responsible entities (Seneviratne et al.,

2010). These explicit collective and collaborative efforts are included in the measures

and actions taken by citizens, first responders, and emergency managers prior to, during,

and after an emergency. Knowledge management applies a holistic view of collaborative

efforts from all aspects of those in a system (Mentzer et al., 2009). This study extended this concept by applying knowledge management as a disaster management tool.

According to Seneviratne et al. (2010), there are three forms of knowledge: explicit, tacit, and implicit. For the purpose of this study, only explict and tacit knowledge management tools were used because they work best in trying to explain evidence of knowledge needed by emergency managers, first responders, and citizens. Implicit knowledge is knowledge that could be expressed, but has not been (Seneviratne et al., 2010). Explicit knowledge can be explained by an individual; in the context of disaster management, explicit knowledge includes what is known by individuals about risk, vulnerabilities, and the planning needed to reduce a possible threat (Mentzer, Myers, & Stank, 2009). Explicit knowledge also includes the collective knowledge that citizens, first responders, and emergency managers have that is useful in preparing for a disaster. It can be acquired through lessons learned from previous disasters, after-action reviews conducted following a training exercise, and public information bulletins created to assist citizens in preparedness actions (Seneviratne et al., 2010).

Tacit knowledge is knowledge that is not expressed verbally but learned while working with others. This type of knowledge is developed from person-to-person contact (Mentzer et al., 2009). Tacit knowledge is used because emergency managers do not necessarily have a formal plan for every incident they encounter, but their knowledge and experience of previous disasters provides them with the ability to create a contingency plan to handle an incident that is not formally written in a plan (Mentzer et al., 2009).

Nature of the Study

The research consisted of a qualitative study using grounded theory methodology, as suggested by Charmaz (2006). I selected a grounded theory approach over other qualitative research approaches, such as phenomenology, because the aim of this study was to learn what factors affect a certain behaviors, and to infer a theory explaining what was happening based on the data collected, as suggested by Levasseur (2011). In a phenomenological study, the researcher attempts to study in depth the "meaning, structure, and essence of the lived experience of a phenomena for a person or group of people" (Patton, 2002, p. 482) but does not attempt to develop a grounded theory of what causes the phenomena.

When using a grounded theory approach, a constant comparative method is used that compares newly collected data with the results from analyzing previously collected data (Charmaz, 2006). This method was used to identify the factors that affect the preparedness of emergency managers, first responders, and citizens for disasters in an effort to discover ways to improve their preparedness. Data were collected by means of interviews and from archival documents such as after-action reviews of six past disasters, prior studies on emergency preparedness, and county emergency management plans. The findings from the analysis of each of these types of data were triangulated to enhance the credibility and transferability of the research.

This was an exploratory study because there are few existing studies on this topic. I reviewed relevant documents, including prior studies on emergency preparedness and

after-action reviews of past disasters. The review and analysis included 6 documented cases of disasters that have affected the United States within the past 10 to 20 years— Hurricane Katrina (2005), the September 11 aircraft attacks (2001), the Oklahoma City truck bombing (1995), the Joplin, Missouri, tornadoes (2011), Hurricane Ike (2008), and the British Petroleum Deepwater Horizon disaster (2010).

In addition to case study reviews, I collected data through interviews with a number of first responders, including fire chiefs, emergency medical service (EMS) directors, police chiefs, and sheriffs who were selected based on their responsibility for making the final decisions within their agencies. A second set of interviews was conducted with purposively selected citizens to represent the views of typical members of the public. A third set of interviews was conducted with emergency managers, such as emergency management directors.

Interviews with each set of participants were conducted until saturation was reached (i.e., until the interviews no longer yielded new insights). These participants were selected purposively to meet the study objectives, and they provided information on their experiences with disaster preparedness. This allowed for a comparison of themes emerging from participants to those of others who experienced the disasters recorded in the 6 case studies. The comparisons helped me to develop a grounded theory for why people are not adequately prepared for disasters.

Before I conducted the interviews, all interviewees confirmed their consent to participate in the study. I used semistructured questions in the interviews, as suggested

by Neale, Shyam, and Carolyn (2006). Other formal methods of communicating with interview participants included telephone calls and emails, as suggested by Neale et al. (2006). Because some of the data collected were from peers in the profession of emergency management, gaining access to their facilities to conduct all of the interviews in person was not a significant problem.

Researchers must be aware of discrepancies between assumptions made by the researchers according to what they may have heard and what the participants actually meant. It is possible that my established relationships with some of the interviewees were a factor in the data collection process. As a result, I made several efforts to minimize any bias that might result from such relationships. For example, I paid special attention to triangulating the data in this research.

Triangulation of findings from participant interviews, case study review, and secondary data review were used to limit research bias. I also worked to establish a framework of respect with the participants by gaining an understanding of their views on the topic from their perspective. Conversely, these established relationships and the resultant trust were likely factors that allowed the participants to feel more at ease and open to telling their stories. All interviews were audio recorded for ease of transcription and analysis and to avoid improper reporting stemming from inaccurately recording information from participants.

Researchers must be forthcoming with participants and not attempt to mislead them (Creswell, 2007). Explaining to the participants in advance the nature of the

interview and how it would be conducted enhanced the level of trust between the participants and myself. Full disclosure of information at the beginning of each interview ensured that the participants freely consented to participate in the interviews. The other main aspect of the researcher's role is to protect the identity of the participants (Creswell, 2007). This was done by using codes to identify responses from participants.

Definitions

Disasters are the widespread unexpected incidents that affect and disrupt normal activity, causing loss of life, damage to property, and severe economic impacts (Webb, 2007).

Emergency management is a managerial function charged with creating the framework within which communities reduce vulnerability to hazards and cope with disaster (EM Public Safety, Public Trust, 2007).

Emergency managers are individuals responsible for coordinating an emergency response and requesting aid from other levels of government (Henstra, 2010).

First responders generally are local fire, police, and emergency medical personnel who are responsible for carrying out emergency management efforts. The role of first responders is to protect against, respond to, and assist in the recovery following emergency events (DHS, 2003).

Mitigation consists of actions taken to reduce the loss of life and property prior to an incident occurring (Donahue & Joyce, 2001).

Planning is the ability to make it possible to manage potential crises throughout their life cycles. Planning helps to establish priorities, identify expected levels of performance, and identify capability requirements prior to an incident occurring (FEMA, 2010).

Preparedness consists of measures undertaken before disasters occur to improve the readiness of organizations and communities to respond to disasters effectively. Preparedness includes a cycle of planning, response, recovery, and mitigation (Donahue & Joyce, 2001; FEMA, 2010).

Recovery involves steps taken to help people return to their normal operations after a disaster has occurred (Donahue & Joyce, 2001).

Response consists of measures taken immediately after an incident to provide assistance to victims who have been affected (Donahue & Joyce, 2001).

Assumptions

For the purposes of this study, I assumed that

- I would be able to interest emergency managers, first responders, and citizens in participating in the study;

- interview participants would answer my questions truthfully;

- case study data, such as after-action reviews, would be a matter of public record and, therefore, readily available; and

- access to other secondary data not in the public domain, such as emergency operation plans and standard operating procedures, would be granted by emergency managers and first responders because I was a member of the emergency management community.

Limitations

A possible limitation of this research is not being able to generalize the findings of the study. This is because the sampling was conducted purposefully and all of the participants were from the state of South Carolina. Another limitation of the study is that emergency managers and first responders who could be directly involved in emergency operations may each have different roles during a disaster, which could limit their knowledge of all phases of preparedness (i.e., mitigation, planning, response, and recovery).

Scope and Delimitations

The purpose of this research study was to investigate the factors that have prevented emergency managers, first responders, and citizens from being prepared for disasters and to build a theory to explain the interaction of these factors. A primary focus of this study was the exploration of the total level of preparedness in the areas of mitigation, planning, response, and recovery that were conducted by these entities during those disasters.

The findings from the analysis of case study disaster reviews and other emergency management plans and reports were compared to the findings from the analysis of

interview data collected from participants. This triangulation of findings provided insight into the factors that have hindered past preparedness efforts and the factors that currently affect the level of preparedness for disasters.

The delimitations of this study are a result of the time and financial resources needed to investigate this topic fully. In consideration of financial resources, and while acknowledging the need for scientific rigor, I have noted that the scope of this study is limited to a purposive sample of emergency managers, first responders, and citizens, primarily from South Carolina.

Significance of the Study

This research is unique because it addresses an under-researched area of preparedness with respect to the increased threat of disasters, such as those that have occurred in the United States over the past few decades (Humphress, 2007). The existing literature has tended to focus on response and mitigation efforts as a means of handling disastrous situations (Henstra, 2010; Humphress, 2007; Kapucu, 2008). Although the areas of mitigation and response are crucial to suviving a catastrophic incident, the need for preparedness is often not adequately addressed by those who are affected (Donahue & Joyce, 2001). The results of this study have provided insights into the factors affecting the preparedness of citizens, first responders, and emergency managers that could lead to the creation of improved emergency management plans. The findings of this study could have a significant impact on how counties prepare for emergency situations, thus saving lives and minimizing property loss in future disasters.

Summary

A review of disastrous situations occurring over many decades has proven that many people are not adequately prepared to handle disasters when they strike. The ability to mitigate, prepare, respond to, and recover from disasters is limited by the lack of understanding of the factors that will lessen the impact of a disastrous event.

Gaining a better understanding of the factors that affect the lack of preparedness by emergency managers, first responders, and citizens will help in developing better training, education, and public relations/outreach efforts needed to better prepare for the next major incident. Hurricane Katrina, the World Trade Center aircraft attacks, Oklahoma City Bombing, British Petroleum Deepwater Horizon disaster, Joplin Tornados, and Hurricane Ike are just a few disasters that revealed the lack of preparedness of emergency managers, first responders, and citizens (FEMA). A previous study investigated the lack of preparedness that involved the training of public safety officials and first responders (Harrington, 2010). The study examined the lack of preparedness by public safety officials.

Chapter 2: Literature Review

Emergencies can happen any time and usually occur when least expected (Seneviratne et al., 2010). People are slow to respond to impending disasters that could affect their way of life. The purpose of this research study was to determine what factors contribute to a lack of citizen disaster preparedness, in an effort to better improve the level of preparedness by citizens, first responders, and emergency managers. This study examined the lack of preparedness demonstrated by citizens, first responders, and emergency managers during past disasters. It was specifically designed to determine how citizens lack preparation for human-made and natural disasters so as to better inform future emergency preparedness programs.

This chapter includes a review of historical initiatives that have been implemented in the development of emergency preparedness and how disaster management has changed. The literature review includes discussions of research on the roles of first responders, citizens, and emergency managers and how these roles can collaboratively improve preparedness. It also examines challenges that preparing and responding to disaster pose for first responders, citizens, and emergency managers. The last sections of the review include a discussion of the literature related to the conceptual framework for this study.

This examination of the literature provided an in-depth overview of the lack of preparedness of emergency managers, first responders, and citizens. This chapter also includes the historical evolution of emergency management practices of the past and

present from the perspective of the federal, state, and local emergency planning

initiatives. I also examined past and present initiatives that have been studied in the field

of emergency management. Examining emergency management practices at each level

included reviewing information on how emergency management initiatives at each level

work and how these practices have failed during disasters that the United States has

faced.

Literature Search Strategy

To find sources for this literature review, I conducted a search of peer-reviewed

journal articles, dissertations, and scholarly publications such as books, after-action

reviews, and research reports. The primary databases that I searched were from

ABI/INFORM Complete, Business Source Complete (EBSCOhost), Homeland Security

Digital Library, *Journal of Emergency Management* , *Journal of Homeland and*

Emergency Management, and the International Security & Counter-Terrorism Reference

Center's *Journal of Contingencies and Crisis Management and other Scholarly Peer-*

Reviewed Journals .

The keywords used in the search of literature included *emergency management*,

citizen preparedness, *preparedness*, *disaster preparedness*, *emergency planning*,

emergency response, *evacuation*, *emergency incident*, *disaster knowledge*, *community*

rebuilding, *factors*, *human planning*, *knowledge management*, *mitigation*, *risk perception*,

public perception, *nongovernmental organizations*, and *social economics*. The range

used in the search for information was 5 years and less from the time of this dissertation's

expected completion date. In addition, some Seminal sources were used to address some past work that had been done in the field of study.

History of Civil Defense

In order to understand the evolution of disaster management, it is important to define what constitutes types of disasters that have historically affected people. Disasters are nonroutine events that occur without notice (Call, 2010; Henstra, 2010). Disasters can be destructive and disrupt the routine activity of people's lives (Khunwishit & McEntire, 2012). Fritz, cited in Eighmy and Hall (2012), defined a disaster as an event, concentrated in time and space, in which a society, or a relatively self-sufficient subdivison of a society, undergoes severe danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fullfillment of all or some of the essential functions of the society is prevented.

Disasters can come in the form of natural and human-made incidents that exceed the normal capability of a community to respond effectively (Henstra, 2010; Houston, Pfefferbaum, & Rosenholtz, 2012). Natural disasters include, but are not limited to, earthquakes, floods, hurricanes, tornadoes, and landslides (Eighmy & Hall, 2012; Kemp, 2009). Human-made disasters include biological incidents, large fires, hazardous spills, terrorist activities, and railcar accidents of all types (Houston et al., 2012; Kemp, 2009).

US federal, state, and local governments have all undertaken initiatives to address the level of preparedness for disasters nationally. In 1950, the US Congress passed the Federal Civil Defense Act to protect citizens against a nuclear attack from the Soviet

Union (Ekici & McEntire, 2007; Lieb & Chapman, 2011). In 1951, President Harry S. Truman created the Federal Civil Defense Administration (FCDA), which gave funding responsibilites to state and local governments to produce awareness campaigns for nuclear incidents.

However, even with the establishment of these two measures many people in the United States remained unprepared to handle a disastrous incident involving a nuclear attack from the the Soviet Union (Geist, 2012; Paek, Hilyard, Freimuth, Barge, & Mindlin, 2010). Planning for a nuclear attack included dispersing populated areas as a protective measure for civil defense and using bomb shelters to provide safer shelter for citizens (Geist, 2012; Lieb & Chapman, 2011). After it was confirmed in 1951 that the sheltering system developed by the Soviet Union would not withstand nuclear fallout, this call arose for reevaluation of the U.S. civil defense programs (Geist, 2012).

Few studies have examined whether these measures were the best way to prepare citizens for attacks of nuclear exposure; this is understandable because there were limited resources available to assist during the 1950s. Most related preparedness efforts focused instead on civil defense, public response, and what people thought and felt about a nuclear attack (Geist, 2012). Scholars did not foster preparedness efforts for a nuclear attack for citizens, responders, or government officials (Carlo, 2009; Finsterbusch, 1985). This was because the government tried to hide the fact that nuclear weapons existed where they lived; by extension, preparedness efforts also did not exist (Carlo, 2009).

Establishing the Federal Emergency Management Agency (FEMA)

The evolution of emergency management in the United States has shifted from nuclear preparedness to an all-hazard approach to handling both human-made and natural disasters (Ekici & McEntire, 2007; Henstra, 2010). The threat of natural and human-made disasters has increased over the past few decades, increasing the need for countries to be prepared for all types of disasters (Julca, 2010; Perry & Niggs, 1985; Seneviratne et al., 2010). Between 1900 and 1909, natural disasters occurred 73 times in the United States, whereas between the years 2000 and 2005, the number of natural and manmade disasters rose to 2,788 (Seneviratne et al, 2010). Failure to correctly anticipate the level of danger that a disaster will cause can result in increased loss of lives and property.

FEMA was established in 1979 by President Jimmy Carter, after the much criticized response to the Three Mile Island incident (Ekici & McEntire, 2007). The purpose of FEMA originally was to coordinate response efforts to disasters that occurred in the United States that overwhelmed the ability of state and local resources to respond to disasters (Leaning & Leighton, 1983; Martin et al., 2011). At that time, FEMA's role included responding to a full range of emergencies during both peacetime and nuclear war incidents (Leaning & Leighton, 1983). FEMA has since undergone many restructuring efforts and received more scrutiny after its response to four major hurricanes led to legal battles. Investigations of these four hurricane response efforts in 2005 revealed that FEMA lacked the organization and leadership needed to respond adequately to disasters (Leaning & Leighton, 1983). During Hurricane Katrina, FEMA

failed to respond adequately, revealing that FEMA was not prepared to handle any disasters (Sharman, Rao, Jin, & Upadhyaya, 2008). For instance, Hollis (2005) claimed that FEMA was slow and inconsistent and created a "log jam" that delayed debris removal throughout Florida (p. 11).

Shifting Disaster Management Practices

Successful emergency management practices require knowledge of the local area, individual communities, vulnerabilites, hazards, and resources that are available to the community (Coles & Zhuang, 2011; Shaefer et al., 2008). Global scientists have agreed that climate change is a factor contributing to the increase in natural disasters (Kiltz, 2011). These factors, along with a shortage in drinking water, can cause risks of thirst and famine. Other factors that could lead to greater losses in extreme weather events include a decline in agricultural productivity caused by the unseasonable temperatures, a decrease in rainfall, an increase in the rate of malaria and other diseases, and an increase in the human population (Kiltz, 2011).

Emergency management is triggered when a disaster affects some part of the nation. The goal of emergency management is to "intervene in a disaster, avoid disasters, or handle all types of operations before, during or after a disaster" (Ekici & McEntire, 2007, p. 345). As a result of the events of September 11, 2001, the roles and responsibility of FEMA were streamlined to handling natural disasters. Under the Homeland Security Act (2002), President George W. Bush established the DHS, a new

agency with the primary mission of handling terrorist incidents (Martin et al., 2012; Jenson, 2011; Kemp, 2009).

 One of the documents developed by this agency was the National Response Framework (NRF), which is used to address response to disasters on a regional level by multiple government actors (Gerber & Robinson, 2009). The NRF encompasses several components, including threat assessment strategies, incident reporting, vertical and horizontal communication and information sharing, training and exercising, mitigation strategies, organizing and planning to mobilize resources at different levels, response and recovery activities, safety of personnel and the population, and the hazard-specific components of the above (Kapuca, 2009).

Other directives established under the NRF included the Homeland Security Presidential Declaration 5 (HSPD-5) and the Homeland Security Presidential Declaration 8 (HSPD-8) (Gerber & Robinson, 2009; Jenson, 2011; Kemp, 2009). HSPD-5 developed "a comprehensive national incident management system with federal, state, and local government personnel, agencies, and authorities to respond to such attacks and disasters" (Jenson, 2011, p. 1). This system was established to improve the nation's response to domestic incidents (Reissman, Christopher, & Frye, 2010). HSPD-8 was developed to provide awareness of threats posing the highest risk to the security of the nation, which include acts of terrorism, cyber attacks, pandemics, and catastrophic natural disasters (DHS, 2011). These two directives established national goals and programs designed to improve prevention, response, and recovery operations (Reissman et al., 2010).

The National Incident Management System (NIMS), which was also a part of the NRF, required all government departments at the local, tribal, territory, state, and federal levels to conform to a standardized emergency management structure (Jenson, 2011; Martin et al., 2012). Jenson (2011) stated:

Each entity is responsible for the implementation of a standardized set of concepts, principles, terminology, and technologies covering the incident command system; multi-agency coordination system; unified command; training; identification and management of resources (including systems for classifying types of resources); qualification and certification; and the collection, tracking, and reporting of incident information and incident resources. (p. 2)

These standards were passed down from the federal level to the local levels of government following the traditional top-down approach to managing disasters (Boin & McConnel, 2007; Uddin & Hossain, 2011). The new measures taken by the federal government fit into the phases of emergency management identified above: mitigation, preparedness, response, and recovery (Kemp, 2009). Within each phase, the local emergency management agenices will be able to respond to incidents at their level prior to requesting assistance from the the state and federal levels (Jenson, 2011; Martin et al., 2012).

At the local level, there is collaboration among public, private, nongovernmental, volunteer agencies, first responders, and the local emergency management official, which has led to sucessful emergency response initiatives (Brudney & Gazley, 2009; Coles &

Zhuang, 2011; Henstra, 2010). These collaborative efforts historically have been absent at the federal level, because the federal level of preparedness is focused on national priorities and not local specific incidents (Henstra, 2010).

In a holistic approach to managing disasters, local emergency management operates at the local level while homeland security operates at the national level (McCreight, 2011). However, planning at the lowest level is necessary for emergency management practices to be sucessful. This has been a controversial topic, placing the traditional top-down and newly practiced bottom-up approach to disaster management at different ends of the disaster response spectrum.

Researchers have argued that the top-down approach, or the classical management theory, is still useful in the disaster management phase, which is inconsistent with the bottom-up form of managing disaster (Boin & McConnel, 2007). As Boin and McConnel argued, when time is crucial and decisions must be made, it is beneficial to have those higher in the chain of command available to make those decisions (2007). A limitation to this idea is that if those higher in the chain of command were not involved during the planning stages, prior to the disaster occurring, then they would have limited knowledge of what resources are available.

Citizens, media, lobbying groups, and other political officials look to the government to make the decisions regarding response efforts (Boin & McConnel, 2007; Donahue & Joyce, 2001). Others have argued that the top-down management approach is not effective because those at the federal level do not have a grasp of local level

resources and may attempt to undermine the authority of local officials (Bach & Kaufman, 2009; Schafer et al., 2008). Conversely, other scholars have expressed concern with local planning efforts that are collaborative and transparent in nature and that include a bottom-up form of management that first seeks the leadership of the local officials in handling disasters. This is in contrast to the command and control efforts that are part of the federal incident management process, which does not include coordination at the local level (Brudney & Gazley, 2009; S. Smith, 2012).

In contrast to Budney and Gazley's (2009) analysis of the bottom-up preparedness approach, Uddin and Hossain (2011) determined that not only should preparedness be built from the bottom up, but it also should involve the establishment of relationships with responding agencies prior to a disaster occurring. Uddin and Hossain hypothesized that agencies that maintain a network relationship are able to demonstrate better preparedness in a disaster response.

Budney and Grazley (2009) believed that the top-down approach to management can be used if there is a single organizational response, but that in most large-scale incidents there is a need for multiple organizations from various locations to respond; this makes the traditional top-down management model counterproductive because of its inablity to keep track of informaton in this way (Uddin and Hossain, 2011). Budney and Grazley (2009) also noted that communities are usually resistant to governmental solutions imposed on them, which is counterproductive.

Disaster Management: A Collaborative Effort

Managing a disaster requires a collaborative effort by emergency management officials, first responders, and citizens. In order to understand the significance of each actor involved in disaster management, it is necessary to first examine their individual roles and how they fit into the overall preparedness for disasters.

The Role of First Responders

When a disaster occurs, the coordinated efforts of law enforcement, fire departments, emergency management agencies, and emergency medical personnel, along with other nongovernmental and governmental entities, are needed (Henstra, 2010; Janssen, Lee, Bharosa, & Cresswell, 2009; Nilsson, 2010). All of these entities are considered the first line of defense prior to and during an incident. During an emergency, first responder duties include operating within the incident command structure (ICS) by delegating authorites to make decisons (Sharman et al., 2008).

Prior to an incident, first responders are responsible for assisting in evacuations, determining resources needed, and developing plans to coordinate information sharing among other emergency entities (Sharman et al., 2008). Following the loss of first responders during the 2001 World Trade Center incident, emergency management has been placed at the forefront for preparedness (Scopetta, 2008). However, some have claimed that first responders are ill-prepared and lack the necessary training and appropriate equipment to respond to a disaster (Chen & Peria-Mora, 2011).

The Role of Citizens

Citizens must understand that it is not solely the responsibility of government officials to prepare them for disasters. Prior to a disaster occurring, citizens must take a proactive role in ensuring they are ready to take care of themselves for at least 72 hours (Biedrzycki & Koltun, 2012). As disasters are becoming more frequently, the need to educate people about the risk of disaster prior to an incident is becoming more important than ever.

Communications designed at motivating citizens to act prior to a disaster occurring can help to lessen the potential impact of a disaster. However, there is a lack of evidence-based knowledge on the use of communicating a threat to motivate people to change their behavior when preparing for disasters (Wood et al., 2012). There are many theories associated with disaster preparedenss and communication of risk.

In his theory of disaster, Drabek (1999) emphasized the behavioral, psychological, and social aspects of disaster response. Drabek contended that disaster warnings impact the way people respond to a disaster, but I believe this theory holds only for those who have faced previous disasters. Drabek examined the threats of denial, warnings as social processes, and networks of social contraints. The first reaction to most warnings is denial (Drabek, 1999), which causes a delay in response. Other factors that cause a delayed response by people in a group setting can also affect individual responses to warnings of threats. People usually react collectively to warnings of evacuation because people worry about becoming separated from those with whom they are familiar,

which could occur in an evacution-required response (Burns & Eltham, 2010; Drabek,

1999). All of these factors play a role in how people respond to disasters (Drabek, 1999).

Wood et al. (2012) conducted a research study involving communications

campaigns that references the way in which people need to prepare for disasters of any

nature. People are not motivated by what information is provided to them about

preparedness actions (Wood et al., 2012). When people perceive that information limits

their exposure to a particular risk, they are less likely to be motivated to take action.

Paek et al. (2010) examined people's behavior at different stages of emergency

preparedness.

The gathering of emergency supplies was used as a predictor in determining how

people respond at various stages of preparedness. The amount of supplies that

individuals have available will determine what stage of preparedness they are

experiencing. However, this should not be the the the sole indicator of preparedness. Other

factors, such as having an evacuation plan and having knowledge of potential threats in

the area, should also be considered when determining the stage of preparedness.

According to Paek et al. (2010), the first stage of action is precontemplation, in

which people have no intention of changing behavior in the near future to prepare for a

disaster (Paek et al., 2010). The next stage is contemplation, in which people are aware

that the chance of an incident exists, but they have not commited to taking action to

prepare for the possibility that it will occur (Paek et al., 2010). The third stage is

preparation, in which people intend to make preparations and begin to make changes in

their behavior (Paek et al., 2010). The fourth stage is action, in which people actually modify their behavior to overcome the threat (Paek et al., 2010).

The final stage is the maintenance stage, in which people maintain behavior changes for 6 months or more (Paek et al., 2010). Drabek (1999) contended that people will be motivated to take action according to how other people are taking action to prepare. If those actions are favorable to an effective level of preparedeness, they are more likely to take similar action themselves. Paek et al. (2010) and Woods et al. (2012) believed that whoever delivers the messages also plays a role in how people prepare for disasters. Communication messages should be different for people in different stages of readiness to change.

The Role of Emergency Managers

During an emergency, the operations of emergency management are conducted at the local emergency operation center (EOC). The purpose of the center is to control, coordinate, and communicate planning and decision making during an emergency (Sinclair, Doyle, & Paton, 2012). Emergency managers are responsible for overseeing emergency management initiatives at the local level from the EOC (Chen & Peria-Mora, 2011).

Emergency managers are required to make decisions that are analytical, naturalistic, procedurally based, creative, and distributive (Sinclair et al., 2012). The analytical decision making is based on determining options and choosing the best option. The naturalistic decision making is based on the ability of emergency managers to make

decisions determined by their level of experience and lessons learned from previous incidents. Procedurally based decisions are based on the practices that are already in place, such as emergency operation plans. Creative decision making is necessary when there is no protocol for making decisions. These are usually decisions that are made on the spur of the moment. Distributive decision making requires gathering information from multiple sources (Sinclair et al., 2012). Sinclair et al. (2012) stated that "poor decision-making leads to poor emergency management" (p. 160).

One of the responsibilites of emergency managers is meeting with and coordinating efforts among response agencies, which usually includes discussing actions to be taken in the response phase of a disaster (Asproth & Nystrom, 2010; Eighmy & Hall, 2012; Sinclair et al., 2012). Another responsibility is developing emergency plans and procedures that include who is reponsible and what actions are to be taken by each entity (Eighmy & Hall, 2012). Emergency managers are also responsible for conducting emergency drills, which are simulated circumstances that test their capability to respond to a disaster (Eighmy & Hall, 2012). Emergency managers are also responsible for positioning and prioritizing materials and supplies for use during emergencies (Chen & Peria-Mora, 2011; Eighmy & Hall, 2012).

The emergency manager must understand the community's vulnerabilities and the risks a potential hazard may pose for the population (Harrington, 2010; Henstra, 2010; Khunwishit & McEntire, 2012). Insufficient calcuation of a threat could result in a failed emergency response effort (Rahm & Reddick, 2011). On the other hand, overcalculation

of a threat could result in unnecessary and excessive response efforts (Rahm & Reddick, 2011).

Current Disaster Management in the United States

Disaster management has evolved over the past few decades. Innovative ideas have been studied to improve preparedness for emergency managers, first responders, and citizens. Based on historical disastrous events, the United States may not be prepared to handle disasters that affect the nation. Although the U.S. government has learned from other disasters, most of the knowledge has been gained reactively instead of proactively.

Risk Assessment

Mitigation is defined as actions taken prior to a disaster that will minimize the losses suffered if a disater were to occur (Henstra, 2010). The foundation of planning is understanding the vulnerabilities and risks an area has to hazards. To prepare for a disaster, communities must train, exercise, meet, and coordinate with response agencies, and write plans to address vulnerabilites (Failth, Jackson, & Willis, 2011). Emergency plans include detailed strategies for addressing vulnerabilites and risks to which local areas may be prone (Schafer et al., 2008). What makes each plan unique in different regions is the likelihood that certain areas are more prone to certain hazards. For example, people living on the West Coast may be prone to a greater number of earthquakes, while those living on the East Coast may be more likely to experience hurricanes (Schaefer et al., 2008).

Some have argued that a comprehensive approach to planning is better than an all-hazard approach, such as that adopted by DHS (Rahm & Reddick, 2011). In a comprehensive approach to analyzing disasters, preparedness is concentrated on a community's vulnerability (Rahm & Reddick, 2011). Under this approach, if the state of Iowa is prone to tornadoes, then all preparedness actions are concentrated on tornadoes instead of all potential hazards that may affect the United States. An all-hazard approach considers all potential hazards that could affect people anywhere in the world. In an all-hazard approach, people must prepare for all hazards, no matter where they live. The benefits of a comprehensive approach versus an all-hazard approach have been argued because some researchers have felt that assessing risks should be the first step in the emergency management continuum of phases, which does not support preparedness for all hazards (Martin et al., 2012).

Information on past disasters could be used to predict the level of risk of future disasters (Warren & Kieffer, 2010). Researchers in disaster mangement have proposed a formula to understand how risks, threats, and vulnerabilities are connected. Risk is equal to the hazards multipled by the vulnerabilities minus the resources (risk = hazards x vulnerability – resources) (Flanagan et al., 2011). This formula is used to explain how risk is associated with how preparedness efforts are to be evaluated. Risk is determined by the likelihood that an event will occur, whereas the hazards are events that could occur as a result of the risks identified. The vulnerabilities are determined by how people are able to respond to those hazards with the available resources they have (Flanagan et al.,

2011). Abkowitz and Chatterjee (2011) determined the cost of risk by how prone a region is to a particular human-made or natural disaster or an intentional act of terrorism. McEntire (2012) stated that that a hazard has little effect on a community if the community is not vulnerable to the hazard's effects. Some communities may be more or less vulnerable to different types of hazards; their risk may be lower or higher than that of other communities. To better understand hazards, disasters have been categorized into human-made and natural disasters, all of which warrant different levels of risk for different communities.

How people perceive risk is attributed to how they behave during a disaster. Wildavsky and Drake (1990) introduced several theories to understand how people behave during a disaster. They studied how the knowledge that people have about perceived risk is associated with their understanding of what they think is dangerous to them (Rahm & Reddick, 2011). The second theory of risk perception is the personality theory. This theory is associated with how an individual personally interprets what risk is and how to respond to risk. Some people are not concerned with risk; others are more concerned with risk and try to avoid it in all cases (Rahm & Reddick, 2011). The third theory in risk perception is the economic theory.

Because disasters rarely occur, people are more likely to take risks if they believe that the potential negative consequences of taking the risk are less than the benefits of taking the risk (Rahm & Reddick, 2011). The next theory of perception is political theory. This theory revolves around election outcomes and party advantages, or an

individual's power (Rahm & Reddick, 2011). Politics may have a role in how risk is handled and the uncertainty that risk suggests. The final theory is the cultural theory of risk perception. This means that the cultures that are embedded in various groups determine how they perceive risk (Rahm & Reddick, 2011).

In the past, risk assessment was the work of emergency response personnel and decision makers. This led to a lack of participation by those living in the communities at risk for hazards (Mercer, Kelman, Lloyd, & Suchet-Pearson, 2008). Gaillard and Mercer (2012) stated that community members have the best knowledge of the risks associated with their area and that local knowledge should be used as resources to reduce disaster risk. Combining local knowledge with scientific knowledge is the most effective way of reducing disaster risk (Gaillard & Mercer, 2012; Seneviratne et al, 2010). Local knowledge is the knowledge gained from experience; scientific knowledge is the knowledge gained from formal methods of education (Gaillard & Mercer, 2012). Because the first people to respond to any disaster are usually those from the community, the primary decision makers in disaster risk reduction should be members of the community.

Communities must be educated on the dangers of hazardous materials and the routes the hazardous material vehicles travel (Rahm & Reddick, 2011). People in the community are the first to be affected by a natural or human-made disaster. They are the main group that must be prepared to handle this type of disaster. However, communities differ in their levels of risk, given that some communities have more transportation

terminals, industrial sites, nuclear reactors, power generation plants, or large-capacity

buildings (Schafer et al., 2008). The size and population of an area are factors in

considering a location's vulnerability to disasters. In general, the more people in an area,

the more susceptible the area is to various hazards (Rahm & Reddick, 2011).

The reduction of risk via emergency planning has not prevented disasters from

affecting people (Mercer et al., 2008). However, Abkowitz and Chatterjee (2012)

suggested that a combination of investments in training, public awareness, infrastructure

maintenance, rehabilitation, technology, response, and education can reduce risk. Wang

et al. (2011) also stated that risk reduction during the mitigation phase will reduce

disaster risk and reduce the cost of a disaster.

Funding

Funding allocation has been aligned with a location perceived to be at an

increased risk of a terrorist event occurring. However, Prante and Bohara (2008) noted

that risks associated with terrorism may not be the only factor that determines allocation

of grant funding. Political party affiliation and the power of a state's elected officials

may also be determinants of grant funding allocation (Roberts, 2005). Those states that

have a greater risk factor for terrorist activity are allocated more funding than those with

less risk, which usually means that the smaller communities receiving less funding.

Roberts contended that because terrorism is unpredicable, it is difficult to determine

where the next terrorist incident will occur, so all communities should be considered,

including those with less risk (2005). Smaller communities, such as the one that was

examined in this study, may lack the funding to support preparedness programs to better prepare first responders, citizens, and emeregency managers for terrorist events.

Chenoweth and Clarke (2010) identified how resources, institutional arrangements, and governance maturity are needed when addressing homeland security needs. Chenoweth and Clarke (2010) and Prante and Bohara (2008) claimed that in order to create a more robust plan for terrorism, the plans to prepare for terrorist events should start at the local level. To this end, Chenoweth and Clarke indentified interoperable communications, which is a DHS intitiative that has been identified as a national priority in combating terrorism. Interoperable communication refers to the ability for all responders working together to be able to communicate using one type of system (Chenoweth & Clarke, 2010).

DHS used tactical interoperable communication scorecards (TICS) to test resouces, institutions, and governance relationships on interoperable communication Ripberger (2011) and Chenoweth and Clarke (2010) stated that funding for interoperable communication is insignificant. They furthur stated that no one factor, e.g., governances, resources, or institutional arrangements, yields conditional effects of how prepared one area is compared to another. Rather, it is the combination of a higher level of governance maturity and institutional arrangements that yields a greater level of preparedness. Increased funding does not solve the problem of preparedness; other factors, such as security and defense policy implementation, local coordination, and implementation during multijurisdictional response, should also be considered (Ripberger, 2011).

Joint Planning

During emergency planning initiatives, the community is less likely to be involved in the planning phase of preparedeness. If emergency managers were to include the community during the planning phases of preparedness, the communities would have a better chance of facing 21st-century threats (Biedrzycki & Koltun). Some people think that panic and behaving irrationally during a disaster is commonplace. However, most people usually respond to the needs of their community (Henstra, 2010), as they are usually left to fend for themselves immediately following a sudden incident until first responders are able to provide professional assistance.

According to Okvat and Zautra (2011), a community that has the abilty to respond to and recover from an incident is a community that can sustain itself during and after a disaster. This ability, called community resilience, is becoming more important to emergency management initiatives (Patricia, Nicholas, Perrin, Whitney, & Matthew, 2010). To be resilent, a community must have the resources and the knowledge to be able to use those resouces to overcome the disaster (Patricia et al., 2010).

The aftermath of Hurricane Katrina was an example of state, local, and federal governments' inability to adequately prepare for a disaster (Donahue, Cunnion, Balaban, & Sochats, 2012). The lack of preparation was identified by reports from first responders, the media, the general public, and academicians who were involved in this catastrophic event. In this event, people were left behind and neighborhoods were ignored. Despite the lessons learned about the problems caused by a lack of preparedness

in Hurricane Katrina, there is still a lack of community involvment in emergency

management initiatives (Biedrzycki & Koltun, 2012; Donahue et al., 2012).

Joint planning efforts are important for responders. Scholars have suggested that

emergency managers look to network theories and practices to understand the importance

of involving multiple actors during the emergency mangement planning stages (Brudney

& Gazley, 2009; Uddin & Hossain, 2011). Trust and the ability to communicate should

be developed among all responding agencies prior to a disaster occurring as a means to

build partnerships (Hossain & Kuti, 2008; Uddin & Hossain, 2011).

To address the degree of trust and communication of emergency management

actors, Uddin and Hossain (2011) conducted a study to determine if malls were prepared

to respond to terrorist attacks. Uddin and Hossain revealed that there was a positive

correlation between information sharing and connectiveness of those involved who had a

working relationship prior to a disaster. Those who had conducted preparatory drills

together responded well to emergencies (Uddin & Hossain, 2011). The more involved

actors are in the predisaster planning phases, the better they are prepared to handle an

incident if it arises (Hossain & Kuti, 2008; Uddin & Hossain, 2011).

Moynihan (2008) created network theory as a means of combining the hierachial

structure of the incident command structure (ICS), as a tool for better coordination among

various response organizations responding to a disaster. Moynihan (2008) noted a crisis

management paradox, stating, "A crisis does not only require an interorganizational

response but also requires traits unusual in networks: rapid and decisive coordinated

action" (p. 206). Harrington (2010) believed that the ability of the leaders to think ouside

the box when faced with challenging issues that fall outside of their standard operational

procedures were important in responding adequately to a disaster. I agree with both

researchers because not all needed actions are written in a book. There are factors that

involve other actors, such as first responders, emergency managers, and citizens, who

also play roles in the response to a disaster.

The ICS is used as a tool to facilitate a crisis response. Its structure relies on the

ability to coordinate multiple incidents and agencies. The system is a nationally adopted

tool supported by HSPD-8 and is used to bring all responding agencies, with different

funtional and juridictional levels of governance, into a common framework of operation

(Moynihan, 2008). The NIMS used the ICS as a tool in the 1970s after responders in

California experienced difficulty managing a wildfire that required a multiagency

response (Moynihan, 2008).

The ICS generally works within organzations that have a network form of

management. In the case of the wildfire, ICS was used to establish command and

control. ICS was helpful, despite the organizations' lack of experience in using this form

of incident management (Moynihan, 2008). The use of ICS, combined with the

experience of those already possessing the skills as network members, helped save time

and money that would have been needed to introduce a new method of handling a crisis.

ICS and NIMS are similar and can be used in conjunction without having to retrain

responders to adopt the ICS structure (Moynihan, 2008).

Volunteer and Private Organizations in Disasters

The establishment of national response systems was based on the assumption that all responding agencies are known in advance of an incident occurring (Majchrzak, Jarvenpaa, & Hollingshed, 2007). The American Red Cross, Community Emergency Response Teams(CERT), Volunteer Organization Active in Disaster (VOAD), Citizen Corps, Medical Corps, and other organizations make up a team of trained personnel who respond to disasters (Brudney & Gazley, 2009; Flint & Stevenson, 2010). In large incidents, organizations that respond may be from different organzations with interdependant missions. Some of these organizations lack the skill and resources to properly respond to a situation, which can inhibit response efforts (Hossain & Kuti, 2008). Coordination efforts in such cases can be challenging and result in poor use of resources and personnel. Planning in advance of incidents can bring groups together in an effort to be better coordinated.

Haraoka, Toshiyuki, Murata, and Hayasaka (2012) examined factors that affect volunteers and victims of earthquake disasters. Self-reporting questionaire surveys were conducted with 302 leaders of neighborhood associations. Haraoka et al. (2012) found that a better collaborative effort occurs when the leaders of the organizations can anticipate the level of risk of earthquake damage and predict whether they will be affected by the damages. In order to anticipate the level of risk, the residents need to obtain damage estimates prior to an earthquake occurring. They will also have to conduct drills with local organizations in order to better prepare for earthquake disasters

(Haraoka et al., 2012). Brudney and Gazley (2009) also revealed that involving volunteer organizations in routine processes of planning and training will help enhance the county's overall emergency preparedness.

Situational Awareness Module

Johnson, Zagorecki, Gelman, and Comfort (2011) conducted a quantitative study using the situational awareness module (SAM). SAM was designed to keep track of all of the information that is available during an emergency and improve situational awareness for supporting decision making in real-time actionable operations. Information from SAM is compiled and assigned a number from 1 to 10, with 1 being minor situations and 10 being catatrophic situations.

One challenge in using this method is the need to customize development of the software to fit the models to a particular location (Johnson et al., 2011). Because different locations are prone to different threats, different warning mechanisms are needed. An example of these warning mechanisms is outdoor sirens, which may be better used in locations where people are concentrated in close proximity to one another. In locations where the people live in a widespread area, this type of system may not be as useful. Because most outdoor siren systems have an audible range of 1 mile or less, it may be difficult to reach people situated in widespread areas.

Because actionable knowledge relies on collecting and combining information from various subgroups of different organizations, the method of collecting intelligence for the design of emergency response has been studied (Vivacqua & Borges, 2010).

Collective intelligence involves combined knowledge solicited from various sources that can be put together to be used for disaster relief (Vivacqua & Borges, 2010). Collective intelligence is used in all phases of the emergency management cycles, which include the preparedness, prevention, mitigation, response, and recovery phases. In the prevention phase, collective intelligence is used to prevent any disastrous situations from occurring as a result of identified threats (Vivacqua & Borges, 2010).

Data Mining

Data mining and information retrieval techniques have been used to cluster and preprocess information before it goes to those in a decision-making position (Vivacqua & Borges, 2010). In this study, I propose a number of methods that can be used to assist in the critical intelligence gathering, which includes statistical approaches using numbers to determine the area of impact. Citizens would be allowed to vote on a number of given options in taking a poll designed to ask questions that could help responders determine the level of response needed for a given area.

Another proposed method is deliberation, which involves gathering information during the predisaster stages that will help mitigate or prevent a disaster from occurring (Vivacqua & Borges, 2010). A limitation to this type of information gathering is the small amount of information, which could hinder decision making at the responder level. There is concern about confirming whether information is accurate and reliable. In any case, the information must be verified and analyzed before being distributed to the decision makers (Vivacqua & Borges, 2010).

Game Theory

A terrorist event can trigger responses from various emergency response entities, including fire services, emergency medical services, emergency management, and law enforcement personnel. However, resources are limited. In cases such as the World Trade Center attack and the Indian Ocean tsunami disaster, both of which required multiple emergency services, the need to prioritize resources is paramount (Chen, Wu, & Wu, 2009; Coles & Zhuang, 2011). Cole and Zhuang (2011) examined the game theory approach during the recovery operations. This approach includes the local responders as catalysts for ensuring faster recovery of the disaster victims.

The system employed by the DHS includes a colored-coded system in which a color is associated with each threat level. Chen et al. (2009) claimed that this type of tool does not provide decision-making guidance for allocating resources. This approach is used in the current advisory system, but allows for decision making on how emergency agents will best use resources in responding to multiple emergencies (Chen et al., 2009). This includes the ability to assign priority of resources to areas and individuals that pose the greatest probability of a disaster occurring (Chen et al., 2009).

Cole and Zhuang (2011) stated that a successful response and recovery is dependent on properly trained and located personnel. Communication between response elements is a crucial component in a stable operation. Scholars such as Cole et al. (2009) and Cole and Zhuang (2009) have revealed different perspectives on how the game theory approach should be used. Cole et al. (2009) believed that priority of resources

should be assigned according to the threat, whereas Cole and Zhuang claimed that locally

trained personnel are instrumental in a successful recovery effort because the local

responders are more familiar with the geography of the area than external partners. Local

responders are more involved with determining resources needed to handle a disaster than

those who just arrive on the scene to provide mutual aid to impact victims. For which is

true and adds value to the idea that local responders have a better understanding of their

respective communities.

In contrast, Smith (2012) argued that disaster response systems should not include

consideration of political issues, the competency of officials, detailed disaster relief

plans, knowledge of procedures at each level of government, precision of response,

timeliness of decisions, or full control of nececssary resources at each level of

government because these factors are not realistic in large-scale disasters. Smith argued

that each agency has its own agenda and rules that inhibit a collaborative effort in

decision making during an incident. Others have argued that local emergency managers

are the lead authorities in the mitigation, planning, response, and recovery efforts of

emergency management cycles (Rahm & Reddick, 2011).

Grounded Study

In a qualitative study to explore crisis leadership, Harrington (2010) claimed that

a lack of crisis leadership, identifying threats, decision making, and proper training would

result in failed responses to future disasters. A lack of crisis leadership training can

impede the response to a crisis (Harrington, 2010). When the circumstances of the event

become overwhelming, the responders ignore departmental standard operation procedures (Harrington, 2010). If the managers receive training in crisis leadership, the efficiency of their response may improve, helping them to identify and process early warning signs so that they can use resouces efficiently (Harrington, 2010).

According to Rahnama, Shoorabi, and Hadad (2012),

Crisis management is called to a group of research skills and processes which is applied in unusual event or difficult situations and total systems which includes strategies methods and special performance for keeping social or organizational properties in encountering with effective crisis event which plans all natural disasters in all levels and stages using tools and facilities totally and practical activities of human and private groups. (p. 593).

This definition supports Harrington's (2010) view of crisis management and the skills needed in managing a disaster effectively.

Rahnama et al. (2012) investigated the role of municipalities in an urban crisis management structure. As part of the study, the researchers examined attributes of crisis management that included conducting a risk analysis to identify potential threats and determine a means for correcting those difficiencies. Rahnama et al. (2012) also included training of citizens and determining safe places for the evacuated citizens to go as crisis management roles. Crisis management is a responsibility that should be a priority in dealing with disasters. Crisis management improves with practice and, if it is not made a priority, it will not work properly when needed (Rahnama et al., 2012). Crisis

management includes not only public safety officials but also is a multidimensional approach consisting of other, more general parts that have an effect on crisis management—people and society, science, training and treatment, technology, politics, interns, private and public cooperation, and nongovernmental organizations (Rahnama et al., 2012).

In this study, I examined emergency managers, first responders, and citizens to determine why there is lack of preparedness given current knowledge about managing disasters. Although various theories and strategies have been studied regarding disaster preparedness, people still fail to respond adequately to a disaster. The research for this study was an in-depth investigation of why communities are not prepared for disasters. I developed a grounded theory to help emergency managers create better emergency plans.

A Conceptual Framework

Even as we face increases in global warming, increases in population, expansion in air and ground transportation systems, and increases in vulnerabilites to risk, people are still slow to prepare for disasters (Patricelli, Beakley, Carnevale, Tarabochia, & von Lubitz, 2009). As a proactive approach to handling disaster, the concept of knowledge management will be applied to managing disasters. Knowledge management refers to the collaborative efforts among various stakeholders, which in this case applies to emergency responders, citizens, and emergency managers who are reponsible during an emergency (Blackman et al., 2011). As defined by von Lubitz, Beakely, and Patricelli (2008), knowledge management, involves "development of relationships and dependencies

among different pools of data and information, their consolidation into a uniform body of knowledge, and the extrapolation of the latter into operationally relevant 'best practices.

Having knowledge and all available information pertinent to the incident will enable emergency managers, first responders, and citizens to better prepare for, respond to, and recover from a disastrous incident. However, obtaining information that is incomplete or inaccurate will contribute to the failed management of such disasters (von Lubitz et al., 2008). If people are not aware of the threats, vulnerabilities, and risks associated with a particular disaster, they will not have the knowledge necessary to handle the disaster. When a disaster occurs, the information that is received from multiple sources should then be synthesized and verified before action is taken. This will prevent making poor decisions, based on misinformation about what action is needed (Li, Wang, Leung, & Jiang, 2010; von Lubitz et al., 2008; Patricelli et al., 2009).

Knowledge management, in its traditional context, is best used during predisaster planning because knowledge management takes time to evolve. In the ever-changing and complex environments that are manifest during a disaster, knowledge management may not be the best practice to implement (von Lubitz et al., 2008). Knowledge management should be reserved for those in senior/executive level management and should not be applied at the tactical level, where decisions have to be made quickly and according to changing conditions (von Lubitz et al., 2008).

Traditional knowledge management is useful in synthesizing information gathered from various sources to create an action plan to support the tactical decision-making. At

this level, traditional knowledge management can be useful, but in times when action must be taken immediately at the tactical level, a modified form of knowledge management is better suited to handle the disaster. This level of knowledge management is called actionable knowledge.

Actionable knowledge management combines principles of traditional knowledge management with collected information about the incident for the purpose of tactical operations (von Lubitz et al., 2008). Actionable knowledge substitutes the traditional hierarchial methods of tranforming information that is provided from different sources and includes checking the validity of the information to more quickly synthesize the information needed at the tactical level (Johnson, Zagorecki, Gelman, & Comfort, 2011; Patricelli et al., 2009). Having knowledge of the situation during an emergency or an expected emergency is important to determine the current state of readiness and to identify problems that could be encountered during the emergency (Johnson et al., 2011).

The ability to receive and interpret information from various sources to create a common operating picture for responders who are involved in the disaster takes training and experience, This is why emergency managers must be knowledgable in managing disasters (Johnson et al., 2011). A lack of awareness and understanding of the situation could result in overestimating or underestimating key resources needed, overestimating the threat to losing property or lives, or responding inappropriately to the incident.

Summary

The United States' lack of preparedness and response efforts to disasters has been under scrutiny by many people. Throughout history, disasters in the United States have included human-made and natural incidents that have caused the loss of many lives and damage to property. One common factor in handling every disaster has been the involvement of local government, first responders, and citizens. Because the best way to handle disasters from start to finish is to include all of these actors, it is imperative to determine what factors affect their ability to prepare for disasters.

Research studies and initiatives have been conducted on the federal, state, and local levels of preparedness activities. Scholars have examined how organizations carry out disaster management initiatives, such as developing tools that would assist in managing disasters; risk and mitigative actions aimed at preventing disasters; training of key personnel in crisis leadership and decision making; community involvement in prevention, preparedness and recovery; behavior of people with regard to viewing potential threats of disasters; and disaster management as a collaborative effort involving emergency managers, first responders, and citizens. Yet, researchers do not understand the lack of preparedness by emergency managers, first responders, and citizens. In this study, I examined each entity in an effort to better understand the factors affecting preparedness with the hope of improving emergency preparedness for disasters.

Chapter 3: Research Method

Disasters are unavoidable events that cause great loss of life, damage property, and create financial hardship. Until the end of the 20th century, emergency management strategies in the United States typically were relegated to law enforcement agencies, fire departments, and those responsible for coordinating local disaster response. However, major disasters in the United States over the past 15-20 years have caused many other groups to become involved in planning for disasters (Choi, 2008). The purpose of this study is to determine factors that affect the ability of three key groups—emergency managers, first responders, and citizens—to prepare for disasters.

Traditionally, emergency management in the United States was a support function for coordinating response efforts among federal, state, and local response organizations (Choi, 2008). Before 2001, emergency preparedness focused on the response phase for handling disasters. Now, the focus of emergency management has been broadened to include other phases that support the response phase, including the mitigation phase, preparedness/planning phase, and recovery phase. In each of these phases, actions must be taken to create a collaborative response effort by emergency management, first responders, and citizens in order to minimize the losses that disasters cause.

This chapter describes the research design and presents a rationale for the design. I describe my role as the researcher–observer and provide an explanation of how my biases were to be handled. Another section includes the methodology that I used, including the number of participants and the procedures used to protect the identity of

those participants. The data collection and analysis method are also described, and issues

of trustworthiness and ethical concerns of collecting data are discussed. The chapter

concludes with a summary of the information provided in the chapter.

Research Design and Rationale

The following four research questions guided this study:

RQ1. What factors—psychological, material, temporal, organizational, or other—

significantly affect the preparedness of emergency managers in responding

to disasters?

RQ2. What factors—psychological, material, temporal, organizational, or other—

significantly affect the preparedness of first responders in responding to

disasters?

RQ3. What factors—psychological, material, temporal, organizational, or other—

significantly affect the preparedness of citizens in responding to disasters?

RQ4. What measures can emergency managers, first responders, and citizens take

to improve their respective levels of preparedness in responding to

disasters?

Answers to these questions were obtained from the leaders of each emergency

response agency because they are in the position of making the decisions. Citizens can

also provide useful information that can be used to understand their knowledge of

preparedness activities. Only through gathering information from each group of people

was a grounded theory developed to explain the factors that affect the participants' preparedness for disasters.

Research Design

Grounded Theory

Grounded theory is a research method that emerged from research on death and dying by sociologists Barney Glaser and Anselm Strauss (Charmaz, 2006). Glaser and Strauss created strategies for developing new theories based on data collected from study participants, rather than by testing hypotheses based on current theories (Charmaz, 2006). At the time, qualitative research was not well recognized in the research community because some researchers thought that it was unsystematic and biased in nature. Those researchers considered quantitative research to be a more solid and concrete scientific foundation (Charmaz, 2006). Qualitative research allows for the creation of new theories, whereas quantitative research seldom leads to discovery of new theories (Charmaz, 2006).

According to Charmaz (2006), grounded theory practices include

- simultaneously collecting and analyzing data;

- constructing analytic codes and categories from data from preconceived, logically deduced hypotheses;

- using the constant comparative method, which involves making comparisons during each stage of the analysis;

- continuous advancement of theory development during each step of data collection and analysis;

- memorandum writing to elaborate categories, specify their properties, define relationships between categories, and identify gaps; and

- sampling aimed toward theory construction, not population representation.

Role of the Researcher

My role as the researcher –observer in the data collection procedure was to facilitate and moderate the interviews, each of which was approximately 1 hour long. For researchers, having the ability to broaden the understanding of how research participants view their situation provides an opportunity to gain greater insight into the meaning of the data (Hayhow & Trudy, 2006). I analyzed the data from a broad perspective and began to narrow the view of the data as it became clearer, without changing the meaning of the information collected (Charmaz, 2006). The grounded theory method allows for the flexibility to change the focus without sacrificing the data collected. The researcher must seek to get the best information from the perspective of the participant(s). The research problem should shape the method used to collect the data (Charmaz, 2006).

In order to reduce the threat of bias, I paid special attention to triangulating data from this research. I triangulated the findings from participant interviews, case study reviews, and secondary data reviews to limit my potential research bias. I established rapport and mutual respect with the participants by gaining an understanding of their

views of the topic from their perspective. I accomplished this by repeating their responses back to them in my own words to ensure that I understood what they meant.

My established relationships with the participants were a source of trust that likely made the participants feel more at ease and open to telling their stories. All interviews were audio recorded for ease of transcription and analysis, as suggested by Colorado State University (2011). Failure to accurately record information from participants would result in improper reporting. Researchers must be aware of bias that may be introduced by discrepancies between assumptions that the researchers make and what the participants actually mean. This is why I repeated participants' responses to them in my own words to ensure that I understood what they were saying.

Methodology

Target Populations

The target populations used for data collection were all from the state of South Carolina. The emergency managers and first responders participating in the research were affiliated with the emergency management field, law enforcement, fire department, and emergency medical services. They were the leaders of those respective organizations because they were in a position to make decisions for their respective agencies. Residents of South Carolina have not experienced any major disasters over the past 20 years; thus, the participants provided appropriate information for this study because they may have been less likely to be prepared for disasters than those who had experienced

disasters in recent years. The participants' lack of experience with disasters provided me with insights into the reasons why people do not prepare for disasters in this area.

For this research study, I conducted a review of 6 documented cases involving major disasters that have affected the United States within the past 10 to 20 years. Secondary sources, such as emergency operation plans and standard operation procedures used for current response efforts in various counties, were reviewed to understand what is currently being done in those counties.

Sample and Sampling Procedure

The first responder participants in the research included members from the fire department, emergency medical services (EMS), and law enforcement fields who met the criterion for inclusion in the study by virtue of their job titles. Another group of participants included citizens who were selected purposively. Those participants had been selected by their communities to be spokespersons within their respective communities on all issues brought before the Williamsburg County Council. The final group of participants included emergency managers from various counties.

The plan was to select from 10 to 15 people from each group. However, for each group the interview process was terminated only when data saturation occurred (i.e., when no new properties of the pattern emerged), according to Charmaz's (2006) methodology. In the initial step, participants were provided with information regarding the study and a request to volunteer to be a part of the research. Only those who completed the consent form (Appendix B) were included in the study.

I conducted a review of relevant documents, such as prior studies on emergency preparedness and after-action reviews of past disasters. The review and analysis included 6 documented cases involving major disasters that had affected the United States within the past 10 to 20 years—Hurricane Katrina (2005), the September 11 aircraft attacks (2001), the Oklahoma City truck bombing (1995), the Joplin, Missouri, tornadoes (2011), Hurricane Ike (2008), and the British Petroleum Deepwater Horizon disaster (2010).

Instrumentation

I was the primary data collection instrument during this study. I used a direct approach to collecting the data, including gathering and sorting of case studies, distributing research questions, and conducting personal interviews with leaders of the emergency response community and various members of the community in South Carolina. Participant interviews provided primary data for the study, and my review of documented case studies of disasters provided historical (i.e., secondary) data. Protecting the personal and emotional safety of the participants was a paramount concern throughout this research study.

<div align="center">

Data Collection

</div>

Interview Data

Qualitative methods usually rely on four techniques to gather information: (a) participant observation; (b) direct observation; (c) unstructured interviewing; and (d) case studies (Trochim, 2006). Primary data to be collected in this qualitative research study came from semistructured interviews with experts within the field of study and interviews

with citizens (Wahyuni, 2012). For this study, the experts were the emergency managers, first responders, and ordinary citizens included as study participants.

I collected data from the interview participants, following a strict protocol to protect the quality of the data. To protect the identities of the participants, I recorded the interview responses to the interview questions and kept them separated and labeled. The interview questions (see Appendix A) were based on the need to accurately answer the research questions without bias on the part of the participants or the researcher. To check for validity as questions were answered, I allowed for detailed explanation of the responses if necessary. The interviews with the first responders were conducted at their place of employment or via telephone.

I conducted the interviews with the citizens at the local emergency management agency or via telephone. This is a familiar location for all citizens in Williamsburg County because the emergency operation center is located on the same site as the county's recreation center. The interviews with emergency managers were conducted via telephone or at the emergency manager's place of employment.

Telephone interviews were neccesary to reduce travel time and expense to each county. Interviews were scheduled during working hours for the first responders because it is usually easier to make contact with them at that time. Interviews with the citizens were conducted after business hours because most of them work during normal business hours. Each interview lasted 1 hour or less. At the end of each interview, I asked the participants if they would be willing to participate in a follow-up interview if more

information or further explanation of their initial responses was needed. I presented the

consent form (see Appendix B) to participants before conducting the interviews in order

to protect the rights of the participants.

Case Study Data

Biedrzycki and Koltun (2012) stated that the strategy of triangulation is beneficial

because it increases validity and provides confirmation of findings to support the

phenomenon. Hence, 6 case studies of past disasters that affected the United States

served as a second source of data for research. Data were collected from after-action

review documents that are available to the public. The data were sorted under strict

guidelines using open coding and theoretical memorandum writing to determine their

relevance in answering the research questions.

Additional Secondary Data

In addition to the case studies of disasters, other secondary data used for this

research were obtained from the first responder organizations and emergency

management organizations participating in the interviews. This information provided

data that were needed to better understand how the organizations operated, in an effort to

support the goal of the research. Secondary data collected included emergency operation

plans, emergency response standard operation procedures, and any other information that

could be used to explain the disaster planning currently being used by emergency

responders.

Data Analysis

Wahyuni (2012) asserted that data analysis in a qualitative study involves organizing and coding the data into themes represented by figures, tables, or a discussion. He wrote: "Data analysis involves the drawing of inference from raw data. Data analysis can involve multi-methods that are applied sequentially. Performing data analysis on qualitative data basically involves dismantling, segmenting and reassembling data to form meaningful finding in order to draw inference" (p. 75).

During the data analysis stage, the data were organized into themes consistent with the overall goal of answering the research question. Charmaz (2006) noted that data analysis involves "taking information and labeling, categorizing, summarizing, and accounting for every piece of data" (p. 43). Data analysis is the first step in interpreting the information and developing an analytical view towards making sense of the information collected to build the analysis (Charmaz, 2006). Data were analyzed immediately after collection to ensure greater accuracy in the information collected. Each type of data was analyzed in different ways.

Interview Data

Line-by-line coding for this type of data was conducted. This coding method offers the ability to break data apart, define the actions into which they fall, look for tacit assumptions, extract implicit actions and meanings, determine their significance, compare data with data, and identify the gaps (Charmaz, 2006). Because most of the participants had not experienced a disaster in a few decades, the incident-to-incident method of

coding was applicable to draw out emerging themes that would benefit the study.

Incident-to-incident coding involves looking at each case to generate categories and then

comparing new incidents to incidents within the categories. The second procedure is to

make comparisons to determine what category each incident indicates (Walker & Myrick,

2006).

Case Study Data

Incident-to-incident coding was conducted through a comparative study of

incidents. Incidents were compared to establish uniformity under varying conditions.

These incidents were then compared to other incidents to generate new theoretical

properties (Charmaz, 2006). This method was employed because of the wide range of

both human-made and natural disaster cases used in this study that have affected the

United States. Because the case study information will be found in after-action reports, a

sense of the context, its participants, or any other information that would be obtained if

the researcher had been involved in any of the disaster efforts is absent. Incident-to-

incident coding techniques were considered more amenable to examining the totality of

the incident in relation to another incident in an effort to develop emerging themes.

The additional secondary data collected were analyzed incident to incident

because most standard operation procedures and emergency plans are developed using an

all-hazard approach. This means that plans do not address specific disasters but instead

address planning for all disasters that may affect an area.

Evidence of Trustworthiness

Trustworthiness

Trustworthiness was established to provide a clear and broad understanding of the factors that prevent people from preparing for disasters. This required collecting data from multiple sources, developing a process for analyzing the data, and properly coding the data to complete an in-depth analysis of the information (White, Oelke, & Friesen, 2012).

Credibility

According to Wahyuni (2012), credibility is established when the data collected accurately reflects what is happening. Credibility was established by conducting triangulation from multiple data sources. This involved capturing information from multiple perspectives, which included semistructured interviews that were conducted with emergency managers, first responders, and citizens. Documentation included after-action reviews and other documents that identified lessons learned from these past disasters.

Dependability

Dependability refers to the idea of "reliability which promotes replicability or repeatability" (Wahyuni, 2012, p. 77). In this study, dependability was achieved by providing a detailed explanation of the research design and process that will enable future researchers to follow a similar research framework (Wahyuni, 2012).

Transferability

Transferability refers to the ability to apply the knowledge gained through the data collection process to other settings or situations (Wahyuni, 2012). This was especially important in this study because the setting in which the data was collected has not experienced a major disaster in decades. The goal is for the information obtained and the inferences drawn from the data to be transferable to locations where disasters are more probable. This is another reason why triangulation from multiple sources is useful in developing a more in-depth perspective of the phenomena being uncovered.

Confirmability

According to Wahyuni (2012), confirmability refers to "the extent to which others can confirm the findings in order to ensure that the results reflect the understanding and experiences from the perspective of the participants" (p. 77). Detailed documents of the data collected, to include constructing memoranda and summaries in order to identify variations in information, will be maintained (Charmaz, 2006).

<div align="center">

Ethical Procedures

</div>

One of the first things I did was to apply to Walden University's Institute Review Board (IRB) because the IRB must approve the proposed data collection methods. Copies of consent forms (see Appendix B) and interview questions (see Appendix A) were submitted along with the application. I received an email granting approval of the application.

Once I had received the IRB's approval, I selected the initial set of citizens from Williamsburg County to participate in the study and then contacted them via telephone to ask them to take part in the study. I conducted a full explanation of the consent document and inquiry investigation prior to obtaining the participants' agreement to participate in the study. Once this occurred, I collected the data by in-person or telephone interviews. The in-person interviews were conducted after business hours at the emergency operation center. Because these are public buildings, most citizens were familiar with the location.

The next group of people that I contacted were first responders and emergency managers from various jurisdictions throughout the state. I sent each of them a formal letter or email, along with a copy of the consent form, explaining the nature of the study and requesting their participation in a face-to-face interview or, if such a meeting was not possible, a telephone interview. I first contacted 5 first-responder leaders and emergency managers who were leaders in their respective organizations, and requested either a face-to-face or telephone interview. I conducted face-to-face interviews during office hours at their respective work places. At the time of the formal interview or telephone interview session, I requested copies of secondary sources, such as emergency policies and procedures. Because I currently work in the field of emergency management and have an affiliation with most of these leaders, gaining access to information was not a problem.

During each encounter with the different participants, a signed consent form was used to ensure that the information obtained could be used for research purposes (see Appendix B). All participants were assigned a number to protect their identity. The

name corresponding to the number was stored under lock and key by the researcher.

Gaining the trust of participants was vital to encourage open and trustworthy responses to

the questions. Overall protection of the participants in the investigation was strenuously

exercised throughout the data collection process.

Summary

This chapter described the methodology for this grounded study, the purpose of

which is to determine what factors affect the ability of people to prepare for disasters.

This study explored the level of preparedness for disasters of emergency managers, first

responders, and citizens in the state of South Carolina. The research method used

combined grounded theory and constant comparative exploration of data. Grounded

theory involves building a theory based on methods used for collecting and analyzing

data to construct theories that are grounded in the data (Charmaz, 2006). The results of

this analysis are presented in Chapter 4.

Chapter 4: Results

The purpose of this study was to identify factors that affect the ability of a number of key groups in the United States to prepare for disasters: emergency managers, first responders, and citizens. The large number of major disasters that have occurred over the past few decades in the United States suggests that such events will occur again. This creates a greater need for people to be prepared for disasters, which can cause loss of life, damage to property, and financial hardship. In this chapter, I discuss the research questions regarding the determination of the factors that affect the level of preparedness for key emergency groups and citizens.

The following questions guided the study:

RQ1. What factors—psychological, material, temporal, organizational, or other— significantly affect the preparedness of emergency managers to respond to disasters?

RQ2. What factors—psychological, material, temporal, organizational, or other— significantly affect the preparedness of first responders to respond to disasters?

RQ3. What factors—psychological, material, temporal, organizational, or other— significantly affect the preparedness of citizens to respond to disasters?

RQ4. What measures can emergency managers, first responders, and citizens take to improve their respective levels of preparedness to respond to disasters?

Setting and Demographics

The study participants comprised three different groups of people, all of whom were from the state of South Carolina (see Table 1). The citizen group was residences of Williamsburg County for 1-32 years. The first responder group participants had been in their current positons for   1-26 years. The participants in the emergency management group were in their current positions for five months to 22 years. All participants in each group had experiences with some form of disaster.

Table 1

Participant Demographics

Years in Role	Emergency Managers	First Responders	Citizens
0–5	2	10	1
6–10	5	7	1
11–15	1	3	1
16–20	1	2	2
20+	2	4	21
Total number of participants	11	26	26
Average years	11.30	10.28	38.46

Note. Emergency managers and first responders' years are measured in terms of years in current position; citizens' years are measured in terms of years lived in Williamsburg County.

Data Collection

Data for this study were generated through interviews and secondary data collection, including case study reviews. Findings were triangulated by comparing and cross verifying the collective responses of each of the three groups—citizen, emergency

manager, and first responder—to secondary data collected from six documented disasters. The research was conducted between October 2014 and January 2015. The citizen group interviews were conducted in person or by telephone, while the first responders and emergency managers were also interviewed by telephone or in person.

Interviews

All interviews were audio recorded to ensure that answers to the questions were recorded accurately. The citizen group had 26 participants, the first responder group had 26 participants, and the emergency management director group had 11 participants. The citizen group was asked 10 questions, and the emergency manager and first responder groups were each asked 11 questions (see Appendix A). The questions were broad and open-ended to enable themes to emerge (Charmaz, 2006). During the interview, each participant was given the opportunity to elaborate on any question to help solidify his or her response to particular interview questions. I also asked all of the participants if they would be available for follow-up questions if the need arose. The need for follow-up questions was not needed after interviews were conducted because all data that was needed to was collected.

Secondary Data

I obtained secondary data including emergency operations plans and standard operation procedures from first responder and emergency management agencies. In all cases, the first responder group used the same county emergency operation plans as the emergency management group. The emergency operation plans included specific roles

critical to first responder preparedness and response activities before and during a disaster.

The case study review included six documented disasters that occurred in the United States: Hurricane Katrina in 2005 (Besser, 2006), the September 11 aircraft attacks in 2001 (Ekici & McEntire, 2007), the Oklahoma City truck bombing in 1995 (Geist, 2012), the Joplin Missouri tornados in 2011 (U.S. Department of Homeland Security, 2011), Hurricane Ike in 2008 (Sharman, Rao, Jin, & Upadhyaya, 2008), and the British Petroleum Deepwater Horizon disaster in 2010 (U.S. Department of Homeland Security, 2011). I collected documents related to each case that described investigations into preparedness measures taken before the disaster, the resulting lessons learned, and any recommended corrective actions. Each of these documented cases illustrated the need for appropriate preparedness to ensure efficient response outcomes to disasters.

Data Analysis

Interviews

The responses were transcribed according to each interview question. Next, I applied the specific analytic technique of line-by-line coding recommended by Charmaz (2006) to the data. I read and reread the responses from each group using the constant comparative method to identify similarities and differences. Each response was categorized, and from these categories, themes were developed to illustrate consistency in the answers until saturation was met. The tables below show the responses to each research question for each group.

RQ1. What factors—psychological, material, temporal, organizational, or other—significantly affect the preparedness of emergency managers to respond to disasters?

Table 2

Emergency Managers' Perspectives on RQ1

Factor	Numbers	%
Funding	6 of 11	55.54
Manpower	4 of 11	36.36
Support from leadership	2 of 11	18.18

Note. How emergency managers perceive the factors affecting their preparation for disaster response.

Table 3

First Responders' Perspectives on RQ1

Factors	Numbers	%
No factors	22 of 26	84.61
No connection	2 of 26	7.69

Note. How first responders perceive the factors affecting emergency managers' preparation for disaster response.

Table 4

Citizens' Perspectives on RQ1

Factors	Numbers	%
No factors	19 of 26	73.07
Training	3 of 26	11.53
Community outreach	2 of 26	7.69

Note. How citizens perceive the factors affecting the emergency managers' preparation for disaster response.

The emergency managers' interview responses showed that a lack of funding and personnel, followed by support of leadership (i.e., political and governmental leaders), were the primary reasons cited by emergency managers as why they felt less confident about their preparedness for handling disasters (Table 2). However, participants from the first responder and citizen groups indicated that they believed that emergency managers are ready to deal with disasters (Tables 3 and 4).

Seven emergency managers stated that they would use increased funding to increase personnel, purchase equipment, or both. Participant E-2, for example, noted that "Having manpower and equipment will improve their [emergency managers'] ability to respond to disasters more efficiently." Sufficient funding to hire additional employees and purchase emergency equipment such as "radios, hazardous material detection devices, vehicles, [and] generators," as stated by Participant E-5, was necessary to allow first responders to become self-sustaining. If they did not own the necessary resources, emergency managers and first responders stated that they have to wait for other entities to supply them with immediate emergency resources through the use of mutual aid. These requests for equipment and personnel slow down response efforts, because these resources may not be readily available during a disaster.

Support from local leadership, such as county supervisors, county councils, and county administrators, is also critical to emergency managers because the political officials determine the budget allocation for each agency (U.S. Department of Homeland Security, 2011). Without local government support, emergency managers may not get

the funding or support necessary for critical decision making, thus further hampering their capacity to prepare and respond effectively to disasters.

RQ2. What factors—psychological, material, temporal, organizations, or other—significantly affect the preparedness of first responders to respond to disasters?

Table 5

Emergency Managers' Perspectives on RQ2

Factors	Numbers	%
No factors	5 of 11	45.45
First responder Training	4 of 11	36.36

Note. How emergency managers perceive factors that affect first responders' preparation for responding to disasters.

Table 6

First Responders' Perspectives on RQ2

Factors	Numbers	%
Funding	17 of 26	65.38
Manpower	8 of 26	30.76
Equipment	5 of 26	19.23

Note. How first responders perceive factors that affect their preparation for responding to disasters.

Table 7

Citizens' Perspective on RQ2

Factors	Numbers	%
No factors	17 of 26	65.38
Citizen training	5 of 26	19.23

Note. How citizens perceive factors that affect first responders' preparation for responding to disasters.

As in the case of the emergency manager group participants, lack of funding and personnel were the primary reasons that the first responder group participants felt that they were not prepared for disaster response (Table 6). The first responder participants also identified not having adequate equipment as another reason that first responders are not prepared. However, the emergency manager and citizen group participants expressed a belief that first responders are prepared as they can be to deal with disasters (Tables 5 and 7).

Providing training for first responders enhances their knowledge of emergency response and preparedness. However, 19 responders noted that funding is needed for purchasing equipment and funding to pay for training and training hours of those sent for training. According to participant FR-10, when first responders attend training, others must be available to take their shifts, and both they and their replacements incur overtime for which additional funding is required.

Two first responders also felt that it was important to hire "additional manpower." For an emergency response agency, limited personnel can pose a problem for both response and training efforts. Three first responders stated that "when you don't have enough trained people to respond to disasters then you either have to wait for qualified persons to render assistance from other parts of the state, or you can't fully respond adequately to disaster. This has a serious effect on the preservation of life and property" (Participant FR-6, personal communication, November 16, 2015).

RQ3. What factors—psychological, material, temporal, organizational, or other—significantly affect the preparedness of citizens to respond to disasters?

Table 8

Emergency Managers' Perspectives on RQ3

Factors	Numbers	Percentage
Depend on government	6 of 11	54.54
Training	3 of 11	27.27
Emergency supplies	2 of 11	18.18
Equipment	2 of 11	18.18

Note. How emergency managers perceive the factors that affect citizens' preparation for disaster response.

Table 9

First Responders' Perspectives on RQ3

Factors	Numbers	%
Depend on government	19 of 26	73.07
Training	2 of 26	7.69
No Factors	2 of 26	7.69
Emergency supplies	2 of 26	7.69

Note. How first responders perceive factors that affect citizens' preparation for disaster response

Table 10

Citizens' Perspectives on RQ3

Factors	Number	%
Emergency supplies	6 of 26	23.07
Planning	6 of 26	23.07
Training	5 of 26	19.23

Note. How citizens perceive factors affecting their preparation for disaster response

Both emergency manager and first responder group participants believed that citizens depend on the government to assist them during a disaster, which can create additional demands on already-strained response efforts (Tables 8 and 9).

Insufficient emergency supplies, planning, and training emerged as primary reasons for citizens' perceptions that they are not prepared for disaster response (Table 10). Eight citizens listed "bottled water, generators, flashlights, batteries, and other supplies" as emergency necessities. However, three stated that they "understood what was needed, but had not purchased those items." According to emergency managers and first responders, "citizens must have enough emergency supplies for at least 72 hours" because it could take governmental officials such as emergency managers and first responders that long to get citizens the emergency supplies needed for life-sustaining efforts. Nineteen citizens also stated "that they did not have adequate plans in place" to respond to disasters, which increased the potential for loss of life. Participants C-2, C-10, C-12, and C-15 stated that they had plans but "have not practiced those plans." Training was also a factor because some citizens did not know what was required for disaster preparation. Interestingly, Participant C-2 said that "citizen training is essential in preparing to respond to disasters," yet this person had not participated in any training offered.

RQ4. What measures can emergency managers, first responders, and citizens take to improve their respective levels of disaster response preparedness?

Table 11

Emergency Managers' Perspectives on RQ4

Measures	Numbers	%
Purchase equipment	8 of 11	72.72
Participate in training	7 of 11	63.63
Know how to get resources	3 of 11	27.27

Note. Measures that emergency managers can take to prepare for disasters.

Table 12

First Responders' Perspectives of RQ4

Measures	Number	%
Purchase equipment	14 of 26	53.84
Participate in training	**11 of 26**	**42.30**
Develop plans	7 of 26	26.92
Have mutual aid agreement in place	6 of 26	23.07

Note. Measures that first responders can take to prepare for disasters.

Table 13

Citizens' Perspective of RQ4 on measures taken to prepare for disaster

Measures	Numbers	%
Purchase supplies	24 of 26	92.30
Participate in Training	5 of 26	19.23
Purchase equipment	3 of 26	11.53

Note. Measures citizens can take to prepare for disasters.

Each of the first responder, emergency manager, and citizen participant groups identified training as a key measure that could be taken (Tables 11, 12, and 13). Available training opportunities discussed included tabletop or functional exercises where agencies would come together around a table or in the field and discuss how they would respond to potential disaster scenarios. Incident-command, incident-specific, and position-specific trainings were identified as necessary for individuals to prepare for various roles during disaster response.

According to the first responder and emergency manager groups, purchasing personal protective and hazmat equipment, emergency vehicles, mobile command posts, and generators was an important disaster response measure (Tables 11 and 12). For these two groups, additional emergency preparedness measures included establishing plans, purchasing supplies, and obtaining more mutual aid agreements (pre-established agreements to provide resources to a county prior to a disaster) with other regional entities. Meanwhile, according to five citizens, stockpiling emergency supplies such as "water, generators, flashlights, batteries, [and] extra medication" was a measure they could take to become better prepared (Participants C-7, C-13, C-14, C-25, C-26, personal contact September 18,October 18, 2014; October 7, 2014; October 17, 2014, October 7, 2014, October 7, 2014). Overall, the research finding led the researcher to believe that the more measures each group takes to prepare, the better they will be able to help themselves and one another during disasters.

Secondary Data

The six documented cases examined in this study included emergency responses to Hurricane Katrina in 2005 (Besser, 2006), the September 11 aircraft attacks in 2001 (Ekici & McEntire, 2007), the Oklahoma City truck bombing in 1995 (The Oklahoma Department of Civil Emergency Management, 2013), the Joplin Missouri tornados in 2011 (U.S. Department of Homeland Security, 2011), Hurricane Ike in 2008 (Sharman, Rao, Jin, & Upadhyaya, 2008), and the British Petroleum Deepwater Horizon disaster in 2010 (U.S. Department of Homeland Security, 2011). Three emergency operations plans and two standard operations procedures guides were analyzed to compare responses to the research questions. Each emergency operation plan identified the roles of both emergency managers and first responders. The emergency operations plans were written to address the total emergency management continuum and how each phase would contribute to providing life-sustaining measures for citizens.

RQ1. What factors—psychological, material, temporal, organizational, or other—significantly affect how prepared emergency managers are for disaster response?

Table 14

Results of Secondary Data Analysis of Emergency Managers' Perspectives on RQ1

Factors	Numbers	Percentage
Equipment	5 of 11	45.45
Training	3 of 11	27.27
Facilities	2 of 11	18.18
Knowledge	2 of 11	18.18
Communication	2 of 11	18.18

Note. Factors that affect how prepared emergency managers are for disaster response (based on secondary data analysis).

Of the identified factors, lack of equipment and training were identified as the primary factors. See Table 14 for additional factors and their percentages in regard to the total number of participants in the group. The after-action review of the World Trade Center aircraft bombing revealed that not having "readily available" and "proper" equipment caused delays in response efforts (911 Commission, 2004).

The lack of adequate facilities was identified in one of the after-action reviews because an "emergency operation center was housed in one of the towers," thus hindering response efforts (911 Commission, 2004). Because the emergency operation center is where most planning and coordination efforts take place, establishing and sustaining command and control were delayed (911 Commission, 2004). Command and control were insufficient because agencies had not "conducted training among response entities," as noted in the after-action review for the hurricane (U.S Department of Commerce, 1995). Because of this lack of coordination, responding agencies did not know what the other agencies were doing or what their specific disaster response capabilities were.

RQ2. What factors—psychological, material, temporal, organizational, or other—significantly affect how prepared first responders are for disaster response?

Table 15

Results of Secondary Data Analysis of First Responders' Perspectives on RQ2

Factors	Numbers	%
Equipment	5 of 11	45.45
Training	3 of 11	27.27

Planning	3 of 11	27.27

Note. Factors that affect how prepared first responders are for disaster response (based on secondary data analysis).

Out of the eight identified factors (Table 15), five dealt with the lack of equipment. The World Trade Center aircraft bombing after-action review revealed the lack of "high-rise evacuation equipment" as one factor that hindered first responders' efforts (911 Commission, 2004). In the Oklahoma City bombing, "not having enough equipment" was a factor identified (The Oklahoma Department of Civil Emergency Management, 2013).

Lack of knowledge was also a factor identified in the BP Deepwater Horizon oil spill (U.S. Department of Homeland Security, 2011): little to no knowledge existed as to "what type of chemical" could be used to properly remove the oil or the potential effects of human exposure to those chemicals (U.S. Department of Homeland Security, 2011). Training was the second major factor. For example, the local officials had not received training in preparedness or response efforts, which hindered their decision-making capability when dealing with Hurricane Ike (Sharman, Rao, Jin, & Upadhyaya, 2008). As revealed in the after-action report, a lack of planning was also a factor for evacuation, re-entry, shelter, and financial recovery.

RQ3. What factors—psychological, material, temporal, organizational, or other—significantly affect the preparedness of citizens to respond to disasters?

Table 16

Results of Secondary Data Analysis of Citizens' Perspectives on RQ 3

Factors	Numbers	Percentage
Training	5 of 11	45.45
Risk perception	3 of 11	27.27
Communication of warning messages	2 of 11	18.18

Note. Factors that affect the preparedness of citizens to respond to disasters (based on secondary data analysis).

Out of eight factors, five respondents identified "training" as a factor. Examination of the Hurricane Katrina reports reveals that citizens had not received any training in hurricane preparedness (National Oceanic and Atmospheric Administration, 2005). The Katrina reports also reveal that risk perception and communication of warning messages were factors in this case study because citizens did not heed warnings provided by local officials and national weather channels (National Oceanic and Atmospheric Administration, 2005).

Risk perception was also a factor in citizen response to the Joplin, Missouri, tornados (U.S. Department of Homeland Security, 2011) because citizens had become desensitized to sirens and local weather advisories, resulting in their inadequate disaster preparation. In the case of the World Trade Center aircraft bombing, those who were in the towers had never received training on evacuation procedures and did not heed the warning to evacuate, which was also an issue of training (911 Commission, 2004).

RQ4. What measures can emergency managers, first responders, and citizens take to improve their respective levels of disaster response preparedness?

Table 17

Results of Secondary Data Analysis of Emergency Managers', First Responders', and Citizens' Perspectives on RQ 4

Measures	Numbers	Percentage
Created Plans	10 of 11	90.90
Purchased Equipment	9 of 11	81.81
Training	7 of 11	63.63
Conducted Exercise	7 of 11	63.63

Note. Measures that emergency managers, first responders, and citizens can take to improve their respective levels of disaster response preparedness (based on secondary data analysis).

Analysis of emergency operations and standard operating procedures identified measures that both emergency managers and first responders can take and support that can be provided to citizens for disaster response and preparedness. Approximately 90% of respondents cited disaster plan creation as a critical disaster response preparedness measure. Training and exercises are conducted to test capabilities described in disaster response plans (Brudney & Gazley, 2009). These plans also detail needed equipment with information on how and when these assets will be deployed and which agencies are responsible for them (Table 17).

Plans are broken down into various sections that include but are not limited to transportation, communication, public works and engineering, firefighting, emergency management, mass care, emergency assistance, housing and human services, logistics management and resource support, public health and medical services, search and rescue, oil and hazardous material response, agriculture and natural resource, energy, public safety and security, long-term community recovery, and external affairs (Brudney & Gazley, 2009). All of these areas are covered in each emergency operation plan.

Standard operations plans include specific information on how response teams responsible for each of these areas will handle a situation.

Triangulation of Interview and Secondary Data Analysis Findings

Tables 18 and 19 provide a comparison of the responses in both interview data and secondary data findings.

RQ1, RQ2, RQ3. What factors—psychological, material, temporal, organizational, or other—significantly affect the preparedness of emergency managers, first responders, and citizens to respond to disasters?

Table 18

Results of Interview and Secondary Data Analysis

INT	SD	INT	SD	INT	SD
Emergency Managers		First Responders		Citizens	
1. Funding		1. Funding			
2. Manpower		2. Manpower			
3. Support from leadership					
	1. Equipment	3. Equipment	1. Equipment		
	2. Training		2. Training	1. Emergency Supplies	1. Training
	3. Facilities			2. Planning	
	4. knowledge			3. Training	
	5. Communication				2. Risk Perception
					3. Communication of warnings

Note: INT = interview data and SD = secondary data

RQ4. What measures can emergency managers, first responders, and citizens take to improve their respective levels of disaster response preparedness?

Table 19

Results of Interview and Secondary Data Analysis

INT	SD	INT	SD	INT	SD
Emergency Managers		First Responders		Citizens	
1. Purchase equipment	1. Create plans	1. Purchase equipment	1. Create plans		1. Create plans
2. Participate in exercises	2. Purchase equipment		2. Purchase equipment	3. Purchase equipment	2. Purchase equipment
3.Know how to get resources	3. Training			2. Training	3. Training
	4. Conduct Exercises	2. Training		1. Purchase Supply	
		3. Develop plans			

Note. Interview and Secondary Data

For the emergency manager and first responder groups, the primary factors identified during the interviews were funding and personnel (Table 18). The after-action reviews identified equipment and training needs for both the emergency manager and the first responder groups. Training is needed to gain knowledge on preparing to respond to disasters (Department of Homeland Security, 2010). According to participant F4 and F6, "more training is needed, but they don't have the personnel to spare to send people to training." After-action reviews also cited lack of personnel available to enable responders to attend training as a reason for insufficient training. Emergency managers and first responders noted that increased funding would enable them to purchase equipment, hire

additional staff, pay for overtime for training, and build better facilities to house

emergency entities (Kapucu, 2008).

The issue of training was common to all three groups. Although the citizen group

also felt that they were in need of disaster preparedness training, emergency managers

and first responders pointed out that, although they have offered training to citizens, few

have participated. The after-action review highlighted citizens' perceptions of risk and

understanding of warning signs of disasters as a problem. According to the participant E-

9, "If citizens are trained, then they will have a better understanding of the risks involved

with disasters, and they would be more likely to take heed of warnings when they are

sent." Emergency managers and first responders believe citizens do not prepare for

disasters because they depend too much on the government for emergency response

assistance."

A comparison of interview responses and secondary data revealed no common

factors affecting how prepared emergency managers were for disaster response.

However, in comparing first responders' interview responses with the relevant secondary

data, the issue of equipment emerged as a common factor. For the citizen group, the only

factor mentioned in both interview responses and secondary data collections was training.

In all three groups and in both types of data collected, funding and training are shared

factors, considering that the funding issue is common to a large number of factors

affecting preparedness (Hemond & Robert, 2012). These included addressing personnel

shortages, purchasing equipment and facilities, and increasing training opportunities for emergency managers, first responders, and citizens.

In analyzing the measures that could be taken based on both the interviews and secondary data, the results were similar for all three groups. Each group identified developing better plans, purchasing equipment, and increasing the availability of training as measures that could be taken to improve their level of disaster response preparedness (Table 19). The measures and the factors are correlated; for example, a group that identified training as a factor also identified training as a measure for improving preparedness. This direct association demonstrates that each group recognized both its need for improvement and the specific area in which it needed to improve.

Emergency Manager, First Responder, and Citizen Disaster Preparedness

In the literature on grounded theory methodology there are a number of methods of coding data (Walker & Myrick, 2006). According to Charmaz (2008) and Strauss and Corbin (1990), in determining the best method to review and analyze the data generated, categorizing themes requires that analytical questions be asked of the data gathered. These questions not only provide insight into the study's subjects but also help make subsequent data-gathering more relevant to the end analysis. Based on this thinking, the open-coding method allows the researcher to break down, examine, compare, conceptualize, and categorize data (Charmaz, 2006).

The theory that emerged from the data in the current study is that emergency managers, first responders, and citizens must take on the responsibility of preparedness

both independently and interdependently. What is meant by *independently* is that the members of each group, to a certain degree, must be responsible for themselves. What is meant by *interdependently* is that the groups are dependent on one another to do their individual parts, which then contributes to the success of the collective response before, during, and after a disaster has occurred. The failure of one group to do its part affects the ability of the other groups to handle a disaster successfully (Figure 1).

For example, if emergency managers do not have adequate funding to purchase equipment or have the necessary personnel, then they will fail to meet the needs of the citizens and first responders. If first responders do not have adequate equipment or the proper amount of trained personnel, then they, too, will fail to meet the needs of both the emergency managers and citizens. If the citizens are too dependent on emergency managers and first responders, then they become a burden for those entities.

Moreover, this understanding of independence and interdependence among emergency managers, first responders, and citizens must be mutual. According to the first responders and emergency managers in this study, citizens depend on the government to provide assistance to them when a disaster strikes. However, citizens in the study acknowledged that they need to do their part in disaster response and that they should be able to take care of their own families' basic needs without unduly burdening emergency managers and first responders. Emergency managers are dependent on first responders to know what they are doing and how to respond adequately to a disaster

while, according to many first responders, emergency managers are responsible for

helping to locate resources and support overall response efforts.

Disaster

Lead

Why are Emergency Managers, First Responders, and Citizens not prepared for disasters?

Emergency Managers

Lack:
- Funding
- Manpower
- Support from Leadership

EM
Provide resources, and assist with coordination to first responders

EM
Provide emergency alerting and resources to citizens

CIT
Self-sustain until help arrive.

Adhere to emergency warnings

Lack:
- Emergency Supplies
- Planning
- Training

Lack:
- Funding
- Manpower
- Equipment

FR
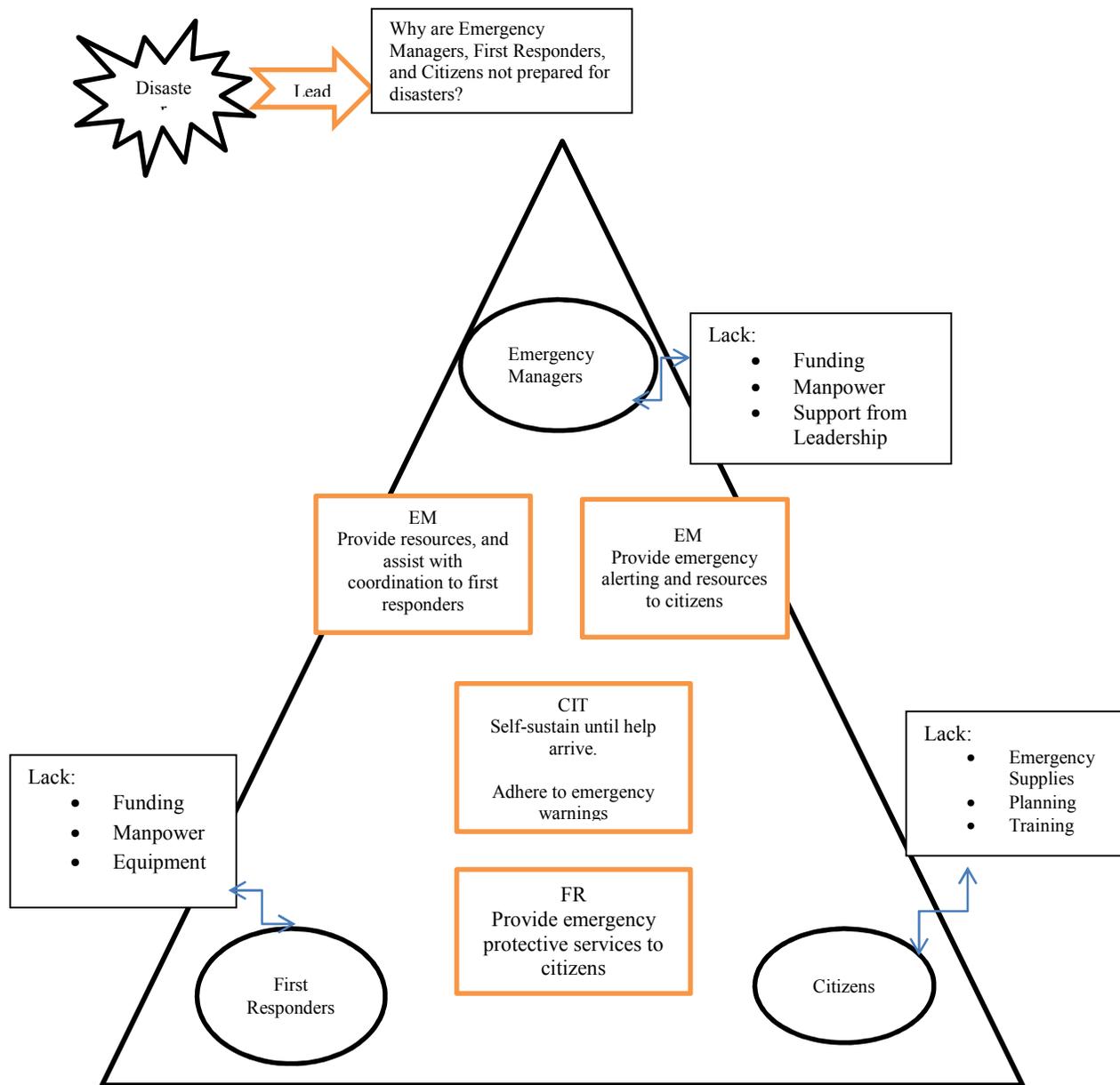Provide emergency protective services to citizens

First Responders

Citizens

Figure 1. Results of factors affecting preparedness and how each group is dependent on one another.

Evidence of Trustworthiness

The credibility of this study was established by conducting triangulation from multiple sources, including interviews, secondary data, and case studies. All data collected via interviews were vigorously analyzed line by line and categorized according to the themes. Secondary data and case study analysis were analyzed from incident to incident and categories were established. Dependability was established by ensuring that saturation was met. Interviews were conducted (n=63), until no new themes emerged. Once saturation was reached, the interviews for the various groups ended. Since most emergency operation plans were written in accordance with similar models, saturation was achieved with the review of several emergency operation plans and standard operating procedures. Case study analyses identified several of the same themes, and saturation was met after reviewing all the documented cases.

In the cross comparison between interviews and secondary data collection, the findings can be applied to other settings or situations. Conformability was established to ensure that results reflected the participants' understanding and experiences. Information was captured from multiple sources to compare results of interviews with other secondary sources.

Study Results

According to Urquhart, Lehmann, and Myers (2010), the process of grounded theory starts with a hunch. The researcher then takes "slices of data" and codes them into

conceptual categories (Urquhart et al. 2010). In this research, these "slices of data" were obtained from interviews and secondary data and then categorized for coding. This information was then triangulated with the secondary data and interview data and categorized into the following categories: funding, personnel, training, planning, and equipment by comparing themes that were discovered during these two collected methods, and checking for similarities for difference. According to the findings, a significant association between factors affected preparedness of emergency managers, first responders, and citizens. The results reveal an existing connection with both factors and measures taken by emergency managers, first responders, and citizens to prepare for disasters.

Summary

The purpose of this chapter was to present the findings. After reviewing the purpose of the study and data collection protocols, a description of how the data were organized and transcribed was presented. The findings are that each participant group identified factors that prevent them from responding effectively to disasters. The results also reveal the interdependency of the three groups and the need for their improved cooperation in successfully handling a disaster.

Included in Chapter 5 are a summary and an interpretation of these findings in relation to the literature review and the conceptual framework. Recommendations for further research and implications for positive social change will also be presented. Finally, the conclusions of this study are also provided.

Chapter 5: Discussion, Conclusions, and Recommendations

Disasters are unavoidable situations that, whether caused by humans or nature, have the ability to cause significant loss of life, property damage, and economic hardship. The purpose of the study was threefold: (a) explore the factors that affect the preparedness to respond to disasters by emergency managers, first responders, and citizens; (b) develop an explanation for the interactions between various factors; and (c) make recommendations to enhance preparedness. Understanding why some emergency managers, first responders, and citizens are not prepared will help in developing better collaborative and comprehensive plans to address these gaps in preparedness measures.

This study's findings showed that although all groups are affected by disaster, certain factors affect each group's level of preparedness. The primary factors that affected preparedness for the emergency manager and first responder groups were the lack of personnel and equipment, a finding that was aligned with Hemond and Robert research study on the future prospects of preparedness. The major factor cited by participants as affecting the citizen group's level of preparedness was the lack of proper plans, equipment, and training. The primary conclusion that emerged from this research is that, although each group is independent, it is also interdependent and relies on the other groups to provide assistance during a disaster.

Interpretation of the Findings

The study findings aligned with the larger body of literature examined in Chapter 2, particularly the discussions of funding and joint planning and this study's conceptual framework. Funding plays a significant role in preparedness because it directly affects the operations of both emergency managers and first responders. Funding is also needed for purchasing equipment and meeting the staffing needs of each group. This study confirmed the results of earlier research (Roberts, 2005) showing a lack of funding for areas not considered vulnerable to terrorist attacks.

The area used in this study, Williamsburg County, South Carolina is a smaller area that faces little to no threat of terrorist attacks, thus receiving less disaster preparedness funding. Counties such as Williamsburg County generally have limited budgeted funding because of their small populations and minimal industry. Taxes make up the majority of the county revenue; fewer individual and corporate taxpayers usually result in budgetary constraints and, in turn, in less funding for disaster preparedness.

These budgetary constraints can have a significant impact on disaster management because areas that are not at risk for terrorist incidents can still be at risk for other types of disasters such as hurricanes, tornadoes, flooding, severe thunderstorms, and earthquakes. This risk of natural disasters combined with budgetary constraints was the case for Williamsburg County. This lack of funding poses a problem for emergency managers, first responders, and citizens in that it makes impossible to purchase adequate

equipment and supplies. Adequate training and personnel are also affected by funding,

which has a great effect on an entire area's disaster management capabilities.

Chenoweth and Clark (2010) argued that funding increases alone do not solve the

problem of preparedness, but that other factors such as defense policy implementation,

local coordination, and implementation during multijurisdictional response should be

considered. The results of this research reinforce all three of their conclusions about

factors that affect preparedness. The fact that funding will help preparedness measures,

but there are also there are also other factors such as policy implementation, collaborative

coordination between first responders, citizens, and emergency managers.

Chenoweth and Clark (2015) advocated for joint planning including both

emergency managers and first responders, stating that all entities play a major role in

successful plan execution before, during, and after a disaster. This recommendation

aligned with Henstra (2010), Janssen et al. (2009), and Nilsson (2010), who pointed out

that effective disaster response must be collaborative. The theory that has evolved based

on these findings is that, although each group is independent, it is also interdependent and

must therefore act in collaboration to plan for and minimize the effects of disasters.

Citizens are not usually involved in disaster management planning processes

(Wood et al., 2012), making it difficult for them to become aware of impending incidents

that may affect them. In this study, the responses of the citizen participants showed that

they lacked adequate disaster response plans, reflecting a general lack of knowledge

about disaster preparedness. Wood et al. (2012) argued that people are not motivated by

the information that is provided to them unless they perceive that a threat is imminent, which provides insight into the lack of emergency response planning on the part of citizen participants in this study. If citizens did not perceive a risk then they would be less likely to plan ahead of disaster.

The notion of *community resilience*, which refers to the ability of a community to recover more quickly from disaster if its members are adequately prepared, further reinforces the argument that citizens must be proactive in preparing for disaster. A resilient community's citizens are able to survive on their own for at least 72 hours (Biedrzycki & Koltun, 2012). Citizens who are resilient possess the ability to be prepared prior to a disaster; however, Williamsburg County citizens have not faced a disaster in 30 years. This lack of recent disaster experience explained the participants' low level of preparedness: They do not perceive disaster risks as strongly as other communities who have faced disasters more often and more recently, as suggested by Wood et al. (2012).

Joint planning also affects planning efforts for both emergency managers and first responders. Emergency managers support the efforts of first responders and are not usually on the front lines of disasters because first responders handle most of the fieldwork. However, emergency managers who are not involved in joint planning with first responders are not able to understand the needs of first responders. The response to Hurricane Katrina (Drye, 2005) demonstrated the consequences of failing to plan cooperatively on the part of emergency managers, first responders, and citizens: the

citizens were unaware of the risks that the storm created, while emergency managers and first responders were not prepared to handle the influx of those evacuees who did heed warnings.

Risk perception is another important consideration that was identified in the secondary data collection and during interview conducted by the citizen group, as a factor affecting preparedness before and during a disaster. Most citizens appear to be unaware of the potential risks of individual hazards to their communities (Hemond & Robert, 2012). This mentality is likely to cause people to underestimate or ignore potential dangers, delay preparations, or ignore warnings issued by local officials.

Risk assessments are described in the literature as actions taken before and during a disaster; most warnings are given prior to a disaster occurring. According to Drye (2005), if citizens have little to no knowledge of their vulnerability, they are not likely to heed early warnings to take emergency action. Before and during Hurricane Katrina, emergency managers, first responders, and citizens were unaware that the area's levees were susceptible to breach during a storm of Katrina's magnitude. As a result, warnings were ignored by the citizens and public safety officials, mass transit evacuation plans were not put in place by public safety officials, and preparations for the appropriate amounts of evacuation location were underestimated, all of which caused massive panic and great loss of life (National Oceanic and Atmospheric Administration, 2005). If a proper risk assessment and the actionable risk perception had been coordinated, it is

possible that the outcome could have been different (Smith, 2012), highlighting the need for joint planning for all those who could be affected by disaster.

Knowledge management, as noted in Chapter 1, is directly related to the finding that emergency managers, first responders, and citizens are all part of the big picture and must work together in the planning process. According to Seneviratne et al. (2010), an organization can achieve its goals when information is shared. This involves first bringing each group together to determine the risks to and vulnerabilities of an area before disaster occurs. It also involves developing plans that address those risks and vulnerabilities.

The planning phase is the appropriate time for each group to discuss their potential roles and responsibilities before, during, and after the disaster (Hemond & Robert, 2012). The planning phase is also the time to discuss any specific or individual deficiencies and make efforts to address them. This is important because failure of one group to respond adequately could create a greater hardship for the other groups (Asproth & Nystrom, 2010).

Finally, the groups should conduct training and exercise drills to test those plans. According to the U.S. Department of Homeland Security in 2011, the public is often invited to attend training events and assist emergency managers and first responders in conducting exercises. Some drills, conducted on a national level, have been publicized in the media. Drills include tornado drills and earthquake drills (U.S. Department of Homeland Security, 2011). Citizens are encouraged to participate to help test their

preparedness. The federal government, in conjunction with the state and local government, has established September as National Preparedness Month to provide information to the public on disaster preparedness.

As suggested by this study's findings, bringing together independent groups in an effort to create synergy takes funding, personnel, and training to be successful. Training for emergency managers, first responders, and citizens in areas of response is essential. Funding for personnel, equipment, and supplies is also needed. According to Asproth and Nystrom (2010), when an incident occurs, there is often little to no warning. Everyone affected must be able respond with the proper equipment, personnel, and supplies (Asproth & Nystrom, 2010).

Funding should be based on basic and forecasted needs of each participant group, rather than on whether or not an area is vulnerable to certain types of disaster. Likewise, funding should not be allocated based on how frequently disasters occur. Training for emergency managers, first responders, and citizens will enhance their individual responsibilities and improve their familiarity with one another's capabilities and vulnerabilities.

Limitations of the Study

A limitation of the research study is that the findings can be generalized only with careful consideration. This is because the sampling was conducted purposefully, and all participants were from the State of South Carolina. Another limitation was that the emergency managers and first responders who were involved in emergency planning

could potentially have different roles during an actual emergency. An example of this is that the emergency managers may not be assigned the role of emergency operation managers during a real disaster. Usually that role is assigned to another section leader because the emergency managers usually have other responsibilities during the disaster, such as serving as public information officers or liaisons between elected officials and emergency operations. The same can be said for law enforcement officials, who may not assume the role of incident commander, but instead oversee the operation.

Also, there is a difference between creating plans and putting those plans into action, which can limit responders' knowledge of all phases of preparedness (i.e., mitigation, planning, response, and recovery). For example, an emergency manager involved in the planning or mitigation process for disasters may not directly oversee the response efforts in the event of an actual disaster. If this person is not part of the response effort, how could he or she have knowledge of what is needed during the actual response? There are many things that occur during a disaster that are not covered by emergency plans. Thus, critical thinking and prior experience in disaster management play roles in being able to make decisions under stressful circumstances.

Recommendations

One recommendation for further research includes expanding the study to the state of Oklahoma, which is threatened by increased tornado activity during certain seasons. The participants in this comparative study would be similar to those used in this research and include emergency managers, first responders, and citizens.

Because South Carolinians had not faced a major disaster in 25 years, they have not had the same experiences with major incidents as those in more disaster-prone areas. Expanding this research to a state that has experienced more catastrophic incidents could help in exploring what factors prevent those who have been faced with disaster threats from preparing adequately for those kinds of threats. A comparative study using the same questions could be used to determine whether these factors are similar to or different from those affecting South Carolinians.

The second recommendation is to expand this study to include other supporting agencies in South Carolina, such as hospitals, schools, and local health and social service departments. Interview participants could include agency leaders who, as decision makers, have greater influence over the roles their agencies play. Each county has their respective agencies in their jurisdictions and would be able to offer different perspectives on preparedness and such differences in location could result in the emergence of different factors.

Comparing factors that affect the preparedness of those agencies to respond to disasters is also essential to the cycle of emergency preparedness. Those on the front lines of disasters are supported by other agencies that must also be ready to respond. Emergency managers, first responders, and citizens must be aware of their shortfalls in order for them to close the gaps in their disaster preparedness responses.

A third recommendation is to conduct a quantitative research study on the data used in this research. This would consist of assigning numeric values to the factors

identified in this analysis. For instance, a survey on disaster preparedness response could be conducted for a county with more funding sources. Then the researcher could compare by how much more prepared the county with greater funding is to those with little funding.

Another example would be using those factors that affect preparedness to respond to disasters reported by citizens in their responses to this research (i.e., how would providing a group of prepared citizens with necessary emergency supplies, which include generators, bottled water, supply of meals-ready-to eat (MRE), tarps, flashlights, batteries, and weather radio, affect overall community preparedness?).

The fourth recommendation is for qualitative research. The participants would include a county supervisor, county administrator, mayor, county council, or others responsible for county, city, or township budgetary oversight. The purpose would be to help identify the factors these participants think would prevent preparedness to respond to disasters and the issues involved. A study including officials could compare the factors they identify to the factors identified in this research, as well as uncover other factors at higher levels. Because decision makers are not likely to take part in the day-to-day operations of the emergency managers, they may be unaware of what happens prior to a disastrous occurrence. Including the responders and citizens (who will actually face the disasters) in the study would provide these officials with a better idea of how their constituents believe things should operate. Making local officials aware of the study's

findings could help them to become more intimately involved in disaster preparedness efforts.

A final recommendation is to conduct an in-depth study of the citizens in terms of community resilience. A resilient community will be able to recover from a disaster more quickly than a community that is not (Norris et al., 2008) because it has taken the steps to be prepared. The study would include citizens in disaster-prone communities who generally have a greater level of experience in handling disasters. The purpose of this study would be to examine what preparedness measures have been taken in these communities and determine whether they are more resilient after disasters. This information can be used to assist communities that are not prepared for disasters to become more prepared and show them the benefits of better preparation.

Implications for Social Change

This study has many implications for social change among emergency managers, first responders, and citizens, including how to prevent and plan for disasters and how to respond to and recover from a disaster. Below, each group is discussed separately to explain their individual implications for social change as well as how they affect social change together.

Emergency Managers

In most cases, emergency officials provide support for both first responders and residents during a disaster. They also play a significant role in every part of the stages of preparedness in the emergency management continuum of mitigation, planning, response,

and recovery. The study results revealed factors that affected the emergency management group's ability to prepare to respond to disasters. The idea that citizens believed that emergency managers were prepared to handle disasters placed unrealistic expectations on the emergency management group to perform at a higher level.

Recognizing the gaps in preparedness revealed during this investigation will offer emergency managers a better understanding of what is needed before disaster occurs. This information can be used to assist in writing emergency plans that better address these gaps. An example of one factor revealed during this research was the lack of personnel. Emergency plans should describe how additional staff would be acquired, what types of personnel would be needed and how many, and from where the assistance would be requested,

The results of this research can also provide other emergency responders with information to help them realize that others face the same preparedness issues. This information could serve as a catalyst for change that would allow county emergency managers to come together to determine the best course of action to handle incidents and find out how other counties could help during a disaster.

The results of this study can also be used to raise awareness among officials and decision makers regarding the need to increase funding for emergency preparedness efforts. Some officials are not very familiar with all roles of emergency managers, which can sometimes make it difficult for emergency management to obtain the funding they

request during budget season. Officials who are more familiar with the role of emergency management may be more likely to provide additional funding.

First Responders

The first responders are considered the group of people who execute the emergency plans. If the emergency plans included how first responders send people into a "hot zone" to perform decontamination efforts for those who have been exposed to a chemical, it would be clear that the first responders would need the proper equipment and personnel to conduct the decontamination effort. This study revealed that two of the factors that affect disaster response preparedness are lack of personnel and equipment. Not knowing this could be problematic for emergency managers and citizens.

Citizens involved in hazardous material emergencies expect the first responders and emergency managers to provide them with the help they need. Emergency managers depend on the first responders to be able to execute the emergency operation plan. A lack of communication affects everyone. This study helps provide a better understanding of what is needed so that emergency managers and citizens will identify which emergency actions they need to prepare themselves for in case of disasters. It will also help emergency managers and first responders determine the gaps in their response efforts in order to make adjustments to the emergency plans, such as creating a mutual aid agreement with neighboring counties to provide additional personnel and equipment during certain types of disasters.

Citizens

On an individual level, everyone must be vigilant to the risk of potential disasters. Citizens are responsible for their personal safety until professional help arrives and must be able to survive on their own for at least 72 hours. Thus, for citizens to be prepared, they must take action before a disaster occurs. The study revealed factors that affected citizen preparedness to respond to disasters. This information is useful to emergency managers and first responders in helping citizens prepare for disasters through activities such as citizen training classes. However, as mentioned earlier, it is difficult to get citizens to participate in training. One possible solution could be to create incentives such as emergency supply kit giveaways. Conducting surveys to determine who is interested in attending training and what type of training they are requesting is another possibility.

Once training requests are obtained, class schedules could be published in local newspapers, on the Internet, and in public address notices. Sessions could include information explaining the roles of emergency managers and first responders during a disaster. The classes could also be used to distribute printed material that includes emergency supply checklists.

Citizen training classes could also be used to help people learn about evacuation routes, shelter locations, and other facilities that would be made available during and after a disaster. Ultimately, what is known can be addressed, but what is unknown cannot be handled before a disaster. In some cases, emergency managers have stockpiles of

water, MREs, and other emergency supplies for emergency distribution. If they know that citizens in their community do not have these emergency supplies on hand, they can take steps to ensure that they receive them. Emergency managers will also be able to plan in advance as to how such items would be distributed to the citizens when needed.

Emergency Managers, First Responders, and Citizens

Each group offers a valuable contribution to overall community disaster preparedness. However, cooperation between these groups is necessary to develop better plans to address the gaps in past and current response efforts. Each group must understand the needs of the others and collectively determine how to address those needs.

We create positive social change through better understanding each person's deficiencies and examining disaster preparedness holistically from the perspectives of emergency managers, first responders, and citizens. Collaborative effort will foster the development of better emergency plans and create better relationships among emergency managers, first responders, and residents. This does not mean that they will be able to prevent problems, but it will improve a community's ability to plan for, respond to, and recover more easily from disasters.

<div align="center">

Conclusions

</div>

Understanding the various roles that emergency managers, first responders, and citizens play in handling disaster is the first step in responding to them. The second step involves determining what factors affect the successful preparedness of each group to respond to disasters. The third step involves bringing the groups together to develop

plans that address the gaps in their preparedness efforts. Finally, all groups must meet to

conduct exercise drills to test their plans in an effort to ensure that all factors have been

addressed and that a cohesive plan has been developed.

References

911 Commission. (2004). *National commission on terrorist attacks upon the United States.* New York, NY: Barnes and Nobles.

Abkowitz, M., & Chatterjee, S. (2012). Regional disaster risk: Assessment and mitigation concepts in an all-hazard context. *Journal of Homeland Security and Emergency Management, 9*(1), 1-16. doi:10.155/157-7355.1832

Ali, F., & Jones, K. (2013). Negotiating community resilience in the city in a time of political change and deficit reduction. *International Journal of Disaster Resilience in the Built Environment, 4*, 9-22. doi:10.1108/17595901311298973

Asef, M. (2008). Modeling the elements of country vulnerabilities to earthquake disasters. *Disasters, 3*, 480-498. doi:10.1111/j.1467-7717.2008.01051

Asproth, V., & Nystrom, C. (2010). Preparing for emergency situations. *AIP Conference Proceeding, 1303*(1), 179-188. doi:10.1063/1.3527153

Bach, R., & Kaufman, D. (2009). A social infrastructure for hometown security: Advancing the homeland security paradigm. *Homeland Security Affairs, 3*, 1-14. Retrieved from http://www.hsaj.org

Besser, R. (2006). Hurricane Katrina after-action review. *Coordinated Office of Terrorism Preparedness and Emergency Response.* Retrieved from http://www.bt.cdc.gov

Biedrzycki, P., & Koltun, R. (2012). Integration of social determinants of community

   preparedness and resilency in 21st century emergency management planning.

   Homeland Security Affairs, *8*(1), 1-8. Retrieved from http://www.hsaj.org

Blackman, D., Kennedy, M., & Richie, B. (2011). Knowledge management: The missing

   link in DMO crisis management*? Current Issue in Tourism*, *14*(4), 337-354.

   doi:10.1080/13683500.2010.489637

Boin, A., & McConnel, A. (2007). Preparing for critical infrastructure breakdowns: The

   limits of crisis management and the need for resilience. *Journal of Contingencies

   and Crisis Management*, *15*(1), 50-59. doi:10.1111/j.1468-5973.2007.00504

Brudney, J., & Gazley, B. (2009). Planning to be prepared: An empirical examination fo

   the role of voluntary organizations in county government emergency planning.

   Public Performance & Management Review, *32*(3), 372-399.

   doi:10.2753/PMR1530-9576320302

Bullard, R. (2008). Differential vulnerabilities: Environmental and economic inequality

   and government response to unnatural disasters. *Social Research*, *75*(3), 753-784.

   Retrieved from http://www.newschool.edu

Burns, A., & Eltham, B. (2010). Catastropich failures theoris and disaster journalism:

   Evaluating medial explanation of the black saturday bushfires. *Media

   International Australia*, 137, 90-99. Retrieved from http://www.uq.edu

Call, D. (2010). A survey of county emergency managers' response to ice storms. *Journal of Homeland Security*, *7*(1), 1-16. Retrived from http://www.degruyter.com

Carlo, D. (2009). Secrecy and its fallout at a nuclear weapons plan: A study of Rocky Flats oral histories. *Peace and Conflict: Journal of Peace Psychology*, *15*(4), 347-365. doi: 10.1080/1078191090206583

Charmaz, K. (2006). *Constructing grounded theory: A pratical guide through qualitative analysis.* Thousand Oack, CA: Sage.

Chen, A., & Peria-Mora, F. (2011). Decentralized approach considering spatial attributes for equiipment utilization in civil engineering disaster response. *Journal of Computing in Civil Engineering*, *25*(6), 457-470. doi:10.1061/(ASCE)CP.1943-5487.0000100

Chen, Y., Wu, D., & Wu, C. (2009). A game theory approach for evaluating terrorist threats and deploying response agents in urban environments. *Journal of Homeland Security and Emergency Management*, *6*(1), 1-26. Retrieved from http://www.degruyter.com/view/j/jhsem

Chenoweth, E., & Clarke, S. (2010). All terrorism is local: Resources, nested institutions, and governance for urban homeland security in the american federal system. *Political Research Quarterly*, *63*(3), 495-507. doi:10.1177/1065912909334426

Chitakornkijsil, P. (2010). Disaster and risk management in a global world. *International Journal of Organizational Innovation*, *3*(2), 97-113: Retrieved from http://www.ijoi.fp.expressacademic.org

Choi, S. (2008). Emergency management: Implications from a strategic management perspective. *Journal of Homeland Security and Emergency Management*, *5*(1), 1-24. doi:10.2202/1547-7355.1372

Coles, J., & Zhuang, J. (2011). Decisions in disaster recovery operations: A game theorectic perspective on organization cooperation. *Journal of Homeland Security and Emergency Management*, *8*(1), 1-17. doi:10.2202/1547-7355.1772

Colorado State University. (2011). Differences between experimental and quasi-experimental research. Retrieved September 28, 2011, from Writing@CSU: http://www.writing.colostate.edu

Creswell, J. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Thousand Oaks, CA: Sage.

Della-Giustina, D. (2012). Victim centered diaster planning consideration. *The Homeland Security Review*, *6*(3), 207-218. Retrieved from http://www.cup.edu

Department of Homeland Security. (2003). Homeland Security Presidential Directive 5: Managment of Domestic Incident. Retrieved from http://www.dhs.gov

Department of Homeland Security. (2010). Preparedness. Retrieved from http://www.fema.gov

Donahue, A., & Joyce, P. (2001). A framework for analyzing emergency management

    with an application to federal budgeting. *Public Admistration Review*, *61*(6), 728-

    740. doi:10.2307/3110007

Donahue, D., Cunnion, S., Balaban, C., & Sochats, K. (2012). The all needs approach to

    emergency response. *Homeland Security Affairs*, *8*(1). Retrieved from

    http://www.hsaj.org

Donner, W., & Rodriquez, H. (2008). Population composition, migration and inequlity:

    The influence of demographic changes on disaster risk and vulnerability. *Social*

    Force, 87(2), 1089-1114. doi:10.2307/20430904

Drabek, T. (1999). Understanding disaster warning response. *The Social Science*

    Journal, *36*(3), 515-523. doi:10.1016/S0362-3319(99)00021

Drye, W. (2005). Hurricane Katrina*:* The essential time line. Retrieved from National

    Georgraphic: http://www.news.nationalgeographic.com

Editorial. (2009). Understanding and preparing for disasters and catrophic emergencies.

    Nursing & Health Science, *11*(4), 333-335. doi:10.1111/j.1442-

    2018.2009.00494_2

Eighmy, M., & Hall, T. (2012). The role of the extenson service in rural/frontier disaster.

    Education in Rural Australia, *22*(2), 113-125. Retrieved from

    http://www.spera.edu.

Ekici, S., & McEntire, D. (2007). Reassessing FEMA and its role in preparing the nation: Recommendations to respond effectively to disasters. *Understanding & Responding to Terrorism*, *19*(1), 334-351. Retrieved from http://www.iospress.nl

EM Public Safety, Public Trust. (2007). Principles of emergency management supplement. *EM Public Safety, Public Trust*. Retrieved from http://www.iem.com

Failth, K., Jackson, B., & Willis, H. (2011). Text analysis of after-action report to support improved emergency response planning. *Journal of Homeland Security & Emergency Management*, *8*(1), 1-16. doi:10.2202/1547-7355.1900

Federal Emergency Management Agency. (2010). The Disaster Cycle. *Federal Emegency Management Agency*. Retrieved from http://www.fema.gov

Federal Emergency Management Agency. (2012). FEMA Independent Study Program. *Emergency Management Institute*. Retrieved from http://www.training.fema.gov

Finsterbusch, K. (1985). Nuclear issues in social research. *Society*, *22*(2), 2-3. Retrieved from http://www.springer.com

Flanagan, B., Gregory, E., Hallisey, E., Heitgerd, J., & Lewis, B. (2011). A social vulnerability index for disaster management. *Journal of Homeland Security & Emergency Management*, *8*(1), 1-22. doi:10.2202/1547-7355.1792

Flint, C., & Stevenson, J. (2010). Building community disaster preparedness with volunteers: Community emergency response team in illinois. *Natural Hazard Review, 11*(3), 118-124. doi:10.1061/(ASCE)NH.1527-6996.0000014.

Flood, J., & Cahoon, L. (2011). Risks to coastal wastewater collection systems from sea-level rise and climate change. *Journal of Coastal Research, 27*(4), 652-660. doi:10.2122/JCOASTRESS-D-10-00129.1

Gaillard, J., & Mercer, J. (2012). From knowledge to action: Bridging gaps in disaster risk reduction. *Progress in Human Geography, 37*(1), 93-11. doi:10.1177/0309132512446717

Geist, E. (2012). Was there a real "mineshaft gap"? *Journal of Cold War Studies, 14*(2), 3-28. Retrieved from http://www.muse.jhu.edu

Gerber, B., & Robinson, S. (2009). Local government performance and the challenge of regional preparedness for disasters. *Public Performance & Management Review*, *32*(3), 345-371. doi:10.2753/PMR1530-9576320301

Greenberg, M., & Babcock-Dunning, L. (2012). Worrying about terrorism and other acute enviromental health hazard events. *American Journal of Public Health*, *102*(4), 651-656. doi:10.2105/AJPH.2011.300434

Haigh, R., & Amaratunga, D. (2010). An integrative review of the build enviroment discipline's role in the developement of society's resilience to disasters. *International Journal of Disaster Resilience in the Built Environment, 1*(1), 11-24. doi: 10.1108/17595901011026454

Haraoka, T., Toshiyuki, O., Murata, C., & Hayasaka, S. (2012). Factors influencing collaborative activities between non-professional disaster volunteers and victims

of earthquake disasters. *PLos One, 7*(10), 1-9.

doi:10.1371/journal.pone.0047203

Harrington, I. (2010). *Improving public safety emergency response efficiency amid uncertainty through crisis leadership training* (Doctoral dissertation)*.* Retrieved from ProQuest Dissertation & Thesis. (Order No. 3439775)

Helsloot, I., & Ruitenburg, A. (2004). Citizen response to disasters: A survey of literature and some practical Implications. *Journal of Contingencies & Crisis Management, 12*(3), 98-111: doi:10.1111/j.0966-0879.2004.00440

Hemond, Y., & Robert, B. (2012). Preparedness*:* The state of the art and future prospects. *Disaster Prevention and Management, 2*(4), 404-417. doi:10.1108/09653561211256125

Henstra, D. (2010). Evaluating local government emergency management programs: What framework should public managers adopt? *Public Administration Review, 70*(2), 236-246. doi:10.1111/j.1540-6210.2010.02130

Hollis, A. (2005). A tale of two federal emergency management agencies*. Forurm (1540-8884), 3*(3), 1-14. Retrieved from http://www.degruyter.com

Housman, A., Hanlon, A., & Seal, B. (2007). Social capital as a mediating factor in emergency preparedness and concern about terrorism. *Journal of Community Psychology, 35*(8), 1073-1083. Doi: 10:1002jcop.20203

Hossain, L., & Kuti, M. (2008). CordNet: Towards a distributed behavior model of

   emergency response coordination. *Project Management Journal, 39*(4), 68-94.

   doi:10.1002/pmj.20086

Houston, J., Pfefferbaum, B., & Rosenholtz, C. (2012). Diaster news: Framing and frame

   changing in coverage of major U.S. natural diasters, 2000-2010. *Journalism &*

   Mass Communication Quarterly, 89(4), 606-623.

   doi:10.1177/1077699012456022

Humphress, R. (2007). Building an emergency response competency system: Optimizing

   emergency personnel mobilization. *Journal of Homeland Security & Emergency*

   Management, 4(3)*,* 1-15. doi:10.2202/1547-7355.1370

Jackson, B., Faith, K., & Willis, H. (2011). Are we prepared? Using reliability analysis to

   evacuate emergency response systems. *Journal of Contingencies and Crisis*

   Management, 19(3), 148-157. doi:10.1111/j.1468-5973.2011.00641

Janssen, M., Lee, J., Bharosa, N., & Cresswell, A. (2009). Advances in multi-agency

   disaster management: Key elements in disaster research. *Inf Syst Front, 12*, 1-7.

   doi:10.1007/s10796-009-9176

Jenson, J. (2011). The current NIMS implementation behavior of United States counties.

   Journal of Homeland Security & Emergency Management, 8(1), 1-25.

   doi:10.2202/1547-7355.1815

Johnson, D., Zagorecki, A., Gelman, J., & Comfort, L. (2011). Improving situational

   awareness in emergency management through automated data analysis and

modeling. *Journal of Homeland Security and Emergency Management, 8*(1),
1547-7356. doi:10.2202/1547-7355.1873

Julca, A. (2010). Natural disasters with un-natural effects: Why? *Journal of Economic*,
XLVI (2), 499-510. doi:10.2753/JEI0021

Kaplan, J. (2011). The new/old terrorism. *Phi Kappa Phi Forum, 91*(3), 4-6. Retrieved
from http://www.phikappaphi.org/web/publications/PKP_Forum.html

Kapucu, N. (2008). Collaborative emergency management: Better community organizing,
better public preparedness and response. *Disasters*, 32*(2)*, 239-362.
doi:10.1111/j.1467-7717.2008.01037

Kemp, R. (2009). Comments on "Assessing and managing enviromental risk: Connecting
local government management with emergency management. *Public
Adminstration Review, 69*(2), 197-199. doi:10.1111/j.1540-6210.2008.1964_2

Khunwishit, S., & McEntire, D. (2012). Testing social vulnerability theory: A
quantitative study of Hurricane Katrina's perceived impact on resident living in
FEMA designated disaster area. *Journal of Homeland Security and Emergency
Management, 9*(1), 1-16. doi:10.1515/1547-7355..1950

Kiltz, L. (2011). The challenges of developing a homeland security discipline to meet
future threats to the homeland. *Journal of Homeland Security & Emergency
Management, 8*(2), 1-20. doi:10.2202/1547-7355.1899

Leaning, J., & Leighton, M. (1983). The world according to FEMA. *Bulletin of the
Atomic Scientist, 39*(6), 2S-7S. Retrieved from http://www.thebulletin.org

Li, L., Wang, J., Leung, H., & Jiang, C. (2010). Assessment of catrophic risk using bayesian network constructed from domain knowledge and spatial data. *Risk Analysis: An official Publication of the Soceity For Risk Analysis, 30*(7), 1157-1175. doi:10.1111/j.1539-6924.2010.01429

Lieb, J., & Chapman, T. (2011). Jim crow, civl defense, and the hydrogen bomb: Race, evacuation planning, and geopolitics of fear in 1950s savannah georgia. *Southern Geographer, 51*(4), 578-595. doi: 10.1353/sgo.2011.0034

Lubitz, D., Beakley, J., & Patricelli, F. (2008). All hazard approach to disaster management: The role of information and knowledge management, boyd ooda loop, and network-centricity. *Disasters, 32*(4), 561-585. doi:10.111/j.0361-3666.2008.01055

Majchrzak, A., Jarvenpaa, S., & Hollingshed, A. (2007). Coordinating expertise among emergent groups responding to disasters. *Organization Science, 18*(1), 147-161. doi:10.1287/orsc.1060.0228

Martin, M., Jenkins, H., Mehring, B., & Ma, C. (2011). All-hazard, all communities: An approach to disaster preparedness and policy. *Journal of Race & Policy*, *7*(1), 26-41. Retrieved from http://www.al.odu.edu

Marton, R. (2007). Denial and forced existence. *Palestine-Israel Journal of Politics, Economics & Culture, 14*(3), 99-103. Retrieved from http://www.pij.org

McConnell, A., & Drennan, L. (2006). Mission impossible? Planning and preparing for

crisis. *Journal of Contingencies & Crisis Management, 14*(2), 59-70.

doi:10.1111/j.1468-5973.2006.00482

McCreight, R. (2011). Introduction to journal of homeland security and emergency

management special issue. *Journal of Homeland Security and Emergency*

Management, 8(1), 1-7. doi:10.2202/1547-7355.1940

McEntire, D. (2012). Understanding and reducing vulnerability: From the approach of

liabilities and capabilities. *Disaster Prevention and Management, 21*(2), 206-225.

doi: 10.1108/09653561211220007

McLellan, B., Zhang, Q., Farzaneh, H., Utama, A., & Ishihara, K. (2012). Resilience,

sustainability and risk management: A focus on energy. *Challenges*, *3*(2), 153-

182. doi:10.3390/challe3020153

Mentzer, J., Myers, M., & Stank, T. (2009). *Handbook of global supply chain*

management: Knowledge management. Thousand Oaks, CA: Sage.

Mercer, J., Kelman, I., Lloyd, K., & Suchet-Pearson, S. (2008). Reflections on use of

participatory research for disaster risk reduction. *Area, 40*(2), 172-183.

doi:10.2307/40346112

Moynihan, D. (2008). Combining structural forms in the search for policy tools: Incident

command systems in U.S. crisis management. *Governance, 21*(2), 205-229.

doi:10.1111/j.1468-0491.2008.00395

National Oceanic and Atmospheric Administration. (2005). Hurricane Katrina. Retrieved

    from http://www.ncdc.noaa.gov

Neale, P., Shyam, T., & Carolyn, B. (2006). Preparing a case study: A guide for

    designing and conducting a case study for evaluation input. Retrieved from http:

    pathfind.org

Nilsson, J. (2010). What's the problem? Local officials' conceptions of weaknesses in

    their municipalities' crisis management capabilities. *Journal of Contingencies &*

    Crisis Management, 8(2), 83-95. doi:10.1111/j.1468-5973.2010.00607

Norris, F., Stevens, S., Pfefferbaum, R., Pfefferbaum, B., & Wyche, K. (2008).

    Community resilence as a metaphor, theory, set of capacities, and strategy for

    disaster readiness. *American Journal of Community Psychology, 41*(1-2), 127-

    150. doi:10.1007/s10464-007-9156-6

Okvat, H., & Zautra, A. (2011). Community gardening: A parsimonious path to

    individual, community, and environmental resilience. *American Journal of*

    Community Psychology, 47(3-4), 374-387. doi:10.1007/s10464-010-9404

Paek, H., Hilyard, K., Freimuth, V., Barge, J., & Mindlin, M. (2010). Theory-based

    approaches to understanding public emergency preparedness: Implications for

    effective health and risk communication. *Journal of Heallth Communication, 15*,

    428-444. doi:10.1080/1081073100375308

Patricelli, F., Beakley, J., Carnevale, A., Tarabochia, M., & Lubitz, D. (2009). Disaster

management and mitigation: The telecommunications infrastructure. *Disasters,*

33(1), 23-37. doi:10.1111/j.1467-7717.2008.01060

Patricia, H., Nicholas, J., Perrin, K., Whitney, M., & Matthew, A. (2010). Building

resilent communities: A preliminary framework for assessment. *Homeland*

Security Affairs, 6(3), 1-23. Retrieved from http://www.hsaj.org

Pelling, M. (2011). Urban governance and disaster risk reduction in the caribbean: The

experience of oxfam GM. *Environmental and Urbanization, 23*(2), 383-400.

doi:10.117/0956247811410012

Penades, C., Borges, M., Vivacqua, A., Canos, J., & Solis, C. (2011). Collaborative

Refinement of Emergency Plans through Public Engagement. Retrieved from

IEEEXplore Digital Library: IEE Xplore Digital Library

Perry, R., & Lindell, M. (2003). Understanding citizen response to disasters with

implications for terrorism. *Journal of Contengencies & Crisis Management*,

11(2), 49-60. doi:10.1111/1468-5973.1102001

Perry, R., & Niggs, J. (1985). Emergency management strategies for communicating

hazard information. *Public Admistration Reveiw, Special Issue,*72-77. Retrieved

from http:www.wiley.com

Prante, T., & Bohara, A. (2008). What determines homeland security spending? An

econometric analysis of the homeland security grant program. *Policy Studies*

Journal, 36(2), 243-256. doi:10.1111/j.1541-0072.2008.00264

Rahm, D., & Reddick, C. (2011). US city managers' perception of disaster risks: Consequences for urban emergency management. *Journal of Contingencies and Crisis Management, 19*(3), 137-146. doi:10.1111/j.1468-5973.2011.00647

Rahnama, M., Shoorabi, R., & Hadad, M. (2012). The role of municipality in crisis leadership. *Interdisciplinary Journal of Contemporary Research in Business, 4*(8), 592-610. Retrieved from http://ijcrb.webs.com

Reissman, S., Christopher, K., & Frye, D. (2010). Domestic federal interagency Planning: Meeting a homeland security need. *Journal of Homeland Security and Emergency Management, 7*(1), 135-141. Retrieved from http://www.bepress.com

Ripberger, J. (2011). Whither civil defense and homeland security in the study of public policy? A look at research on the policy, the public, and the process. *Policy Studies Journal, 39*, 77-91. doi:10.1111/j.1541-0072.2010.00389_6

Roberts, P. (2005). Shifting priorities: Congressional incentives and the homeland security granting process. *Reveiw of Policy Research, 22*(4), 437-449. doi:10.1111/j.1541-1338.2005.00148

Schafer, W., Carroll, J., Haynes, S., & Abrams, S. (2008). Emergency management planning as collaborative community work. *Journal of Homeland Security & Emergency Management, 5*(1), 1-19. Retrieved from http://www.degruyter.com

Schaff, M. (2009). *Bomb shelter & fear of nuclear war.* Retrieved from Bomb Shelter & Fear of Nuclear War, 1-2.

Scopetta, N. (2008). Disaster planning and preparedness: A human story. *Social Research, 75*(3), 807-814. Retrieved from http://www.newschool.edu

Segal, L. (2003). Introduction. *Studies in gender and sexuality, 4*(1), 3-8. doi:10.1080/15240650409349212

Senevirantne, K., Baldry, D., & Pathirage, C. (2010). Disasters knowlege factors in managing disasters successfully. *International Journal of Strategic Property Management, 14*, 376-390. doi:10.3846/ijspm.2010.28

Sharman, R., Rao, R., Jin, K., & Upadhyaya, S. (2008). An investigation of lesson learned from secondary information of Katrina and Rita hurricane disaster: A first responder perspective. *Journal of Information Science & Technology, 5*(1), 3-30. Retrieved from http://www.information-institute.org

Sinclair, H., Doyle, E. J., & Paton, D. (2012). Institution perception and support in emergency management in Ontario, Canada. *International Journal of Emergency Services, 1*(2), 159-174. doi:10.1108/204708912112755939

Smith, S. (2012). Coping with disaster: Lessons learned fromm executive directors of nonprofit organizations (NPOs) in New Orleans following Hurricane Katrina. *Administration in Social Work, 36*, 359-389. doi:10.1080/03643107.2011.604401

The Federal Bureau of Investigation. (n.d.). Terror hits home: The Oklahoma City bombing. *The Federal Bureau of Investigation*. Retrieved from http://www.fbi.gov

Trochim, W. (2006). *Research Method Knowledge Base, 2nd Edition. Internet WWW page. Social Research Methods*. Retrieved from http://www.socialresearchmethods.net

Uddin, S., & Hossain, L. (2011). *Disaster coordination preparedenss of soft-target organisations. Disaster*, *35*(3), 623-638. doi:10.1111/j.1467-7717.2011.01229

Uhr, C., Johansson, H., & Fredholm, L. (2008). Analysing emergency response systems. *Journal of Contingencies & Crisis Management, 16*(2)*, 80-90. doi:10.1111/j.1468-5973.2008.00536

Untited States Department of Homeland Security. (2011). Presidential policy directive/ PPD-8: National preparedness . *United States Department of Homeland Security.* Retrieved from http://www. dhs.gov

Urquhart, C., Lehmann, H., & Myers, M. D. (2010). Putting the 'theory' back into Grounded theory: Guidelines for grounded theory. Information Systems Journal, 20, 357–381. doi:10.1111/j.1365-2575.2009.00328

U.S. Department of Homeland Security. (2011). The response to the 2011 Joplin, Missouri, tornados: Lesson learned study. *Department of Homeland Security*. Retrieved from http://www.fema.gov

Vivacqua, A., & Borges, M. (2010). Collective intelligence for the design of emergency response. *IEEE Xplore Digital Library*, 623-628. Retrieved from http:www.ieeexplore.ieee.org

Wahyuni, D. (2012). The research design maze: Understanding paradigms, cases, methods and methodolgies. *Journal of Applied Management Accounting Research, 10*(1), 69-80. Retrieved from http://wwwl.imanet.org

Walker, D., & Myrick F. (2011). Grounded theory: An exploration of process and procedures. *Qualitative Health Research, 16,*547-559. doi:10:1177/1049732305285972

Wang, J., Ye, M., Liu, Y., & Xu, S. (2011). Design of integrated toolkits for coastal natural disaster risk assessment based on GIS technology. *Geoinformation, 2011 19th International Conference on Topics,* 1-6. doi:10.1109/GeoInformatics.2011.5981196

Warren, J., & Kieffer, S. (2010). Risk management and the wisdom of Aldo Leopold. *Risk Analysis, 30*(2), 165-175. doi:10.1111/j.1539-6924.2009.01348

Waugh, W., & Gregory, S. (2007). Collaboration and leadership for effective emergency management. *Public Admistration Review*, *66,* 131-140. doi:10.1111/j.1540-6210.2006.00673

Webb, G. (2007). *The sociology of disaster*. Thousand Oaks, CA: Sage.

White, D., Oelke, N., & Friesen, S. (2012). Management of a large qualitative data set: Establishing trustworthiness of the data. *International Journal of Qualitative Methods,11*(3), 244-258. Retrieved from http://www.ualberta.ca

Wildavsky, A., & Dake, K., (1990). Theories of risk perception: Who fears what and why? *Daedalus, 119*(4), 41-60. Retrieved from http://www.jstor.org

Wilentz, S. (2011). When leaders change history. *Newsweek, 157*(20), 26-27. Retrieved

from http://www.newsweek.com

Wood, M., Mileti, D., Kanon, M., Kelley, M., Regan, R., & Bourque, L. (2012).

Communicating actionable risk for terrorism and other hazards. *Risk Analysis*

32(4), 601-615. doi: 10.1111/j.1539-6924.2011.01645

Appendix A: Interview Questions

Emergency Managers

1. Have you ever been involved in a disaster? If so, then what kind of disaster?

2. How prepared do you think you are if a disaster were to occur today?

3. Do you feel that you had adequate resources to respond to these disasters or any other disaster that may affect your area? If not, then what do you think you need?

4. What factors would prevent you from preparing for a disaster?

5. Have past disasters that have affected United States made you more likely to prepare to prepare for future disaster? If so, then why? If not, why?

6. Do you feel that the first responders have done enough to be prepared for disasters? If not, then what is needed? Why?

7. Do you feel that the citizens have done enough to be prepared for disasters? If not, then what is needed? Why? Why do you think it is important for people to be prepared for disasters?

8. What would affect your future decision to be better prepared?

9. Do you feel it is necessary to be prepared for a disaster? If so why?

10. How long have you worked in your current position?

First Responders

1. Have you ever been involved in a disaster? If so, then what kind of disaster?

2. How prepared do you think you are if a disaster were to occur today?

3. Do you feel that you had adequate resources to respond to these disasters or any other disaster that may affect your area? If not, then what would be needed?

4. What factors would prevent you from preparing for disasters?

5. Do you feel that the emergency managers have done enough to be prepared for disasters? If not, then what is needed? Why?

6. Have past disasters that have affected the United States made you more likely to prepare for future disasters? If so, then why?

7. Are you familiar with the hazards that have the potential of affecting where you live?

8. Do you feel it is necessary to be prepared for disasters? If so, then why?

9. What do you think you could to better prepare your agency for disasters?

10. Do you feel that the citizens have done enough to be prepared for disasters? If not, then what is needed? Why?

11. How long have you worked in your current position?

Citizens

1. Have you ever been involved in a disaster? If so, then what kind?

2. How prepared do you think you are if a disaster were to occur today?

3. What measures have you taken to prepare for a disaster?

4. Do you feel it is necessary to be prepared for a disaster? If so, why?

5. Do you feel that first responders and emergency managers have done enough to prepare you for disasters? If not, then what is needed? Why?

6. What do you think you could do better to be prepared for disasters?

7. Have you received any training in preparing and handling disasters?

8. Are you familiar with the hazards that have the potential of affecting where you live?

9. Have past disasters that have affected the United States made you more likely to be prepared for future disasters? If so, then why?

10. How long have you lived in South Carolina?

Appendix B: Consent Form – First Responder/Emergency Manager

You are invited to take part in a research study to understand what factors affect people in preparing for disasters. The researcher is inviting adult citizens, emergency managers, and leaders in the first responder community living in South Carolina to participate in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Tiffany Cooks, a doctoral student at Walden University. You may already know the researcher as a colleague or a member of Williamsburg County Public Safety in the field of Emergency Management, but this study is separate from that role.

Background Information:
The purpose of this study is to discover the extent to which emergency managers, first responders, and citizens are prepared for potential disasters that may affect the state of South Carolina and how this level of preparedness might be improved. The findings from this study will, hopefully, lead to the development of better emergency management policies and procedures.

Procedures:
If you agree to be in this study, you will be asked to:
- spend approximately one hour to answer interview questions by phone.
- conduct the interview via telephone.
- agree to sign and return consent form prior to interview being conducted by means of email.
- agree to a follow-up interview after the initial interview is conducted, if needed
- agree to include copies of standard operations procedures, emergency operation plans or any documents pertaining to emergency response, during the interview or email a copy following the interview.

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Williamsburg County Emergency Management will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:
Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as fatigue, stress, or becoming upset. Being in this study would not pose risk to your safety or wellbeing.

The benefits of the study will involve gaining a better understanding of the effectiveness of current emergency management programs.

Payment:
There is none

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by the researcher in a locked file cabinet. Data will be kept for a period of at least five years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via telephone at 803-847-0830 or by email at emonya01@yahoo.com. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 612-312-1210. Walden University's approval number for this study is 08-18-14-0176859 and it expires on August 17, 2015.

The researcher will give you a copy of this form to keep.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, or replying to this email with the words, "I consent," I understand that I am agreeing to the terms described above.

Printed Name of Participant

Date of consent

Participant's Signature

Researcher's Signature

Appendix C: Consent Form – Citizen

You are invited to take part in a research study to understand what factors affect people in preparing for disasters. The researcher is inviting adult citizens, emergency managers, and leaders in the first responder community living in South Carolina to participate in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Tiffany Cooks, a doctoral student at Walden University. You may already know the researcher as a colleague or a member of Williamsburg County Public Safety in the field of Emergency Management, but this study is separate from that role.

Background Information:
The purpose of this study is to discover the extent to which emergency managers, first responders, and citizens are prepared for potential disasters that may affect the state of South Carolina and how this level of preparedness might be improved. The findings from this study will, hopefully, lead to the development of better emergency management policies and procedures.

Procedures:
If you agree to be in this study, you will be asked to:
- spend approximately one hour to answer interview questions either by phone or in person
- conduct the interview at the emergency management office located at 2086 Thurgood Marshall Highway, Kingstree SC.
- agree to have tape-recorded interview
- agree to a follow-up interview after the initial interview is conducted, if needed

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Williamsburg County Emergency Management will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:
Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as fatigue, stress, or becoming upset. Being in this study would not pose risk to your safety or wellbeing.

The benefits of the study will involve gaining a better understanding of the effectiveness of current emergency management programs.

Payment:
There is none

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by the researcher in a locked file cabinet. Data will be kept for a period of at least five years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via telephone at 803-847-0830 or by email at emonya01@yahoo.com. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 612-312-1210. Walden University's approval number for this study is 08-18-14-0176859 and it expires on August 17, 2015.

The researcher will give you a copy of this form to keep.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, or replying to this email with the words, "I consent," I understand that I am agreeing to the terms described above.

Printed Name of Participant

Date of consent

_____

Participant's Signature

_____

Researcher's Signature

_____