Confronting Crises: Fundamental Leadership Attributes for Managing Natural Disasters

by

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Dedication

I am indebted to many friends and my family for their understanding and patience during the past three and a half years as this journey concludes. The insight from my subject matter experts (SMEs) was invaluable and much appreciated. The support from the University of Maryland University College Doctor of Management Program and each professor was continuous and I am grateful to them all – Dr. Bijlani, Dr. Breckon, Dr. Shepard, Dr. Watts, Dr. Winters, Dr. Witz and last, but not least, my dissertation advisors Dr. Wharff and Dr. Dent and teaching assistant Dr. Kearney, for pushing me academically and challenging me to make the most of this endeavor. Furthermore, I am indebted to my cohort members, in particular Margaret, Tom, and Jim, to whom I also direct my sincere congratulations.

I am grateful to my parents, who encouraged me and provided advice and support throughout this journey as I tackled the many frustrations, and to my sister, who used her wittiness to encourage me to go forward. Finally, a great deal of gratitude goes to my wife, Maria, and our three children, Erica, Amanda, and William who have sacrificed family vacations, weekend outings and a general sense of my presence over the past three and a half years, as I immersed myself in research and writing this dissertation. This would not have been possible without their love and support, and I am forever grateful.

Abstract

This evidence-based research dissertation examined the situational complexity that leaders in networked service organizations (NSOs) face when preparing for and responding to the impact of natural disasters. The purpose of the study was to identify the fundamental competencies needed by those leaders to execute responses that are most effective and lessen the impact of the crises. Crises scenarios are notably pressure-filled, and require rapid decision-making to bring about effective responses. Natural disasters, frequently unpredictable, typically have a significant and dire impact on communities, as well as on the organizational structures and systems that serve these communities during the natural disasters. The inherent ambiguity and uncertainty in dynamic and fluid situations require specific leadership skills for efficient operations and responses. Specifically, this dissertation examined the characteristics and abilities of leaders who positively influenced organizational effectiveness when preparing for the potential impact of and response to natural disasters. A systematic review of the literature found that leaders of NSOs must understand the internal and external environments, must adapt to them, and must communicate broadly with stakeholders. Leaders must exhibit constant and continuous environmental awareness and understanding in order to decode and analyze these inherently stress-filled situations. In addition, NSO leaders who effectively managed the cyclical nature of the crises were better able to assess, interpret, and synthesize ambiguous information related to crises, and provide a more effective organizational response. A realist synthesis and configurative analysis of the primary research studies used as evidence showed that leaders must possess the fundamental competencies of decision-making, environmental awareness, adaptability and information exchange, and must further demonstrate those capabilities throughout each stage of the disaster life cycle – response,

recovery, mitigation, and preparation. Additionally, competent leaders facilitated the process of organizational learning throughout the disaster life cycle in order to positively influence the next stage of the cycle – with the goal of being better prepared to reduce further the impact of the next natural disaster.

Keywords: Networked service organization, natural disasters, leadership competencies, agility, environmental awareness, organizational learning

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Chapter One: Introduction and Overview of Relevant Literature

Statement and Significance of the Problem

This dissertation examined the leadership competencies required to prepare for and respond to the impact of potential natural disaster crises managed by NSOs (networked service organizations). The effects of natural disasters are chaotic and indiscriminate, however, this dissertation assessed empirical evidence to determine how to lessen their impact on an organization and the affected population through focused preparation and adequate response. Between 1971 and 1995, disasters caused unparalleled damage affecting over a hundred million people on average per year (Twigg & Steiner, 2002). The 2009 International Federation of the Red Cross and Red Crescent (IFRC) annual World Disasters Report noted a 62% increase in the number of disaster-related deaths between 1989-1998 and 1999-2008. The impact of natural disasters was further exacerbated by the rise in the number of people affected by disasters over the same ten-year period, rising from 2.130 billion to 2.695 billion, respectively (IFRC, 2009, p. 180). This 26.5% increase was far greater than the world's population growth rate, which the World Bank estimated to be 1.2% per year for the past decade (World Bank, 2012) and highlights the exponential increase the impact of natural disasters is having on humanity and the service organizations that respond accordingly.

The increasing frequency of disasters and increasing number of people affected highlight the importance of well-prepared and competent leaders of NSOs to effectively and efficiently adapt to the a changing environment. However, some recent examples highlight that leaders are not always prepared, and a less than adequate response ensues. Farazmand (2007) argued that following Hurricane Katrina, both federal and local government agencies were unprepared to respond to a disaster of this scope. This lack of

preparation resulted in a management crisis and a breakdown in response activities at various levels. Analyzing the same event, Comfort (2007) found that those in leadership roles were unable to comprehend the existing hazards and vulnerabilities in the impacted area, thus contributing to the perceptions of a poor response by those directly affected, and the public at large. Additionally, similar events in the United States, including the 1992 Hurricane Andrew and the 1994 Northridge Earthquake, demonstrated the broad impact disasters have on community infrastructure requiring extensive response and recovery, both economic and organizational, to meet the needs of the affected population (Harrald, 2006). Crises by their very nature are complex events and, for a variety of reasons, leaders of NSOs sometimes find it overwhelming to prepare for them. Van Wart and Kapucu (2011) concluded the limited frequency of disasters contributed to the lack of preparedness and poor response when 35,000 people in Europe fell victim to an unparalleled heat wave in 2003. Hypothetically, leaders may be able to prepare for unanticipated events, but planning for every possible disaster is financially and operationally not feasible (Van Wart & Kapucu, 2011). This dissertation evaluated actions organizations may take to improve disaster preparation and response, by focusing specifically on leadership competencies. There are potentially additional actions to be taken by other members of the organization that could influence effectiveness and efficiency; however, examining the leadership competencies that facilitated organizational response and preparedness to crises, specifically within NSOs, bounded the scope of this dissertation.

Leadership devoid of requisite competencies and organizations lacking systems and structures have the potential to influence negatively the organizational response to disasters. Following the 2004 Indian Ocean tsunami, the lack of coordination and information sharing by responding organizations led to the impression of poor response efforts by those in the

affected community (Harrald, 2006). Stakeholder perceptions must be incorporated into the decision-making by NSO leadership during response and planning scenarios. Pearson and Mitroff (1993) underscored how leader awareness of public perception of the response efforts could positively, or conversely, negatively influence the outcome (p.55). Likewise, the ability to adapt while planning for the impact and outcome following a disaster could improve organizational response and have a positive effect on community perception. Boin and t'Hart (2003) found that following the 1992 transportation crisis in Amsterdam (airplane crash), the promises by government leaders to respond were initially well received. However, unforeseen problems relating to the long-term provisions of public services to those affected by the event during the response led to a significant backlash against the Dutch government, further illustrating that leaders must be able to confront a broad spectrum of crises, and a range of contingencies and competencies are required for an effective organizational response.

Organizational effectiveness is a construct that requires extensive examination of the goals and other contextual outcome-based variables that provide insight into how organizations measure their success. Scholars have focused on a variety of methods for determining effectiveness, to include goal attainment, reputational measures, and resource dimensions (Lecy, Schmitz, & Swedlund, 2012, p. 439). One aspect of NSO goal attainment and organizational effectiveness was achieved when the networked organizational structure improved the ability of each individual organization to be better prepared and respond more efficiently than the individual organizations acting alone (McGuire & Silvia, 2009, p. 37). Scholars have debated the actual metric of the specific dimension indicating NSO success. More recently, however, there has been a movement toward examining a multidimensional approach for determining networked organizational

effectiveness. These four dimensions most prominent in the literature are: managerial, program, network, and legitimacy (Lecy et al., 2012, p. 449). Independently, each of these dimensions has fallen short in adequately capturing the broad concept of organizational effectiveness across a multitude of organizations. Therefore, this dissertation will examine the leadership competencies that lead to organizational effectiveness based on the four success dimensions, arguing that the competencies should be grounded in decisions and actions that foster collaboration among NSO leaders with the goal of minimizing or eliminating duplication, and maximizing the resources for the benefit of those impacted by a disaster.

The complexity and multidimensionality of disaster crises are underscored by their highly contextual nature as cited by two seminal authors, Birkland (2009) and Hermann (1963). Birkland's definition of crises focused on "events that are sudden, that are known to policy makers and elites simultaneously, that affect a community or a community of interest, and that do actual harm, or that suggest the possibility of greater future harm" (p. 147). Hermann's definition added "unexpectedness" as a central tenet in defining a crisis, emphasizing the lack of anticipation, the impact on mission, and the restricted decision-making timeframe of the event on individuals or the organization.

NSO leaders confront a variety of managerial, organizational, structural, and social complexities in effectively preparing and responding to crises. NSO leaders need to maintain an organizational and environmental interconnectedness, thus enabling them to be aware of events within their sphere of control as well as beyond the boundaries of their governance structures (Thach, 2012). Accordingly, this dissertation strived to ascertain and corroborate the fundamental competencies of effective leaders within an NSO structure in preparing for and responding to natural disasters. The fallout following the global

conglomerate British Petroleum (BP) oil spill in the Gulf of Mexico had a negative impact on BP, as well as many of the companies who supplied services to BP. For example, the BP leadership did not adequately internalize the public reaction resulting from the organizational response to the oil spill in the Gulf of Mexico. The complexity of interpreting external perceptions, as well as doing so in a timely manner to effectively respond, underpin the need for leadership to be connected to and aware of the external environment. Similarly, Bücker and Poustma (2010) reinforced the complexity concept, underscoring the importance of leaderships' ability to keenly understand the internal and external environmental. Peus, Wesche, Streicher, Braun, and Frey (2011) claimed that the lackluster response during the BP oil spill and more recently following the 2011 tsunami in Japan brought into question the public's trust of leaders.

Importance to Management

There has been exponential growth in the number of NSOs in the last 100 years. Boli and Thomas (1997) found that at the turn of the previous century (1900s), about 200 such organizations existed, and 80 years later over 4,000 such entities were functioning. Boli and Thomas contended that events such as natural disasters and regional or civil wars have created a demand for NSOs, and their growth has generally paralleled the progression or recession of the 'world economy' (p. 177). Kusumasari, Alam, and Siddiqui (2010) noted that between 1900-1909 there were 73 documented natural disasters, while in half that time during the first decade of this century (2000-2005) there were 2,788 natural disasters documented (p. 438). World War II, a twenty-year civil war in Somalia, genocide in Rwanda and Burundi, the various civil wars in Central America, not to mention the reoccurring droughts and ensuing famines and epidemics in Africa, have all given rise to NSOs.

Some NSOs came into being because of particular crises and have maintained a single and targeted mandate while others have expanded their role. For example, the Red Cross' first mission was in response to humanitarian needs stemming from the effects of war on soldiers and the general population. However, the Red Cross, since its founding and consistent with many NSOs, has grown and expanded its organizational mandate. Today, the Red Cross prepares communities for natural disasters, provides life saving blood services, and responds to man-made and natural calamities around the world. NSOs included in this dissertation have a wide mission, broadly characterized as 'alleviating human suffering'. This mission, combined with a transnational focus, requires working in areas prone to disaster and the foundation of an organizational commitment to service delivery.

Networked service organizations are generally independent structures that are intertwined for at least one or more similar causes or domains for symmetric coordination. The extent to which information is shared among the NSOs has a direct impact on crisis response effectiveness (Topper & Carley, 1999, p. 68). However, Topper and Carley (1999) recognized that organizational networks were established for the most part in response to environmental factors and for improving organizational effectiveness. While it might be common for the NSO structure to be strategically planned, in many cases NSOs are reactive and establish "field" offices (following a natural disaster) without a great deal of anticipation or planning. The complexity of preparing for and responding to crises in an NSO structure is underpinned by the intricacy of linking and integrating various autonomous entities for a common goal that has a relatively limited time frame—that is, responding to a crisis.

Coles and Zhuang (2011) argued that it is essential for organizations to prepare for complex and unfamiliar scenarios in order to have an effective response. However, to better understand how to manage ambiguity and uncertainty, this dissertation ascertained the fundamental leadership competencies needed by leaders within the NSO structure in order to effectively prepare for and respond to natural disasters. Lecy et al. (2012) contended that organizations must approach effectiveness from a program output and impact perspective, meaning not only how each of the NSOs are evaluated independent of one another, but how the NSOs, as an integrated whole, provide the service by way of preparation and response operations; and most importantly, how efficiently the NSOs work collaboratively to provide services for their stakeholders (p. 449).

Leaders of NSOs face increased levels of risk in effectively executing their role in an efficient and effective manner due to the conditions of ambiguity and uncertainty related to natural disasters. These ambiguous conditions are further complicated by disaster response organizations supporting increased numbers of disaster-affected populations (IFRC, 2009) making service delivery a challenge. Nevertheless, organizational effectiveness in terms of an outcome variable in preparation for or response to crises cannot be easily measured unless an actual event occurred (McGuire & Silvia, 2009, p. 37), thus a priori leadership traits and competencies may be the best possible insight into how NSOs can improve their collaborative response to natural disasters as examined in this dissertation.

Bhamra, Dani, and Burnard (2011) argued that crises preparation is critical, however, they stressed the importance of leadership ability to deal with ambiguity and uncertainty as essential components of organizational effectiveness during the crises response. Brassard and Raffin (2011) and Van Wart and Kapucu (2011) contended that an effective organizational response was positively influenced when leaders were able to manage

ambiguity and uncertainty. The ambiguity that leaders confront is unprecedented and effective leaders must possess an ability to deal with uncertainty, while they simultaneously assess the environment and provide operational guidance (Pryor, Taneja, Humphreys, Anderson, & Singleton, 2008). Bhamra et al. (2011) found that leaders who were better prepared to deal with the ambiguity and uncertainty associated with natural disasters reduced the negative impact natural disasters had on their organizational capabilities, and were more equipped to meet their mission goals. Ill-equipped leaders, those leaders who are not "adaptive, collaborative, and citizen engaging" (Farazmand, 2007, p .149) might hinder the organizational response, resulting in an inability of the organization to bounce back from the adverse affects of the crisis. Thus, this dissertation argues that organizational and leadership resiliency are important factors when considering NSO leadership competencies. This dissertation identified and synthesized the empirical evidence underpinning the fundamental leadership traits and competencies for managing the ambiguity and uncertainty inherent in crises scenarios.

Based on their seminal studies of complex crises scenarios, Baran and Scott (2010), Rudolph and Repenning (2002), and Weick (1993) found that preparation or lack thereof was the critical factor that led to an effective or ineffective response. Preparation incorporated a broad range of understanding and awareness, which can be generalized into four typologies - types, phases, systems, and stakeholders (Pearson & Mitroff, 1993, p. 59):

- Types – events the organization planned for and related scope of the response
- Phases – activities within the response plan requiring management attention
- Systems - structures to prevent crises and their interaction with one another

- Stakeholders – individuals or groups involved in disaster response planning or affected by it.

Baran and Scott (2010) studied firefighters working under life threatening conditions and found that the leaders who understood their external environment and who were able to act with speed and agility minimized the effects of the disasters. Moreover, the firefighters were able to perform effectively due to their integration of lessons learned into their daily operations and their continuous scanning and assessment of the environments within which they had to perform. This further supports Perrow's (2008) position of the increasing importance of effectively preparing for the consequences of natural crises, given that they have been occurring with greater frequency and the improbability of avoiding them. Figure 1 illustrates the relationship and relative importance of the integration of disaster preparation to the broader disaster management cycle.

Figure 1. Disaster Management Cycle. Generic model of interconnected disaster management cycle. Reprinted from "Attaining improved resilience to floods: A proactive multi-stakeholder approach" by L. Bosher, A. Dainty, P. Carrillo, J. Glass, and A. Price, 2009, *Disaster Prevention and Management,* 18. p. 11. Copyright 2009 by the Emerald Group Publishing Limited.

Thach (2012) claimed that preparation was critical to managing crises, not only in the leaders' direct sphere of control, but also in the much broader area of influence where they might have an impact, even when that impact may not be immediately known. Disaster preparation is a critical activity for leaders in advancing an effective response during and following a disaster. Analysis of the disaster cycle in and of itself was not within the scope of this dissertation, but the various leadership competencies required for effective and efficient organizational operation during each aspect were.

Almahamid, Awwad, and McAdams (2010) emphasized the need for leaders to analyze and synthesize the internal organizational and external environmental factors as fundamental to organizational effectiveness, while Charbonnier-Voirin (2011) recognized

agility as a fundamental competency. Almahamid et al. and Vroom and Jago (2007) theorized that leadership effectiveness, defined as organizational goal attainment, influenced the situational context. Similarly, the concept of sensemaking has been expressed as the ability to continuously scan the environment and analyze the situation for context as a valuable leadership competency to consider when preparing an organization for crisis (Weick, 1993, p. 635). This section has emphasized the significance natural disasters are having on organizations and the notion that leaderships' ability to manage ambiguity and uncertainty is critical to effectively prepare and respond to crises scenarios.

Research Question and Propositions

This dissertation seeks to identify and validate the fundamental competencies needed by NSO leaders to effectively prepare for and respond to natural disasters. The following research question will guide the systematic literature review in order to better assess the empirical research that examines NSOs when dealing with crises and how their leaders can be better prepared for reducing the impact those crises have on people and society at large. Effectiveness was accomplished when the networked organization structure improved the ability of each individual organization to be better prepared and respond more efficiently than the individual organizations acting alone (McGuire & Silvia, 2009, p. 37).

Research question (RQ): When preparing for the potential impact of and response to natural disasters (crises), what are the fundamental leadership competencies that will positively influence organizational collaboration and operational impact for those affected by the disaster?

To facilitate this research, a focus on leadership competencies in the context of NSO structures and systems will form the analytic framework for assessing leadership attributes and their impact on organizational effectiveness. Organizational effectiveness will be

determined by an improved ability among organizations to effectively and efficiently collaborate with others in the response to and preparation for the disaster management cycle.

Propositions

The following propositions framed the systematic literature review, underpinned the research question and drove the evidence-based research process.

P1. The ambiguous and uncertain nature of natural disasters creates a need for NSO organizational leaders to acquire a keen situational awareness.

P2. Leader flexibility and agile decision-making in dynamic and fluid scenarios positively influence organizational response to and preparation for crises.

P3. A dynamic organizational learning culture improves the information exchange and knowledge-sharing process within NSOs throughout the disaster life cycle.

Complex leadership theory, complex adaptive systems theory, and organizational learning theory are the theoretical lenses relevant to understanding the leadership competencies required to prepare for and respond to natural disasters.

Definitions of Key Terms within the Literature

Agility – ability to rapidly adapt to the opportunities of change (Charbonnier-Voirin, 2011, p. 120)

Ambiguity – "contexts involving interactions that facilitate the appraisal of hazards, risks, potential benefits, resources, and solutions with information that is often insufficient and equivocal" (Baran & Scott, 2010, pp. S43)

Crisis Management – a special type of management typified by surprise (or uncertainty in planning contexts) due to unexpectedness or size of an incident, short time frame, and

criticality in terms of life-and-death consequences or organizational threat" (Van Wart & Kapucu, 2011, p. 496).

Disaster Mitigation - "Any action before, during, or after a disaster to minimize its impact or potential impact" (Twigg & Steiner, 2002, p. 478).

Disaster Preparation – "Specific measures before disasters strike, usually to forecast and warn against them, take precautions when they threaten, and arrange for the appropriate response" (Twigg & Steiner, 2002, p. 478).

Disaster Response – "The short term …approach …where actors assist an affected area following a disaster" (Coles & Zhuang, 2011, p.5)

Effective leadership – strategically influential, operationally knowledgeable and psychologically inspirational and motivational (Hamlin, Sawyer, & Sage, 2011)

Flexibility – ability to evaluate the scenario and change the course of action if necessary (Baran & Scott, 2010, p. S58)

"The ability to implement different processes and apply different facilities to achieve the same goals" (Almahamid et al., 2010 p. 389)

Sensemaking – Understanding that reality is an iterative arrangement materializing through order and retrospective sense of what occurs (Weick, 1993, p. 635)

Uncertainty – a state of indecision between crisis occurrences (Einhorn & Hogarth, 1986)

Organization of the Dissertation

This dissertation was organized into six chapters, whereby the author developed arguments, presented the methodology, and highlighted the evidence. Chapter 1 provided an introduction to the management challenge for better preparation and response to disasters. The research question and propositions honed the scope of the research and the chapter concluded with an outline of the remainder of the study.

Chapter 2 discussed the methodology used to develop the systematic literature review of the fundamental leadership competencies needed for effective preparation and response to natural disasters applying the evidence-based review methodology, including the inclusion and exclusion criteria. A critical element of the dissertation was the review and feedback of an expert panel. The panel consisted of academics and practitioners well versed in organizational preparation and response to natural disasters. A summary of the comments and opinions provided by the subject matter expert panel was highlighted while the individual feedback forms were included in Appendix A.

Chapter 3 provided a systematic literature review of the principle concepts introduced in Chapter 1 as they related to effective leadership competencies for organizational preparation and response. The chapter began with a discussion of the theoretical lens followed by a critical review and analysis of the major concepts discovered during the evidence-based research.

Chapter 4 presented the analysis and findings as synthesized and derived from the evidence in Chapter 3, along with any opposing perspectives relevant to the evidence.

Chapter 5 provided a graphical depiction of the systematic review and findings, underscored by the conceptual framework for understanding the relationship between leadership competencies and effective organizational preparedness and response.

Chapter 6 concluded the dissertation with recommendations and suggestions for future research and implications for the management field. Study limitations were addressed.

Chapter Two: Methodology

Introduction

The evidence-based management approach is where science meets practice. The basis for this approach was an evidence-based research methodology of rigorous and academically agreed upon strategies for finding solutions to questions within the management discipline (Rousseau, 2012). NSOs working in crises confront ambiguity and uncertainty. Understanding competencies required for senior leaders will assist in effective organizational preparedness and response to crises. This dissertation encompassed a systematic review of the empirical research, using a realist synthesis approach for the analysis. The realist synthesis approach underscores the complexity within social settings by providing a structured method for determining congruence in the literature (Pawson, Greenhalgh, Harvey, & Walshe, 2004, p. iv). This approach permitted the detailing of the leadership competencies needed to manage networked organizations confronting ambiguity and uncertainty resulting from crises.

Evidence-Based Movement

The evidence-based movement strives to combine scientific evidence with the practice of management for more effective and efficient decision-making (Rousseau, 2012). This dissertation applied an evidence-based research approach for determining how leadership in a NSO ensured effective preparation and response, involving a variety of critical components, in light of crises situations. The task of searching, finding, and analyzing existing scientific knowledge for the application of new science was an important step whereby evidence-based management supplemented the quest for clarity. Additionally, evidence-based research involves the transparent presentation of the findings for the critical assessment by peers. Rousseau (2012) stated that such a process was central

to the credibility of the findings. A third consideration in evidence-based research is the inclusion of stakeholders in the process. Gough, Oliver, and Thomas (2012) claimed that research has evolved to include greater participation of those affected or impacted by interventions being studied. Gough et al. highlighted that including the perspectives of disadvantaged populations in the research process was a "transformative-emancipatory" progression (p. 20). In the context of this study, the implication for management is that greater social inclusion among leaders of NSOs confronting crises fostered stronger information exchange and feedback loops about the environmental context. Information exchange should include the perspective of people affected by disasters, which serves dual purposes of empowering those directly affected by crises as well as informing organizational effectiveness in preparing for and responding to natural disasters.

Similarly, Rousseau (2012) noted the value of stakeholder participation in management research, highlighting that leaders who considered stakeholder opinion when making decisions were able to better appreciate the internal as well as the external organizational environment. A final, but certainly not absolute consideration in executing evidence-based research, is the innate ability to synthesize the data for 'commercial' use by practitioners (Rousseau, 2012).

Barends, Have, and Huisman (2012) noted that evidence-based management is identifying a problem, determining a viable intervention, comparing it with other potential answers and projecting the outcome(s). However, in order to complete the cycle put forth by Barends et al., Denyer, Tranfield, and van Aken (2008) envisaged an analysis and synthesis process encompassing a combination of a "problematic context, for which the design proposition suggested a certain intervention type, to produce, through specified generative mechanisms, the intended outcome(s)" (p. 393). This model, referred to as the

CIMO (context, intervention, mechanism, and outcome) logic model, applies equally in medicine and management. Broadly speaking, scholars identify an academic field as the existence of a common body of knowledge (Barends et al., 2012). A comparison between the field of medicine and the field of management, in terms of evidence-based research and practice, demonstrates how both fields can easily be identified as academic fields. Interestingly, there exist equally strong arguments against the comparison (Barends et al., 2012). What distinguishes management from medicine, in terms of evidence-based practice, is the limited systemization of the knowledge within the management field leading to a gap in the ability to share and build consensus around a common body of knowledge within the management academy (Barends et al., 2012). In order to overcome the gap, a systematic review of management literature on networked service organizations confronting crises resulting from natural disasters was undertaken by the author as part of this dissertation.

This research utilized a systematic review of the literature to explore how leaders of NSOs adequately prepared for and responded to dynamic and fluid situations inherent in crises scenarios. This was followed by a configurative analysis of the literature based on realist synthesis principles. This approach was deemed appropriate for a number of reasons. First, a realist synthesis resembles the processes NSO leadership ideally should utilize in crisis scenarios: an iterative process of data collection and analysis for decision-making is similar to the realist approach of the synthesis of the literature. Second, the realist synthesis approach emphasizes the continuous process of gathering and assessing information to explain complex social scenarios. This is similar to the process leaders of NSOs follow when confronting dynamic and fluid situations in preparing for and responding to crises (Pawson et al., 2004, p. vi). Finally, the research question fit with the

schematic complexity of being non-linear, embedded in social systems, and prone to modification, with the actual interventions in open systems that changed through learning feedback loops (Pawson et al., 2004, p. iv).

Systematic Reviews

Systematic reviews of information have existed for many years. Petticrew (2006) noted that a systematic review was conducted as early as 1891 and published in the American Journal of Psychology. Briner and Denyer (2012) described a systematic review as a method-appropriate process utilized by researchers for reviewing evidence and presenting it. Systematic reviews in the field of management provide insights into management practice; however, the popular use of evidence-based research originated in the medical field beginning in the 1990's (Rousseau, 2012). In an effort to utilize existing and preeminent evidence, practitioners in the medical field required an amalgamation of the existing evidence to make the best decisions (recommendations) for their patients. Such information stemmed not from unique, randomized, controlled trials but rather from a clinical epidemiologic perspective (Rousseau, 2012). Decision-making in the medical field required practitioners to have a broad understanding of all existing evidence and an ability to synthesize such information into workable solutions for patients. Similarly, evidence-based management practitioners have assumed a proactive stance in an effort to make decisions based on practical research-based information.

Briner and Denyer (2012) noted that systematic reviews allow practitioners and researchers to reach conclusions on complex issues confronting organizations through a methodical process of assessment and analysis of a wide array of information regarding a particular issue. Systematic reviews solicit all pertinent and existing evidence and may, through aggregation or configuration, propose new knowledge challenging current

scholarship (Briner & Denyer, 2012). Gough and Thomas (2012) highlighted the value of systematic reviews focused on an aggregative approach, which has a tendency to sum a variety of primary studies as having prevalence among the various paradigms for reviewing the information. A configurative review arranges or configures the data from studies to generate a new theory and is based on heterogeneous primary research foundations. Brunton, Stansfield, and Thomas (2012) stipulated the need to collect "sufficient concepts for coherent configuration" (p. 109) to the point that configurative analysis of available data was a significant value within systematic reviews. Similarly, Gough and Thomas (2012) reported the configurative approach targets the development of new theories, however, it is not unheard of for systematic reviews to utilize both methodologies – configurative and aggregative. While this dissertation did not generate new theory, the awareness and understanding of existing theories in relationship to the empirical evidence were part of the paradigm in understanding how leaders in crises scenarios were able to adapt for effective and efficient operational outcomes.

The approach in this systematic review considered a variety of techniques that were methodically applied when searching for data. Brunton et al. (2012, p. 116) highlighted four aspects for identifying information when conducting a systematic literature review:

- Utilization of the appropriate methodology
- Identification of critical sources of information
- Assessment of particular value of the source and the number of sources available
- Determination of the cost/benefit of combining and synthesizing available information and data.

Identification of Evidence

When executing a search, two concepts assist in narrowing the evidence - the idea of sensitivity and that of precision. Sensitivity entails isolating as much of the related evidence as possible, resulting in voluminous unrelated material, while precision tends to hone the search, but may omit some relevant data. Brunton et al. (2012) emphasized the idea of sensitivity as being able to identify as much of the existing relevant knowledge, while the idea of precision reduces extraneous material but also has the potential to exclude pertinent material inadvertently. In order to minimize the extraneous material but ensure inclusion of applicable information, a search strategy was developed. A variety of electronic databases were searched including EBSCO, ProQuest, and Web of Science, which generated articles published in peer-reviewed journals and provided the basis of material utilized. Searches in Ulrichsweb assisted in identifying seminal authors and pinpointing articles with significant citation levels. Peer-reviewed resources with the latest empirical findings regarding leadership competencies were found in:

- Administrative Science Quarterly
- The Leadership Quarterly
- Journal of Contingencies and Crisis Management
- Disaster Prevention and Management
- Public Management Review
- Military Psychology
- Organizational Science
- Academy of Management Learning and Education
- International Journal of Organization Theory and Behavior

Terms foundational for the identification of material included: crisis management*, leadership competencies*, third sector organization*, non-governmental organization*, international organization*, crisis*, crisis response*, and crisis preparedness*. However, this study focused on leadership, thus any study that did not reference leader traits or leader competency in crisis was excluded.

Pawson et al. (2004) noted how innumerable studies could be applied to research questions and often overwhelmed the researchers with insurmountable information to synthesize. Organizational resilience is a complex construct, with limited tangible measurements or a priori definitions (McManus, Seville, Vargo, & Brunsdon, 2008). Attempting to narrow such a wide-ranging scope of knowledge, Pawson et al. (2004) noted that a concise fit for the purpose of the material, along with a broad conceptualization of inclusion and exclusion criteria, would limit information over-saturation when applied iteratively. Subsequently, the researcher must be satisfied that sufficient data were identified, tested, and applied for the purpose of the study. The inclusion criteria provided in this dissertation consisted of four broad benchmarks. They were:

- the information needed to be from primary evidence studies,
- the study was published in a peer-reviewed journal,
- the article focused on a 'natural' disaster (hurricane, earthquake, flood, etc.) rather than an economic or administrative type of crisis (lay-offs, bankruptcy, foreclosure, etc.) and,
- the article needed to make reference to at least two of the following concepts: leadership competencies, leadership traits, organizational performance, and non-profits (non-governmental) organizations.

Articles referring to only two concepts were considered a proxy for the missing concepts and would therefore be insightful for this dissertation. For example, an article with organizational performance and leadership traits as the variables was considered informative for NSOs even though the article did not focus specifically on organizational structure. Figure 2 illustrates the process utilized to narrow the studies included in this dissertation.

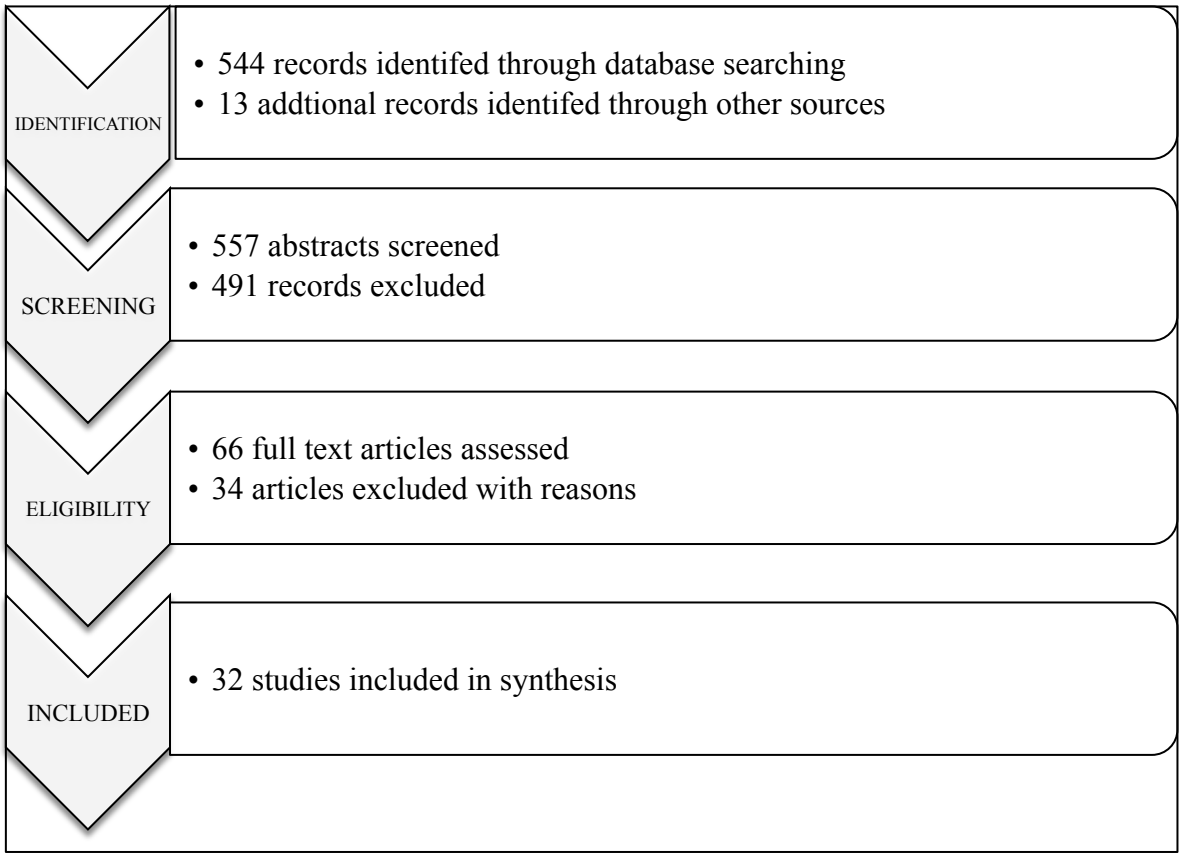

Figure 2. Process for narrowing the studies. E. Baranick (2014)

Additionally, individual or personal trait references on resiliency were utilized mainly for background information rather than included as part of the synthesis. The author of this dissertation is bilingual and material in the Spanish language was included if it met the above criteria. Finally, the complex scope of the research question, and the configurative

approach taken, resulted in much of the data being heterogeneous. However, this was, in and of itself, not an exclusionary factor.

In most cases, natural disasters do not repeat themselves to the extent that their impact is the same each time. Social, economic, and physical conditions (infrastructure) are not the same in any two places. However, there are important and notable similarities following a crisis event relating to how organizations respond and leaders make decisions. Pawson et al. (2004) noted that realist synthesis accepts comparison among theories and various circumstances in order to determine the applicability. The realist synthesis end goal is 'enlightenment' rather than evaluation of complex problems; to this end, the realist synthesis contemplates how programs or theories work or why they fail (Pawson, 2004, p. 1). This underpinning concept permits inclusion of data from a variety of natural crises events, albeit geographically dispersed and categorically different, for examining leadership competencies.

Quality Appraisal of Evidence

Harden and Gough (2012) noted that, in systematic reviews, the quality and relevance of studies utilized in the assessment and synthesis are critical to developing a rigorous and valid conclusion. There are a number of dimensions for determining quality information. Harden and Gough noted two particular suggestions for assessing quality. The first, by Furlong and Oancea (2005), has three dimensions: 1) technological, which refers to the added value of the research; 2) capacity building, which applies to value for people who emphasizes collaboration and engagement with external individuals, and, 3) an economic dimension which refers to cost factors. The second ontology by Pawson, Boaz, Grayson, Long, and Barnes (2003) is referred to as TAPUPAS: transparency, accuracy, purposivity, utility, propriety, accessibility, and specificity (p. ix). Pawson et al. recognized

these were generic standards requiring refinement, however, they nevertheless set a foundation from which to move forward when judging the evidence. These standards were not a substitute for researcher or practitioner judgment and contextual framework, but they do provide a basis for systematically applying criteria (Pawson et al., 2003). Boaz and Ashby (2003) stipulated in their hierarchy of evidence that systematic reviews and meta-analysis exceed all other methods for rigor (p. 6).

While the hierarchy of evidence mentioned above is specific to clinical interventions, it is important to recognize the value and rigor systematic reviews offer in assessing the quality of the management evidence (Boaz & Ashby, 2003). As noted previously, empirical evidence served as the underpinning source of data for the systematic review, while the realist synthesis approach allowed broad insight into the wide-ranging impact of leadership competencies and practices in organizations during crises situations. The realist synthesis approach permitted the author to "extract different data from different studies using an eclectic and iterative approach" (Pawson et al., 2004, p. 14), allowing the researcher not only to identify which leadership competencies were fundamental in crises, but why and how the competencies influenced organizational effectiveness and efficiency - key questions for managers and leaders of NSOs working in the field. Following a realist synthesis approach to examine how leaders' competencies ideally influenced organizational resiliency in preparation for and responding to crises under certain conditions provides the practitioner with a path of discovery to follow. The analysis and synthesis process leads to discovery into the interaction between a given intervention and variables that moderate or mediate a successful outcome given the contextual factors (Brunton et al., 2012).

Data Analysis and Realist Synthesis

The realist synthesis approach utilized in this research was selected for a variety of reasons. Realist synthesis is used in highly complex and complicated analyses. Pawson et al. (2004) noted the compatibility of realist synthesis with the complexity of health care management research. Pawson et al. noted the numerous factors and links with external circumstances, including the actions of people involved in complex situations intertwined with realist synthesis. Similarly, networked organizations confronting crises, particularly those crises emanating from natural occurrences, such as hurricanes or flooding, confront incredible challenges during and following the event. Therefore, it is important for the disaster managers to be fully aware of the relationship between context, the decision (mechanism), and the outcome of a disaster response– paralleling the logic of realist synthesis (Wong, Greenhalgh, Westhorp, Buckingham, & Pawson, 2013).

A realist synthesis approach to a problem asks "what works for whom in what circumstances, in what respects and how?" (Pawson et al., 2004, p. 3). Such considerations are important when considering the social dimensions involved in decision-making in organizations confronting ambiguity and uncertainty. Pawson et al. (2004) noted the ability of realist synthesis to account for socially embedded elements and layers within the organizational structure, such as balancing the need to adequately prepare communities for medium impact disasters that are likely to occur, versus preparing for the unlikely disaster that has catastrophic impact.

Coding the information from individual studies allows researchers to capture specific study characteristics (Oliver & Sutcliffe, 2012). This is a critical component of the data analysis process. A review of the literature on leadership competencies and organizational effectiveness and efficiency found that those references far outnumbered the

information available in quantitative-based research. The main purpose of this dissertation was to understand which leadership competencies or traits influence organizational effectiveness in disaster scenarios. Appreciating the contextual variation of the collected data, the realist synthesis approach permits the synthesis and analysis of heterogonous data from a vast array of studies, which comply with the 'fit for purpose' characterization (Pawson et al., 2004, p.14). Coding allowed information and data to be consistently consolidated between heterogeneous studies (Oliver & Sutcliffe, 2012). For example, studies that suggested leaders applied contextual awareness in crises scenarios underpinned by leader actions of scanning, assessing, and analyzing for the purpose of influencing organizational decision-making were thematically paired with the empirical literature on environmental and situational awareness, whose variables corresponded accordingly. Leadership competencies within crises scenarios have the potential to be contextual, however, coding relevant heterogonous studies meeting the aforementioned inclusion and exclusion criteria facilitated a detailed synthesis of the extracted data. Oliver and Sutcliffe (2012) noted that well coded data provided foresight and utility for implementing successive and analogous syntheses.

The CIMO logic model provided a framework for synthesizing the literature. CIMO-logic is an approach that strives to understand "the human condition by developing knowledge to solve field problems, i.e. problematic situations in reality" *(*Denyer et al., 2008, p. 394). The intervention - competencies exhibited by NSO leaders -was the fundamental component of the CIMO logic this dissertation strived to answer. The context was a crisis scenario where certain leader competencies lead to a more efficient and effective NSO. The mechanism was determined to be responding to and preparing for crises. The CIMO logic outlined above assisted in determining the interventions discerned

from a range of diverse literature that would adequately lead to better prepared and responsive NSOs.

Advisory Panel of Subject Matter Experts (SMEs)

A panel of subject matter experts (SME) reviewed a draft of the first three chapters of this dissertation. The purpose of the SME panel was to glean expert advice from scholars and recognized practitioners in the thematic area with regard to relevance, significance, and scope of the dissertation. Invited to review the dissertation was the Vice President of International Operations of the American Red Cross, Mr. Harold Brooks. Mr. Brooks has over 30 years of experience in the disaster management arena, working both domestically and internationally. Currently he leads the international response and recovery for the American Red Cross with over 100 employees serving at American Red Cross headquarters in Washington, DC, as well as staff spread around the globe. He oversees an annual budget of 50 million USD. He served internationally as Peace Corps Country Director in the Asia Pacific region. Previously he spent time leading disaster responses in the San Francisco, CA area for the American Red Cross.

Dr. Naim Kapucu, a Professor at the School of Public Administration at the University of Central Florida (UCF), also reviewed the dissertation. Dr. Kapucu has published widely in areas of public policy and administration, crisis leadership, nonprofit management and disaster management. The third member of the panel was Dr. Tim O. Peterson, Associate Dean, and professor of management for the College of Business at North Dakota State University. Dr. Peterson's areas of research are leadership, teamwork, the scholarship of teaching, and the organizational impact of information systems. He has won three best paper awards from the Academy of Management for his scholarship.

Each SME received a University of Maryland University College form for providing comments regarding relevance, significance, and scope of the dissertation. Whenever feasible, feedback was incorporated into the dissertation. For example, one SME suggested inclusion of additional seminal authors, while another SME provided additional reflections for learning from recent disaster events. Two SMEs commented on the lack of analysis, which reflected the ongoing development of the dissertation at the time of review. Appendix A provides a complete set of reviewer comments.

Summary

This chapter provided details on the method utilized to collect, analyze, and synthesize empirical results for determining fundamental competencies needed by leaders of NSOs confronting crises. The uncertainty and ambiguity leaders confront in times of crisis is contextual and needs to be understood by practitioners and academics alike. Likewise, the approaches to the method for assessing and synthesizing the data must be appropriate for the question under consideration. The configurative analytic approach and realist synthesis process were determined as the appropriate tools for this dissertation's study purpose and research question.

Chapter Three: Systematic Review of the Literature

This chapter critically examined the scholarly and published literature that assessed the fundamental leadership attributes needed for the effective and efficient natural disaster response by NSOs. The theoretical framework, grounded in complex adaptive systems theory, complex leadership theory, and organizational learning theory, provided the lens for examining the empirical research. The systematic literature review assembled scholarship focused on the three propositions listed below as P1, P2, and P3. This chapter concludes with a discussion of the literature on the relationship between leaders' competencies and effective organizational preparation and response. The multifaceted nature of disasters as well as the multidimensional competencies leaders must display provided the framework for the systematic literature review in this chapter, underpinned by these three propositions:

P1. The ambiguous and uncertain nature of natural disasters creates a need for NSO organizational leaders to acquire a keen situational awareness.

P2. Leader flexibility and agile decision-making in dynamic and fluid scenarios positively influence organizational response to and preparation for crises.

P3. A dynamic organizational learning culture improves the information exchange and knowledge-sharing process within NSOs throughout the disaster life cycle.

The chapter begins with an explanation of the theoretical framework followed by an assessment of the relevant empirical research and published literature. The systematic literature review is organized based on three major themes: critical factors in organizational preparedness and response to crises; critical factors in leader preparedness and response to crises; and the relationship between leaders' competencies and effective NSOs. The findings and analysis of the systematic literature review are presented in Chapter 4.

Theoretical Framework

Complex Adaptive Systems Theory

The systematic review of the literature was viewed through three theoretical lenses. The first of these lenses was complex adaptive systems theory (CAS). Simon (1993), a seminal researcher recognizing and contextualizing complexity within organizations in the 1960s, argued from the perspective of the leadership decision-making process, where the final decision 'action' itself rests with one person. However, organizations are complex entities and the environment within which they operate is similarly complex, and reaching the point at which leadership makes a decision is multifaceted and can include numerous people (p. 305). This dissertation examined the fundamental competencies needed to effectively prepare for and respond to crises scenarios.

Anderson (1999) suggested that applying CAS theory within the broader strategic management structure gave leaders an effective means for adapting to fluid scenarios, and argued that three dynamics existed within the organizational structure. First, the vertical structure entails the hierarchy or number of levels within an organization; second, the horizontal complexities encompass the number of positions (or job descriptions); and third, spatial complexity involves the geographic location of offices or personnel. Additionally, Anderson argued that leaders must be aware of the external complexities, which include the dynamic conditions within the peripheral environment that could potentially impact the organization's behavior.

Anderson (1999) argued CAS theory recognizes the dichotomy between complex systems with highly differentiated staff and the unpredictability within simple systems and organizational structures. Lichtenstein et al. (2006) claimed that complexity was driven less by individuals or leaders, but rather results as a condition of the context. O'Sullivan,

Kuziemsky, Toal-Sullivan, and Cornell (2013) suggested, "complexity theory and its basic tenets, such as emergence, self organization, non-linearity, adaptiveness, and connectivity, are well suited for studying the dynamic and collaborative nature of disaster management" (p. 238). Anderson argued that CAS theory "presumes that the adaptation of a system to its environment emerges from the adaptive efforts of individual agents that attempt to improve their own payoff" (p. 223). Therefore, in preparing for a crisis scenario, leaders of NSOs must be able to change their behavior to recognize and overcome personal bias in preparing the organization to respond effectively. In summary, complex adaptive theory underpins the examination of literature for proposition one by noting leaders must be situationally astute and capable of decoding and analyzing the incessant changes in the external environment and within organizational structures and systems to effectively prepare for and respond to crises.

Complex Leadership Theory

A second theoretical lens is complex leadership theory (CLT). The challenge leaders confront to effectively prepare for and respond to crises "is a dynamic that transcends the capabilities of individuals alone; it is the product of interaction, tension, and exchange rules governing changes in perceptions and understanding" (Lichtenstein et al., 2006, p. 2). Marion and Uhl-Bien (2001) argued more directly that complexity theory affirmed that the unpredictability of the environment is exceedingly complex; therefore, leaders must focus less on controlling it and more on influencing it. The foundation of CLT is about superimposing leadership behaviors on complex adaptive systems theory (Uhl-Bien & Marion, 2009). O'Sullivan et al. (2013) concluded complex leadership theory, which highlights the underlying social and environmental complexities leaders encounter, required specific competencies to overcome such organizational challenges. Uhl-Bien and Marion

(2009) stipulated that CLT was not about complicated leadership per se, rather the focus of CLT was on understanding the intricacies of leadership when imposed on CAS, which was driven by the various fluid and dynamic scenarios leaders encounter on a regular basis and which are inevitably magnified in crises situations. Marion and Uhl-Bien argued that complex leadership theory, focusing on the ability of leaders to influence and interact among a network of 'individuals', is fundamental to enabling organizational effectiveness. Similarly, Lichtenstein et al. (2006) argued that complex leadership theory is about the dynamic interaction of the appropriate competencies of leaders within NSOs to effectively prepare for and respond to a crisis. Marion and Uhl-Bien argued complex leadership theory centered on "creating the conditions that enable productive, but largely unspecified, future states" (p. 391). Mowles, Stacy, and Griffin (2008) recognized that leaders within NSOs confront complex organizational structures and systems, and complexity theory recognizes leaders need to enable, rather than control, conditions for the organization to be effective.

Hazy (2006) argued CLT views leadership as an organizational meta-capability, which is an ability to internalize internal and external environmental data and continuously analyze and adjust the organization. Furthermore, CLT confirms that a critical component of leadership is the adaptability to fluid and dynamic scenarios, which requires leaders not to be creators or direct implementers of change, but rather the enablers of or the influence behind those responsible for organizational preparedness and response (Marion & Uhl-Bien, 2001; Uhl-Bien & Marion, 2009). Similarly, Lichtenstein et al. (2006) contended complex leadership theory recognizes the dichotomy between stability and change "as an essential characteristic of social environments; in this way a complexity framework for leadership was fully integrated within the social psychology of organizing" (p. 8). CLT

underpins proposition two, which posited that flexibility and agility of leadership and the connection to organizational systems are important factors in organizational effectiveness.

Organizational Learning Theory

Organizational learning theory has been fine-tuned over the years from a theory that had been more focused on organizational structures and their interaction with one another to more recent attention on individual behaviors within those organizations (Bloch & Borges, 2002). Fiol and Lyles (1985) argued that organizational learning theory recognizes the distinctions between individual and organizational learning, highlighting that the latter is not simply the sum of the former within the organization. Shrivastava (1983) argued that organizational learning is a process where individuals within the organization develop an understanding and interpretation of the environment in order to produce an effective organizational response to continuous change. Moreover, Weick (1993) argued that it was the lack of understanding the environmental context and fear of committing errors that could lead to inaction by leadership (p. 306). Rashman, Withers, and Hartley (2009) conducted a systematic review of literature to determine the factors that influence organizational learning in public sector organizations. Their study showed how the external context encompasses the organizational learning process and, combined with additional factors, can influence organizational learning and the knowledge transfer process more broadly between the source and the recipient. For this dissertation, the author argues that leaders must consider organizational relationships and integration through information and knowledge sharing when preparing for and responding to crises. For example, the assessment and analysis of vulnerable geographic areas conducted by regular in-country staff must be exchanged with disaster responders, not only in a time of crisis, but beforehand, in order to properly prepare for and mitigate the disaster impact (Pathirage,

Seneviratne, Amaratunga, & Haigh, 2012, p. 240). Leaders preparing for and responding to a crisis were able to comprehend the contextual surroundings, and digest and decode conflicting information for dissemination in order to reduce confusion (Weick, 1993). They focused on critical components in organizational learning and their relationship to one another – whereby the exchange of information occurred between the source and the recipient. The first two components (source and recipient) illustrated where the exchange of information was occurring. The third factor relating to the actual relationship of the source and the recipient was the external context within which they operated and which was fundamental to organizational learning (Rashman et al., 2009).

Underpinning the concept of information exchange is an existing and functioning knowledge management system and structure. Within the framework of organizational learning, knowledge management plays a critical role. For example, based on the fluid and dynamic scenario during a crisis, Bdeir, Hossain, and Crawford (2013) stipulated the rapid exchange of time sensitive information was critical for decision-making throughout the disaster management cycle. Furthermore, the ability of organizations to retain and store information for decision-making was a fundamental organizational learning phenomenon. In this regard, organizations learned by implementing and facilitating adequate systems and suitable structures for leaders to exchange and share knowledge, which lead to organizational effectiveness and efficiency in disaster preparation, response, and mitigation. Similar to knowledge management supporting the decision-making, a keen understanding of the internal and external environment provided contextual background for leaders to make effective decisions during crises.

Understanding the reality of a situation is a complex and continuous process involving information collection and information analysis, and ultimately actions taken

based on scanning and interpreting the environment (Thomas, Clark, & Gioia, 1993; Weick, 1993). Shrivastava (1983) argued that adaptability was a critical component of organizational learning. Similarly, understanding both the external and internal environments, and their adaptation to the context, are fundamental aspects of organizational learning. Weick (1993) labeled the concept of understanding the environment as "sensemaking", claiming such a competency existed when leaders reflected retrospectively to rationalize current happenings (p. 635).

Another significant theorist on organizational learning that reinforces Weick's theory is Chris Argyris. Argyris (1975) claimed that organizational learning theory was an active, recurring process with four distinct sequences: "discovering the problem, inventing a solution (conceptual map), producing the invention (performing in terms of actual behavior), and generalizing what has been learned to other settings" (p. 37). Similarly, Madsen and Desai (2010) extended the previously mentioned sequences, concluding that organizational learning theory applies to knowledge development and knowledge retention, and reinforcing that organizational failure tends to challenge learning, while success reaffirms learning. Madsen and Desai claimed that organizations tend to learn more from failures than from success and leaders who were able to comprehend, synthesize, and develop a plan influenced organizational flexibility and agility to effectively prepare for and respond to the changing environment.

In this dissertation, organizational learning was applied to leaders' ability to gather information, analyze the data, and adjust the organizational structures to the changing environmental context. Therefore, organizational learning was a process of identifying the necessary information, gathering the necessary data and processing the collected information for action, which, as a concept would align with double loop learning posited

by Argyris (1976). Additionally, the specific adjustment or outcome of organizational learning would not be complete without the leader taking specific actions in preparation for or response to a crisis.

This section has highlighted the three theoretical lenses this dissertation will utilize throughout the study and how these theories underpin each of the three propositions. Complex adaptive systems theory addresses the organizational and systems perspective relevant to leadership competencies, while complex leadership theory provides insight into the fundamental leadership competencies overlaid on applicable organizational systems and structures leading to more effective organizational preparation and response to crises. Finally, organizational learning theory will close the circle providing a perspective whereby leaders influence structures, systems, and individuals for more effective and efficient natural disaster operations.

Critical Factors in Organizational Preparedness and Response to Crises

The internal and external structures are important and complex elements that influence effective preparation and response to crises. For this dissertation, effective NSOs are those organizations that have taken positive steps to harmonize actions with other organizations in a collaborative and coordinated fashion in order to minimize duplication of efforts and maximize resources for the benefit of those impacted by a disaster. The internal structure refers to the complexities of organizational configurations, such as being a networked or virtual organization. The external structure refers to the operational environment in which the organization is immersed, such as the 'connectedness' with other organizations. The following studies highlight and contrast leaders' competencies for effectively preparing for and responding to crises with a focus on the internal and external structures.

To better understand network structures, Topper and Carly (1999) conducted a case study of the Exxon Valdez oil spill and collected data from the official U.S. Department of Transportation's (DOT) chronology of the event as well as newspaper articles. Topper and Carly considered a network formed when a 'coordinated tie' or working relationship between two or more organizations was recorded in the local newspaper or the official DOT chronology. Based on an assessment of the first 14 days of the Exxon Valdez oil spill, Topper and Carly assessed isolates (non-connected organizations), connectivity, centralization, and connectedness in 31 organizational responses to the oil spill and concluded networked organizational structure formation increased when isolates decreased, connectivity increased, and centralization leveled off.

Organizational networks that were adaptable to the evolving environment were more effective, but particularly noted were those networks that decentralized their decision-making processes (Topper & Carley, 1999, p. 83). The conclusion was that decision-making was most efficient at the source of the event rather than further up the chain of command, which was inevitably removed from the crisis event (Topper & Carley, 1999, p. 83). Furthermore, the network structure, because of its reactionary nature, was a more agile structure than a preplanned and rigid design (Topper & Carly, 1999, p. 70). Topper and Carly (1999) also concluded the organizational structures (networks) that formed in response to the environment tended to permit a more effective response overall. This study examined issues similar to NSOs responsible for natural disasters, and supports propositions one and two, demonstrating that organizations able to identify and adjust their structures to current conditions tend to be more effective.

Malhotra, Majchrzak, and Rosen (2007) conducted a seven-year, two-phase study through observation, participation, and surveys to identify fundamental virtual team

leadership practices. The first phase included observing and participating in all team meetings of one virtual team at Boeing-Rocket-Dyne, supplemented by key-informant interviews to build the concept of effective leadership practices. The second phase was an assessment of virtual teams at 33 different organizations collected over a six-month period. Team size ranged from two to a high of 50 members; 75% of the teams were multi-cultural and 66% were multilingual or had members in three or more time zones. Leaders familiar with the virtual team, but who were not members of the team, completed a 10-item criteria survey and participated in a 40-minute interview that focused on team goals, team structure, team cohesiveness, trust-building, and the use of technology. Finally, 269 team members completed a follow-on survey regarding perceptions of team trust, cohesiveness, and leadership. Malhotra et al. did not include information on data synthesis methods; however, they concluded virtual team structures (networks of individuals or entities that communicated via electronic means) added to the complexity of organizational effectiveness in preparing for and responding to a crisis. Malhotra et al. found diversity, information sharing, and trust were fundamental elements for the successful leadership of a virtual team. Malhotra et al. also found that a successful virtual team leader ensured the various technical skills distributed among the virtual team members were fully utilized. This study's variables on leadership effectiveness included establishing trust, building team diversity, adequate time management, use of technology, external visibility and adding internal value, all closely linked to proposition three emphasizing that leaders who "enhanced the team experiences for each of their members by ensuring that each had an opportunity to learn, grow, contribute, and feel an integral part of the team" (Malhotra et al., 2007, p. 68) were more effective leaders.

Lin, Zhao, Ismail, and Carley (2006) concluded that leaders viewed crises events as inevitable and suggested that organizations focus on preparation through adaptation to crisis scenarios by adjusting the organizational design. In studying 80 legitimate organizations via a computer simulation (simulating environment, task, and crisis), Lin et al. found approximately one-third of the organizations adjusted their structure during a crisis situation, however, the adjustment did not lead to increased performance as measured by accurately understanding the problem and providing an appropriate solution. The 80 computer-generated organizations, using real scenarios, provided an "encapsulation of organizational theory and generated a series of predictions regarding how to design an organization for an effective performance in response to a crisis" (Lin et al., 2006, p. 600). This allowed the authors to track and test organizational behavior and performance compared to the 'real' organizations. In the performance measure, the authors concluded that decision-making, along with an ability to accurately understand a problem and provide an adequate solution were fundamental leadership benchmarks (Lin et al., 2006). The underperforming organization was deemed to have "misjudged" the information and therefore, incorrectly implemented an action that resulted in adverse consequences (Lin et al., 2006, p. 608). This study supports proposition one that argues leaders must be aware of the environment and correctly assess and analyze the information gleaned through the awareness raising process in order to effectively respond to crises.

Brudney and Gazley (2009) utilized the National Survey of Emergency Management in County Government to survey emergency leaders in 407 counties representing 46 of the 50 states in the United States, as well as all the county population categories defined in the US Census Bureau. The survey was an initial attempt by the National Association of Counties and the Center for the Study of Counties at the University of Georgia's Carl

Vinson Institute of Government to gather information from county emergency leaders regarding logistical preparedness, professional training, and joint planning efforts. The survey's independent variables included budget allocations, existence of contingency plans, personnel time allocation, and non-profit participation in county contingency planning, median income, and population. The primary non-profit partners included the American Red Cross, hospitals, and faith-based organizations. Brudney and Gazley indicated that connectedness and planning among organizations positively influenced organizational preparation and response effectiveness. Brudney and Gazley further noted that established organizations with an inclusive response plan not only facilitated post-event system efficiency, but also mitigated operational ambiguity following crises and contributed to a more effective response overall. Brudney and Gazley suggested organizations demonstrating not only flexibility to adapt systems and structures to an influx of volunteers during a disaster, but also planning and preparing for a volunteer influx during a disaster response were more effective. Likewise, the ability of the organization to maintain or increase its connectedness positively influenced disaster response. Brudney and Gazley concluded that pre-planning the utilization of volunteers and voluntary organizations in crisis response activities had a positive impact on the effectiveness of county emergency management preparedness. This research supports proposition two whereby flexible leaders and systems in crisis preparation enhance effective organizational response. Furthermore, the inclusion of an appropriate volunteer system through sufficient information exchange in the planning for the response was also noted.

Seville et al. (2008) studied the operational systems and management structure of organizations confronting unanticipated crisis events in New Zealand. Seville et al. indicated organizations were open systems, and it was unlikely a crisis would affect one

organization without having an impact on others. Seville et al. concluded that a clear organizational vision, broadly communicated internally, contributed to organizational effectiveness. Similarly, when the organization was a network involving a multitude of organizations, the vision had to be shared for effective collaboration and cooperation (Seville et al., p.262). Seville et al. stated in many organizations the less tangible issues associated with communication, trust, and relationships had the greatest impact on organizational resiliency. Seville et al. also concluded that internal communications and stakeholder buy-in were fundamental factors in organizational effectiveness during a crisis. This article supports propositions one and two. There was limited discussion on the methodology of this study, and the only significant information mentioned was related to the length of the study period and location (six-years in New Zealand), which at the time of the article's publication, was the half-way point of the study.

Bharosa, Lee, and Janssen (2010) conducted a systematic overview of the impediments in effective disaster information sharing and coordination by observing a multi-agency disaster response simulation in Denmark throughout June 2005. The focus of the simulation exercise was to improve information sharing and coordination for more effective networking of multiple disaster response agencies. Bharosa et al. observed six three-hour simulations, each involving 30 disaster responders who were not given prior information about the simulation exercise. Simulation observers recorded data related to a standard protocol, which contained questions regarding coordination and information flow among responders and information systems, such as event logs used by the responders during the simulation exercise. Additionally, 75 of the 180 responders completed a survey. Bharosa et al. observed the complexity in sharing information in a networked structure during a crisis response, noting that responders might be overwhelmed in the aftermath of a

tragedy and therefore might not want to be distracted with tasks outside of life saving activities, such as information sharing. Bharosa et al. concluded that information sharing is critical to an effective organizational response; however, they noted that many organizations were much better at 'receiving' than 'providing' information. This suggested that information sharing was one of a multitude of fundamental components contributing to an effective knowledge management system for organizational response. Bharosa et al. highlighted that in order to effectively respond to a crisis, organizational leaders must be able to adapt organizational structures and systems to the external environment. They further illustrated that sharing of information in a crisis response is a critical element for organizational success, and without proper structures leaders were unable to effectively manage the information.

Kapucu (2008) surveyed county emergency response managers from Florida following the 2004 hurricane season in order to understand how county emergency managers effectively prepared organizational response mechanisms in light of repeated disasters. Sixty-six out of 67 county emergency leaders, four city emergency operations centers, and the state emergency management office completed a questionnaire following the 2004 hurricane season. The survey assessed manager perspectives on organizational preparedness activities and their role in the emergency response planning process by focusing questions on collaboration, coordination strategies, community awareness, community responsiveness, and organizational (community) response mechanisms. Kapucu established that collaboration and communication were fundamental competencies required for leaders involved in disaster preparation, noting that both collaboration and communication led to more effective situational awareness. In Kapucu's scenario, communication for preparation included simulation exercises with the entire network of

responders and agencies. This research affirmed proposition one, whereby leaders who were aware of the environment were better positioned to effectively respond to changing scenarios.

Mostafa, Sheaff, Morris, and Ingham (2004) studied crisis management in the health sector in Egypt to examine the factors for effective organizational preparation. Mostafa et al. discovered that organizations with a strategic perspective benefited twice - first, the organization was more adaptable to the changing environmental context, and second, due to long-term planning, it was less prone to organizational crisis (p. 402). Additionally, Mostafa et al. found that, within the strategic planning process, a focus on the external environment afforded more effective preparation and response to crises. Of 500 questionnaires mailed to a random sample of hospital managers (70% identified as top executive or board member) in Egypt, 259 were included in the final assessment. The assessment survey was the 24-question Strategic Preparation for Crisis Management survey developed and validated by Reilly (as cited by Mostafa et al., 2004) in the United States banking sector. However, it was the first time the tool was utilized in the Arab world (Mostafa et al., 2004). The Cronbach's alpha for the survey was (0.897). Mostafa et al. concluded that organizations with a strong external awareness were better positioned to reduce uncertainty and therefore better prepared to respond to crises. Similarly, as organizational complexity (which was based on organizational size and complexity of services offered) increased, organizational preparation and response effectiveness decreased (Mostafa et al., 2004). This study supports propositions one and three, whereby leaders must not only be aware of the external environment but also be flexible to the changes inherent in a crisis scenario to effectively prepare and respond.

Katz, Staiti, and McKenzie (2006) conducted telephone and in person interviews with 155 people across 12 sites in the United States in order to obtain an unbiased perspective of the impact of public health funding and priorities between 2003 and 2005. The interviews included three public health agency executives, five hospital executives, two community health center executives, and a representative from a community health partner (non-governmental organization) and were conducted to understand how changes in funding and capacity building in public health are impacting community preparedness in a crisis. A comparison with data collected by the Center for Studying Health System Changes from 2002-2003 to determine positive or negative changes in preparedness was developed (Katz et al., 2006). Consistent with the 2002-2003 findings, Katz et al. concluded that external organizational collaboration in preparation for and during the response was critical. Respondents from the Miami site, who claimed flexibility was a valuable asset to being prepared, noted that training and simulation exercises "fostered a high level of cooperation among the various players in the emergency response system, in turn resulting in a smoother response to a series of hurricanes in 2004" (p. 950).

Pathirage et al. (2012) studied how knowledge management impacts organizational preparation for and response to a crisis, recognizing that for an organization to be effective, it must have the "right knowledge, in the right place, at the right time" (p. 239). Pathirage et al. conducted semi-structured interviews with five Sri Lankan disaster management experts in order to understand the role knowledge management played in the preparation, recovery and rehabilitation cycles of crises within eight broad taxonomies; "technological, social, environmental, legal, economical, operational/managerial, institutional and political" (p. 241). For this dissertation the operational/managerial and environmental sections were most relevant to leader competencies, and included planning, coordination, collaboration,

and structure. However, Pathirage et al. recognized that technological and social categories were closely linked with operational/managerial competencies and directly influenced each other during a crisis. Pathirage's et al. analysis found that improvement, in terms of timeliness in the decision-making process, was an identified need. A second need was stronger connectedness to the communities where the crisis occurred in order to facilitate communication. This study has two major limitations. First, the small sample size might hinder the generalization of the findings, and second, there is a lack of discussion on the content analysis. The study focused on knowledge management in preparation for a disaster, which is an important aspect for leaders working in an ambiguous and uncertain context, however, it did not affirm any of the propositions of this dissertation.

Critical Factors in Leader Preparedness and Response to Crises

This section reviews the literature on how leaders of organizations confronting crises are able to maintain structures and systems through continuous scanning of the current environment and adapting the organization for an effective response. This segment of the chapter focused primarily on proposition one by examining the influence of contextual awareness on organizational effectiveness, however study results were found to have a relationship to each of the propositions.

Kimberlin, Schwartz, and Austin (2011) studied 12 non-profit human services organizations from a historical perspective to understand their effectiveness and found leaders' appreciation of the external environment was a critical factor for leadership in preparing for, mitigating, and responding to crises, not only for organizational survival, but also for organizational growth. This two-stage study explored organizational effectiveness by better understanding the organizational history holistically. The study started with data collection at 12 human services-oriented organizations with at least a 20-year existence in

the San Francisco Bay area. Data categories included: client diversity, human service focus, and size of budget (from less than a million to over 20 million). In order to identify key practices for organizational effectiveness, the second stage of the study examined the leadership themes that emerged from a review of a cross-tabulation of the information collected on each organization's history (Kimberlin et al., 2011). Kimberlin et al. stated leaders must conduct an environmental scan in order to understand stakeholders' attitude for positive and negative impact on the organization's mission and vision. Furthermore, they concluded, "the early identification of these environmental factors provides the organization with ample time to either cultivate collaborative relationships or develop a planned response to those who may challenge the organization's mission and vision" (p.11).

Peterson and Van Fleet (2008) sampled 222 professionals (non-managers) working in more than 100 nonprofit organizations in the southwestern United States in order to prioritize and compare the fundamental competencies for leaders, both in crisis and in stable situations. The questionnaire utilized in the survey consisted of a 25-item managerial survey previously developed by Peterson and Van Fleet. The survey participants selected 10 of the behaviors leaders should demonstrate as important during a crisis, where crisis was defined as "an urgent situation that required an immediate response due to irreversible losses" (Peterson & Van Fleet, 2008). Figure 3 illustrates the percentages attributed to each competency, distinguishing between a stable situation and a crisis scenario by the respondents.

Managerial leadership behavior	*Stable %*	*Crisis %*
1. Managerial leader **emphasizes** the importance of employee's **performance**, tries to improve productivity, and tries to keep employees working up to their ability.	45.1	39.2
2. Managerial leader **is friendly**, supportive, and **considerate** in his or her behavior toward employees and tries to be fair and objective.	63.5	39.2
3. Managerial leader **stimulates enthusiasm** among employees for the work and builds employees' confidence in their ability to perform assignments successfully.	60.8	53.2
4. Managerial leader **provides praise and recognition** to employees with effective performance, shows appreciation for their contributions, and makes sure the employees get credit for their ideas and suggestions.	60.4	35.1
5. Managerial leader **rewards** effective employee **performance** with tangible benefits such as a pay increase, promotion, more desirable assignment, better work schedule, or more time off.	44.6	19.4
6. Managerial leader **consults** with **employees** and otherwise allows them to influence his or her decisions.	37.4	33.8
7. Managerial leader **delegates authority** and responsibility to employees and allows them to determine how to do their work.	49.1	33.8
8. Managerial leader **informs** employees **about** their duties and **responsibilities**, specifies the rules and policies that must be observed, and lets employees know what is expected of them.	50.9	55.0
9. Managerial leader **emphasizes** the importance of setting specific performance **goals** for each important aspect of the employee's job.	24.3	23.9
10. Managerial leader **determines training needs** for employees, and provides any necessary training and coaching.	29.3	20.3
11. Managerial leader **keeps employees informed** about developments that affect their work, including events in other work units or outside the organization, and decisions made by higher management.	63.1	70.3
12. Managerial leader **takes** the **initiative** in proposing solutions to serious work-related problems and acts decisively to deal with such problems when a prompt solution is needed.	32.4	61.3
13. Managerial leader **coordinates** the **work** of employees, emphasizes the importance of coordination, and encourages employees to coordinate their activities.	22.5	38.7
14. Managerial leader **obtains** for employees any necessary supplies, equipment, support services, or other **resources** need to complete the work.	44.6	40.5
15. Managerial leader **establishes contacts** with other groups and important people in the organization, persuades them to appreciate and support his or her work unit, and uses his or her influence to promote and defend the interests of the work unit.	23.0	32.0
16. Managerial leader **gets employees** to be **friendly** with **each other**, cooperate with each other, and help each other.	26.1	21.6
17. Managerial leader **restrains employees** from arguing, encourages them to resolve conflicts in a constructive manner, and helps to settle conflicts and disagreements between subordinates.	12.2	33.3
18. Managerial leader **disciplines** an employee who shows consistently poor performance, violates a rule, or disobeys directions.	34.2	29.7
19. Managerial leader **plans** the work unit's future objectives and makes contingency plans for potential problems.	30.6	37.8
20. Managerial leader **eliminates** problems in the work environment and removes other **obstacles** that interfere with the work.	30.2	52.3
21. Managerial leader **measures progress** toward the performance goals and provides concrete feedback.	29.3	35.6
22. Managerial leader **builds** and maintains a strong effective **team** that recognizes the importance of shared purpose and mutual accountability.	53.2	56.8
23. Managerial leader **creates** a **clear** and compelling **direction** for the organization to pursue.	51.8	57.7
24. Managerial leader **identifies** and enforces the **norms** of the organization.	9.9	15.3
25. Managerial leader has a presence about him or her that **builds trust**, commands attention, is authentic, and credible.	69.8	64.0

Figure 3. Managerial leadership behaviors. Reprinted from "A tale of two situations: An empirical study of behavior by not-for-profit managerial leaders" by T.O. Peterson and D.D. Van Fleet, 2008, *Public Performance and Management Review,* 31, pp. 510-511. Copyright 2008 by the M.E. Sharp, Inc.

The data from Peterson and Van Fleet (2008) (Figure 3) were then analyzed against data from the same survey conducted with military personnel by Yukl and Van Fleet in 1992. Peterson and Van Fleet attempted to understand if the leadership competencies during crises and stable scenarios were the same in non-profit organizations as those in the military. Peterson and Van Fleet concluded that leadership consideration is most important in stable settings, while inspiration is necessary in both stable and crisis situations. However, problem solving was the priority competency during a crisis. This study supports

propositions one and three, where problem solving is expedited by understanding the environmental conditions of the organization. Proposition two is not specifically validated, however, it could be indirectly inferred through problem solving actions by the leader.

Charbonnier-Voirin (2011) conducted a study via a questionnaire with two independent sample (N1=102 and N2=135) participants from a range of French companies (aeronautics, metallurgy, telecommunications, retail, and services) to understand how efficiently responding to environmental change, using anticipation, situational awareness and learning, influenced organizational agility. Charbonnier-Voirin developed a qualitative measurement scale, which was pretested on 22 French managers from 'agile' companies - those companies that were determined to confront "continuous change" (p.130) as designated by an organizational consultant. Inferring that agility is not directly observable, but rather determined by various 'actions', the qualitative interviews resulted in a 30-question 'agility measurement' instrument applied to managers within their respective organization. The survey had four thematic areas including practices for change, practices valuing human resources, internal cooperation, and situational awareness. Charbonnier-Voirin confirmed agility as a fundamental leadership competency for generating organizational agility when preparing and responding to complex and uncertain scenarios.

Charbonnier-Vorin (2011) concluded that the measurement tool was a valid indication of organizational agility and at the same time highlighted the competencies necessary for organizations confronting a changing environment. One limitation of this study is the 'range' of organizations where the study was conducted (Charbonnier-Vorin, 2011). Furthermore, the author suggested that the tool would need further testing in dynamic environments, not just in dynamic organizations. The competencies identified in Figure 4, in particular *proactivity* and *reactivity* along with internal and external

cooperation, and skills development and knowledge sharing, coincide with the competencies outlined in all three propositions of this study.

Dimension	M	SD	1	2	3	4	5	6	7	8	9	10
1. Proactivity	4.42	1.06	-									
2. Reactivity	4.21	.960	.402**	-								
3. Communication of the strategic vision	5.16	1.01	.297**	.365**	-							
4. Performance evaluation and recognition	5.03	1.05	.444**	.515**	.375**	-						
5. Skills development and knowledge sharing	4.91	.986	.332**	.317**	.484**	.388**	-					
6. Creativity and continuous improvement	5.39	.911	.448**	.347**.	.404**	.424**	.378**	-				
7. Delegation of responsibilities	5.21	.945	.364**	.253**	.226**	.278**	.253**	.371**	-			
8. Internal cooperation	5.54	.864	.403**	.399**	.380**	.368**	.347**	.564**	.49**	-		
9. External cooperation	4.41	1.24	.280**	.144*	.045	.144	.141	.131	.134	.291**	-	
10. Knowledge of customers	5.40	.962	.465**	.345**	.284**	.255**	.181*	.276**	.159	.323**	.124	-
11. Anticipating customer-related change	4.30	1.30	.451**	.367**	.153	.316**	.176*	.302**	.209**	.250**	.290**	.456**

*$p < 0.05$, **$p < 0.01$

Figure 4. Organizational agility dimensions and correlations. Reprinted from "The development and partial testing of the psychometric properties of a measurement scale of organizational agility" by A. Charbonnier-Voirin, 2011, *Management,* 14, p. 143. Copyright 2011 by the Association Internationale de Management Strategique

Thomas et al.'s (1993) findings asserted the concept of 'sensemaking' was more than simply understanding and appreciating the information, but also leadership acting on interpretation and assessment, which they labeled "reciprocal interaction of information seeking, meaning ascription, and action" (p. 240). These leadership competencies linked to a leader's ability to make sense of the changing context and environment through an iterative process were underpinning concepts of Weick's (1993) definition of sensemaking. Utilizing these concepts, Thomas et al. (1993) surveyed 156 leaders within the health care industry in Sweden and established that scanning, interpretation, and subsequent action by leaders had a relationship to organizational performance (p. 253). Thomas et al. found environmental scanning was an antecedent to interpretation and action, and was the process by which information was gathered. However, interpretation was the mental process by which leaders were able to fit the information into the organizational structure and implement actions or adapt to the changes stemming from the interpretation (Thomas et al.

1993, p. 241). This research confirms proposition one and has provided insight into the importance of environmental awareness applied through sensemaking by leadership.

Van Wart and Kapucu (2011) conducted a survey of 17 senior disaster managers from across the United States. The mixed methods survey (using both qualitative and quantitative questions) asked leaders to select five to ten competencies from a predefined list of 37 competencies and provide written feedback on what characteristics exemplified leadership effectiveness during crises (Figure 5). Van Wart and Kapucu targeted managers from states with higher propensity to disasters such as California, Florida, Louisiana, and New York. The mean response rate for the selected competencies within each survey was 10.7 (see Figure 5). Thus the respondents considered flexibility, decisiveness and willingness to accept responsibility as fundamental leadership competencies for crisis response (Van Wart & Kapucu, 2011). Van Wart and Kapucu were able to discern that the leadership competencies necessary in preparing for crises were distinct from those competencies needed for responding to crises. Furthermore, the responses indicated that motivating others was not a contributing factor for effective performance during the initial stage of the crisis response, but it did become important in the recovery phase. Figure 5 outlines the results from the survey for the selection of priority traits for disaster leaders. Willingness to assume responsibility and flexibility were fundamental characteristics leading to operational effectiveness (Van Wart & Kapucu, 2011). This study supports proposition two; however, the authors concluded that environmental scanning was not considered a necessary or a highly valued trait and thus the study does not affirm proposition one.

Traits	Rate	Skills	Rate
Self-confidence	8	Communication	9
Decisiveness	11	Social Skills	6
Resilience	7	Influencing and negotiating	5
Energy	5	Analytic skills	9
need for achievement	2	Technical skills	2
Willingness to assume responsibility	13	Continual learning	2
Flexibility	12		
Service motivation	3		
Personal integrity	3		
Emotional maturity	5		

Leadership behaviors	Rate	People-oriented behaviors	Rate
Monitor and assess work	4	Consult	2
Operations planning	6	Plan and organize personnel	0
Clarify roles	3	Develop staff	4
Inform	4	Motivate	6
Delegate	8	Manage teams and team build	8
Problem solving	4	Manage personnnel conflict	2
Manage innovation and creativty	2	Manage personnel change	0

Organizational behaviors	Rate
Scan the environment	3
Strategic planning	4
Articulate the mission and vision	6
Network and partner	7
Perfrom general management functio	0
Decision making	6
Manage organizational change	1

Figure 5. Generic leadership traits and response rate. Reprinted from "Crisis management competencies" by M. Van Wart and N. Kapucu, 2011, *Public Management Review*, 13, p. 502. Copyright 2011 by Taylor & Francis.

Scott and Trethewey (2008) conducted an ethnographic study of a large metropolitan fire department from the southwestern United States to understand better how organizations manage situational ambiguity. Direct observation through 'ride-alongs' with the fire department, combined with 38 informal and semi-structured interviews with 22 firefighters, five captains, and 11 administrators resulted in 131 hours of observation. Additionally, focus group interviews following an 'event' supplemented the ethnographic data. The coding of data resulted in categories for how the firefighters perceived risk – uncertain, novel, ambiguous, or emergent. Scott and Trethewey asserted that ambiguity within high-reliability organizations was counteracted through agile actions underpinned by information

sharing and environmental scanning. They further noted, based on their 38 semi-structured interviews, firefighters managed ambiguity by employing risk attenuation strategies, such as ongoing firefighter training and risk awareness. Scott and Trethewey noted much of the discourse among the firefighters concentrated on unexpected and emergent scenarios which lead to situational ambiguity, however the "firefighters were particularly adept at downplaying hazards by emphasizing the importance of speed in managing the incidents, particularly fires" (p. 309). Scott and Trethewey concluded that risk assessment and validation through organizational discourse is not a static process and must continually be updated and reevaluated (specifically as the crisis unfolds), providing support for propositions two and three.

Baran and Scott (2010) studied leadership and the phenomenon of ambiguity in high reliability organizations confronting crises by analyzing voluntarily submitted reports drawn from a national database consisting of descriptions of ambiguous and dangerous circumstances physically threatening to a firefighter. Baran and Scott recognized ambiguity as a context with insufficient and equivocal information, not particular to specific occurrences or organizations and existed and affected all individuals (workers, leaders, governance). However, ambiguity was more prevalent in high-reliability organizations (organizations under constant threat of disaster, similar to fire departments). Baran and Scott supplemented the fire fighters reports with participant observations, which provided better understanding of fire fighting operations and thus an ability to interpret the information in the reports with greater understanding. The authors concluded that situational awareness, knowledge, and communication provided leaders with more effective decision-making in challenging circumstances. However, Baran and Scott claimed that ambiguity, when assessed from a psychological perspective, was viewed quite differently

by any two distinct individuals or organizations and noted ambiguity was not duplicative across individuals or organizations, giving the perception that scales of ambiguity exist. This study affirms propositions one and two, highlighting leaders who are able to adapt to a dynamic and fluid environment provide a more effective response to crises.

Because of the similarities in organizational structure, studies of a virtual team were used as a proxy for NSO structures. Thomas and Bostrom (2008) studied the influence of technology on trust in virtual teams (using data from six of the top 10 information technology-outsourcing companies), and highlighted that integrity has significant influence over establishing trust among group members. Similarly, Thomas and Bostrom found, in virtual information and communication technology teams, that trust and cooperation were associated with improved team performance. While there has been discussion in academia on the structure of virtual teams, the field of study could be enhanced with more empirical evidence regarding competencies or skills required to make leaders successful when leading a virtual team (Thomas & Bostrom, 2008). This study relates to propositions one and two, whereby leaders must have an appreciation for the internal intricacies of an organization and distinguish between competencies needed to manage 'traditional' compared to 'virtual' organizations in order to effectively prepare for and respond to crises.

Jarvenpaa, Knoll, and Leidner (1998) examined collaboration in virtual settings, noting that trust played a critical role in organizational goal accomplishment. Jarvenpaa et al. (1998) assessed trust over an extended period and found that trust among virtual team members directly related to perceived ability and integrity. However, after a one-month period, ability was less important in establishing trust, while integrity and benevolence were more important. Jarvenpaa et al. concluded that a high degree of trust among virtual teams resulted in greater follower motivation and organizational goal accomplishment

compared to teams confronting lower degrees of trust determined on a five-point scale for ability, benevolence, and integrity of team members. Jarvenpaa et al. stated that "proactive behavior, empathetic task communication, positive tone, rotating team leadership, task goal clarity, role division, time management, and frequent interaction" were some of the leadership strategies necessitating trust (p. 60). Jarvenpaa et al. found that virtual team members adjusted or adapted to the importance placed on specific dimensions of other team members over time, which would indicate that there was flexibility among the individuals in this organizational structure. This study supports proposition two by demonstrating that leaders of virtual team structures must adapt to changing contexts and be flexible in defining team performance expectations in order to influence organizational effectiveness.

Lalonde (2004) conducted a case study of a 1998 ice storm in Quebec, and subsequently developed a taxonomy and corresponding attributes for leadership competencies needed for dealing with a crisis situation. The study found that categorizing crisis leadership management attributes into taxonomies assists organizations in identifying the critical skill gaps in preparing for, mitigating, and responding to a crisis. The results of the study provided evidence of those competencies leaders must possess and exhibit to effectively deal with crises situations. The interviews were conducted within a 'single' organization, the Local Center of Community Services (CLSC). While each of the nine participating centers was autonomous, they nonetheless linked in organizational mission, and thus formed a networked structure. Fifty-nine professionals from within the nine CLSC Centers and 25 organizational collaborators participated in the study. Lalonde determined that the leaders' behaviors clustered around three leadership styles: collectivists, integrators, and reactives. The collectivists served as the community protector and provider, and the integrators provided a solution and utilized or networked with others.

The reactives concentrated on timeliness, providing the service to the affected community or population as quickly as possible. Each of the three groups demonstrated competencies corresponding to the propositions of this study. For example, the collectivists were characterized by their agility, while the reactives were known for their ability to assess the environment and react accordingly. This study supports propositions one and two.

Gibson and Birkinshaw (2004) conducted a mixed methods study to determine the antecedent conditions of 'contextual ambidexterity', which encompasses unification and alignment behind a common goal and adaptability to a changing environment (p. 209). The first phase of the study included a two-stage process that began with a random stratified survey of 4,100 individuals spread across 41 business units from 10 multinational companies based in Asia, Europe, and North America. The second phase of the study included interviews with 10 top executives and middle managers from two to seven units within each company. The survey and interview results were synthesized and the findings were validated with colleagues from each of the managers' firms (Gibson & Birkinshaw, 2004). The survey measured unit-level leadership characteristics based on three category types: organizational context, ambidexterity, and performance. Organizational context was identified by Ghoshal and Bartlett (as cited in Gibson & Birkinshaw, 2004), which included discipline, stretch, support, and trust. Figure 6 provides the correlations among the variables. Ambidexterity was a combination of adaptability and alignment, and each had a positive correlation to one another (Gibson & Birkinshaw, 2004, p. 219). Furthermore, the interaction between alignment and adaptability correlated with performance, highlighting the significance each competency held with leaders.

Descriptive Statistics and Correlations[a]

Variable[b]	Mean	s.d.	1	2	3	4	5	6
1. Organization context	21.72	3.10						
2. Performance management	4.57	0.35	.95**					
3. Social context	4.73	0.36	.95**	.82**				
4. Ambidexterity	16.19	4.42	.55**	.59**	.47**			
5. Alignment	3.96	0.49	.33*	.30*	.33*	.81**		
6. Adaptability	4.04	0.75	.62**	.71**	.50**	.90**	.49**	
7. Performance	3.92	0.54	.59**	.62**	.51**	.78**	.59**	.75**

[a] $n = 41$ (business units).
[b] Organizational context is the multiplicative interaction of performance management and social context. Ambidexterity is the multiplicative interaction of alignment and adaptability.
* $p < .05$
** $p < .01$

Figure 6. Descriptive Statistics and Correlations. Reprinted from "The Antecedents, consequences, and mediating role of organizational ambidexterity" by C.B. Gibson and J. Birkinshaw, 2004, *Academy of Management Journal, 47*, p. 220. Copyright 2004 by the Academy of Management Journal.

Gibson and Birkinshaw (2004) concluded that organizational effectiveness was achieved when organizational systems and processes can simultaneously permit individuals (employees) to adapt to the changing environment and maintain focus on goal-oriented tasks. Gibson and Birkinshaw's findings established that leaders of global organizations and NSOs confront a wide-ranging and complex cultural dynamic, requiring continuous self-learning and adaptability to the contextual environment for long-term effectiveness and efficiency. This study supports proposition two, suggesting that flexible and agile leaders are fundamental to effective (in terms of overall performance) organizations.

Moynihan (2008) examined learning in networked organizations using an organizational response to a crisis as a case study for better understanding how leaders were influenced by uncertainty and how network structures influenced organizational learning. Drawing upon the exotic Newcastle disease (END) outbreak in California at the end of October 2002, Moynihan, interviewed 13 senior managers from organizations involved in

the network — the Policy and Program Development Unit of the Animal and Plant Health Inspection Service (APHIS, part of the U.S. Department of Agriculture), the Animal Health and Food Safety Services (AHFSS, part of the California Department of Food and Agriculture), and state and federal forest service officials. The interview data collected was underpinned by two extensive reports. The first report was an after-action report by the APHIS and a second document was the 343-page outside review compendium by the CNA Corporation commissioned by APHIS (p. 354). Moynihan provided the following list of barriers to learning during crisis (p. 351):

- The high consequentiality of crises decision-making makes trial and error learning prohibitive.
- Crises require inter-organizational rather than organizational learning.
- There is a lack of relevant experience, heuristics, management SOPs, or technologies to draw on.
- The scope of learning required is greater than a routine situation.
- The ambiguity of previous experiences gives rise to faulty lesson-drawing.
- Crises narrow focus and limit information processing.
- There is a rigidity of response: actors recycle old to new problems.
- Political dynamics give rise to bargaining and suboptimal decisions.
- Crises provoke defensive postures and denial of the problem, responsibility, or error.
- Crises provoke opportunism as actors focus on their positive role.

Moynihan (2008) parsed the relationship between crisis and learning, whereby learning from a singular event generating changes for a similar event (intercrises) was differentiated from learning that improved response during a single crisis episode – intracrises (p. 352). In the case of END, both constructs appeared viable as there was limited knowledge on END, and the END outbreak developed over several months, giving organizations within

the network ample time to learn and adapt organizational decisions accordingly and thereby validate assumptions. Moynihan identified a number of areas where learning within networks did occur (p. 356):

- Virtual experience: Identify which categories of lessons are suitable for pre-training and on-the-job training.
- Other network members: Bring together appropriate complementary skills, identify skills that are capable of being learned and those that are better left to already trained specialists.
- Information systems: Create timely information systems that monitor allocation and achievement of tasks.
- Learning forums: Ensure that information is examined and discussed on a regular basis and that it shapes operational decisions.
- Standard Operating Procedures: Build and disseminate formal routines where none exist.
- The past: Draw lessons from the past cautiously and sparingly, remaining aware of differences with present. Generic management systems and skills are easier to transfer.

Moynihan (2008) concluded that these findings were not necessarily replicable in other network contexts, particularly when focusing on the varying degrees of centrality between the network members and the voluntary forms of coordination, which vary in each network structure (p. 361). This study supports propositions one and three, affirming leaders who were situationally aware, communicative, and facilitated learning contributed to more effective organizational operations during crises.

Relationship between Leaders' Competencies and Effective NSOs

In this section, the literature analysis revolved around managers building organizational resiliency based on uncertain and ambiguous disaster scenarios. Organizational resiliency underpins organizational effectiveness through adaptability and

flexibility constructs. In particular, resilient organizations are those that have systems and structures in place that permit a return to stable operations following a crisis (Bhamra et al., 2011). Thus resilient organizations adequately adapt to the changed environment.

Nolte and Boenigk (2011) conducted a case study of public nonprofit partnerships in a disaster context, utilizing seven organizations following the 2010 Haiti earthquake, in order to determine the effectiveness of organizational networks during crisis response. The authors conducted telephone interviews with representatives from each of the seven organizations and collected secondary data from the ReliefWeb website (www.reliefweb.org) regarding network collaboration to corroborate organizational connectedness. Appendix C illustrates the number of positive responses for each network trait. Communications, trust, and experience were the three traits selected consistently as fundamental for establishing networks following a crises. Furthermore, Nolte and Boenigk argued appropriateness, acceptance, and efficiency were three dimensions for determining effectiveness of the network. Nolte and Boenigk concluded that a critical factor for network effectiveness was commitment to a common goal; however, the authors determined that communication and trust among the networked organizations were fundamental to an effective response to a crisis (Nolte & Boenigk, 2011, p. 1398). From this author's perspective, one limitation in this article relating to trust and communication was the lack of consideration of the rotation of personnel in crisis situations, and how frequent staff turnover in high stress crises situations might influence communication and trust. A second concern was with the methodology and the limited explanation of the interviewees' comments. Despite its limitations, this study, conducted shortly after the Haiti earthquake, was considered significant in terms of numbers of organizations responding, and thus provided a valuable opportunity to study the networking phenomenon. This case

study supports propositions one and two, in that it provides evidence that both leadership flexibility and agile decision-making in response to the changing environment as measured by effective collaboration and partnerships, underpinned by efficient communication, were important inputs for organizational response to crises.

McGuire and Silvia (2009) explored the impact of leadership behaviors on network effectiveness, within the confines of a disaster scenario. McGuire and Silvia defined a network as an integrated structure with multiple linkages cutting across thematic and process dimensions (p. 35). Surveying 2,486 county emergency response managers in 46 states and the District of Colombia, the three-part survey focused on leadership behavior within the organization and within the network, with the final section addressing the network itself. McGuire and Silvia incorporated 36 questions into the survey within four broad leadership dimensions – activation, framing, mobilizing, and synthesizing, which responded to a five-point Likert scale. Activation included behaviors that encompassed identification and incorporation of individuals and other resources to ensure functionality of the network. Framing referred to those behaviors that facilitated agreement within the network, such as roles and responsibilities, as well as rules of engagement of the network. Mobilizing referred to those behaviors that entailed engaging with stakeholders for the purpose of strengthening processes within the network and finally, synthesizing encompassed those traits that created a favorable environment among network participants (McGuire & Silvia, 2009, p. 39). The Cronbach's alpha for the four indexes, activation - .79, framing - .89, mobilizing - .90 and synthesizing - .90, indicated a high reliability of the measures (McGuire & Silvia, 2009, p. 47). Control variables were organizational size, number of declared disasters by the Federal Emergency Management Agency, professional certification, and level of education. McGuire and Silvia concluded that mobilizing and

synthesizing behaviors were statistically significant with $p < 0.05$, and were positively associated with the perception of network effectiveness (p. 52). Framing behaviors were slightly less significant with a $p < .061$ and negatively associated with the network effectiveness (McGuire & Silvia, 2009, p. 52). The conclusions reached by McGuire and Silvia demonstrated that stakeholder awareness and communication, along with mobilizing external actors, were critical for leaders to ensure effective networks in disaster response scenarios. This study supports propositions one and three by underscoring the importance of leadership awareness and understanding of the internal and external environment, as well as by highlighting the significance of information exchange and learning.

Vasavada (2013) explored the key factors that influenced the effectiveness of organizational network management during crisis, utilizing the 2001 earthquake response in Gujarat, India, as a case study. Following the earthquake, the state government established a response agency to oversee, implement, and coordinate all response actions on behalf of the government through the Gujarat State Disaster Management Authority (GSDMA). The GSDMA included a broad network of governmental agencies, non-governmental organizations, the private sector, and international organizations, replacing the government's sole efforts with cross-sector collaboration. Vasavada collected data through interviews with 34 individuals consisting of 19 government employees, eight from non-profit organizations, two from accounting firms, one individual each from academia and from business, and finally three from international funding (donor) agencies. The data obtained through the interview process centered on the concepts of "trust, number of participants in the network, level of goal consensus among the network partners and the network-level competencies to meet the internal and external needs and demands of the network" (p. 369). GSDMA governance centrality was a critical factor for influence and

decision-making (Vasavada, 2013, p. 370). The governance centrality enabled the integration of specialty skills by facilitating interdependent relationships to achieve the network goal, indicating that network leadership stemmed from the combination of power, legitimacy, and resource dependence on others within the network (Vasavada, 2013, p. 374). Thus, the network leader ensuring that the network effectively reached a unified goal supports proposition two, whereby flexibility and agile decision-making in dynamic and fluid scenarios positively influenced network structures for a more effective response in crises scenarios. Furthermore, the leader of the organization at the center of the network played "an important role in relaying information to the network members and also administers the financial resources provided by the international funding agencies" (Vasavada, 2013, p. 372).

Marcum, Bevc, and Butts (2012) reexamined data collected via interview and a self-administered questionnaire from a Drabek (as cited in Marcum et al., 2012) study of managers of Search and Rescue (SAR) networks following seven separate response operations. The intent of Drabek's study was to gain insight into organizational network effectiveness during a crisis. Marcum et al. claimed the richness of the data from the Drabek study remained unsurpassed 30 years later "and constitutes the largest single collection of response operations with systematically collected and directly comparable network data to date" (p. 520). Marcum et al. reexamined the data to better comprehend the relationship between network communication and collaboration for greater organizational effectiveness in crisis response. The data collected by Drabek (as cited in Marcum et al., 2012) followed emergency operations of multiple 'types' of disasters - flooding, hurricanes, and tornados from 137 organizations (Marcum et al., 2012). The five communication ranges utilized in the study were 1) continuously, 2) about once per hour, 3)

every few hours, 4) about once a day, and finally, 5) no communication (Marcum et al., 2012). Assessing the organizational connectedness by measuring the organizational communication structure and systems, Marcum et al. concluded that network collaboration and communication (direct or indirect) were important for effective organizational response to a crisis. Therefore, this study supports proposition three.

Hamlin et al. (2011) conducted a study of a networked nonprofit organization based in the United Kingdom to understand how environmental context influenced effective (and least effective) senior leadership behaviors. Utilizing previously tested public sector leadership findings from Hamlin (2009) (as cited in Hamlin et al., 2011), the purpose of the current study was to determine if the same criteria were applicable in the nonprofit sector. The study was conducted in two phases. The first phase was a critical incident technique, whereby observation data was collected from 50 senior and middle managers out of 400 possible candidates employed by a variety of business units and locations across the United Kingdom (Hamlin et al., 2011). The data collected during this phase was analyzed with three considerations; sameness (two or more descriptions were identical or near identical), similarity (descriptions were different but had similar meaning) and congruence (elements of sameness or similarity in descriptors), and was then evaluated to formulate common competencies for effective leadership. The critical incident technique resulted in 42 effective behaviors shown in Figure 7.

(1) Shows genuine care and concern
(2) Speaks to people individually, showing a genuine interest by using names and personal anecdotes
(3) Says 'thank you' and recognizes performance in a personalized way
(4) Consults, includes and involves others in decision-making, listens to ideas and is open to people's views
(5) Identifies the right people, at the right time for the right tasks
(6) Gives personal praise, acknowledges achievements, good work, commitment, ideas and celebrates success
(7) Greets (and interacts with) others in an approachable, warm and welcoming manner
(8) Forwards important, appropriate and relevant information to team members promptly
(9) Is consistent in returning calls promptly
(10) Respects, values and makes good use of individual strengths
(11) Does what they say they are going to do
(12) Expresses complicated, specialist knowledge in simple terms, avoiding jargon or 'excluding' language
(13) Encourages and supports team members' personal development and career opportunities
(14) Maintains meeting agendas while creating a climate for everyone to feel able and confident to contribute by encouraging participation
(15) Proactively monitors and immediately responds to shortfalls in performance standards, questioning and challenging in a positive 'adult to adult' way before taking action
(16) Focuses on positives and provides clear, sensitive and constructive feedback when addressing performance issues
(17) Addresses negative behaviour within a group in a clear, positive way, gaining control and re-directing focus back onto the agenda
(18) Asks probing questions in a friendly, non-aggressive way
(19) Creates a 'vision' of the 'bigger picture', explains what is required and why and checks understanding
(20) Creates a sense of identity and common purpose for a team, identifying priorities and tasks and clarifying what is expected
(21) Plans meetings in advance taking responsibility for the structure, direction and focus, sets the agenda and records action (points)
(22) Listens to customers complaints and staff issues, takes them seriously and deals with them in a positive 'adult-to-adult' way
(23) Asks questions to understand or clarify what is needed before responding to requests for information, support or service
(24) Addresses individual performance issues at the time in an 'adult-to-adult' way
(25) Builds and cultivates positive external relationships for the benefit of Anchor customers and staff
(26) Conducts regular face-to-face 1-2-1s with their team members
(27) Responds positively to requests for resources (e.g. people, budget and equipment) and allocates resources appropriately
(28) Demonstrates attention to detail and diligence
(29) Demonstrates personal passion about Anchor's purpose, vision and values through their personal behaviour enthusing others
(30) Reflects when something goes wrong and makes use of what they have learned
(31) Is flexible and willing to change direction and apologize if they make a mistake
(32) Receives feedback positively, accepts support and takes personal responsibility for their own growth and development
(33) Keeps calm when faced with potentially stressful situations, assessing the facts and potential outcomes before taking action
(34) Uses positive language, appropriate words and tone of voice to enthuse others
(35) Sets, explains and clarifies standards, boundaries and responsibilities and gives clear and concise directions (to staff)
(36) Empowers staff to make their own decisions and effectively delegates tasks and responsibilities
(37) Acts as a 'sounding board', helping others problem solve and make their own decisions by listening, questioning and exploring options
(38) Demonstrates that they are happy to help (their staff), offering support and encouragement and responding quickly to requests for help
(39) Shares broad and detailed knowledge with others openly
(40) Helps others to prioritize and manage tasks by breaking them down into chunks/ component parts
(41) Helps others clarify the outcome they want by setting challenging goals/objectives that are realistic and achievable
(42) Supports and backs up team members' decisions and judgment

Figure 7. Effective leader behaviors. Reprinted from "Perceived managerial and leadership effectiveness in a non-profit organization: an exploratory and cross-sector comparative study" by R.G. Hamlin, J. Sawyer, and L. Sage, 2011, *Human Resource Development International*, *14*, pp. 224-225. Copyright 2011 by Taylor & Francis.

The second phase included a comparison of the nonprofit data with that from the public sector data, using the same criteria - sameness, similarity, and congruence (Hamlin et al., 2011). Hamlin et al. concluded that 69.5% of the behavior statements were the same or similar between public and nonprofit leadership. The study did not rank the behaviors in order of importance or criticality, rather it confirmed their importance. The leadership factors Hamlin et al. found to be most effective were: (p. 228)

- plan ahead
- organize efficiently
- proactively control performance
- actively support their staff
- recognize and acknowledge achievement
- delegate well and empower their staff
- show care and concern for other people
- fight for the interests of and address the training and development needs of their staff
- adopt an open and personal approach
- involve employees in decision-making
- communicate and consult with staff

Flexibility was recognized in the study as a necessary competency, but was not identified as fundamental to leader effectiveness. Therefore, this study did not directly support any of the propositions, however, Hamlin et al. (2011) stated leaders must be

"flexible and willing to change direction …" (p. 225), offering proxy support for proposition two. One limitation of this study was the lack of generalizability, as it was conducted on one nonprofit organization in the United Kingdom.

Thach (2012) conducted a qualitative and quantitative interview study to determine effective leadership traits during a crisis. The study group consisted of 263 senior managers (vice president or CEO) from public (N=131) and private (N=132) organizations in the state of California. Thach (2012) utilized seven open-ended and 11 short answer questions, targeting organizations from a large metropolitan area (undefined) in California. Interviews were conducted face-to-face by trained students and lasted 30-60 minutes. The types of employers represented in the final survey group consisted of public sector - 58%, nonprofit - 16%, local government - 11%, education including state government services, not-for-profit, federal government, and legal services at 4%, 3%, 2%, and 2% respectively. The types of industries represented consisted of professional firms and businesses - 22%, hospitality and leisure industry - 19%, retail – 14%, consumer goods – 9%, and construction, winery, manufacturing and other at 8%, 7%, 7% and 14 % respectively. Thach utilized an economic crisis scenario as background for the study. However, the findings were considered relevant for this study in identifying which specific leadership competencies were determined fundamental during a financial crisis in both non-profit and private sector organizations. Thach assessed the importance of leadership within the two sectors and found that in private organizations the importance of leadership was assessed at a mean of 9.36 and in public organizations it was assessed at a mean of 9.31 (using a scale of 1 = very low and 10 = very high). Additionally, Thach applied a t-test with no significant difference between groups, suggesting that regardless of type of organization, leadership is perceived as equally important to all organizations during a crisis. Thach

coded the responses and used a decision rule that required a minimum of three responses in order for a competency to be established. Figure 8 depicts the leadership competencies considered critical and their respective response rates (Thach, 2012).

Leadership Theme by How Frequently Identified	Freq. Profits	% Profits	Freq. Public	% Public
Lead by Example/Role Model	30	0.18	27	0.17
Motivate/Engage Others	25	0.15	20	0.13
Set and Achieve Goals	20	0.12	18	0.11
Provide Vision	13	0.08	16	0.10
Provide Inspiration	12	0.07	9	0.06
Communicate Well	9	0.05	8	0.05
Combination of Skills/Attributes	7	0.04	2	0.01
Delegate More	6	0.04	3	0.02
Be Positive	5	0.03	3	0.02
Influence Others	4	0.02	8	0.05
Build Relationships	4	0.02	5	0.03
Respect Others	4	0.02	6	0.04
Teach/Develop Others	4	0.02	5	0.03
Promote Teamwork	4	0.02	3	0.02
Empower Others	3	0.02	2	0.01
Get Others to Focus	3	0.02	0	0.00
Provide Guidance/Support	6	0.04	10	0.06
Develop Trust	3	0.02	2	0.01
Promote Integrity/Honest	2	0.01	6	0.04
Listen to Others	1	0.01	5	0.03
Total For Analysis	**165**	**1**	**158**	**1**
Comments with less than 3 responses	21	NA	39	NA
Total of All Comments	186	NA	197	NA

Figure 8. Definitions of leadership by for-profit and public organizations. Reprinted from "Managerial perceptions of crisis leadership in public and private organizations: An interview study in the United States" by L. Thach, 2012, *International Journal of Management*, *29*, p. 720. Copyright 2012 by the International Journal of Management.

Thach (2012) concluded that many of the behaviors or leadership descriptors were similar between the for-profit and public sectors (in this study not-for-profit organizations) when confronting crises. The study supports propositions one and two, but not proposition

three. Thach determined that public organizations were most concerned about funding (fund raising) and public support, whereas organizational learning was not a directly identified priority and therefore proposition three is not affirmed.

Alaimo (2008) utilized a 20-question survey to conduct one-on-one, face-to-face interviews with executive directors from non-profit human service organizations (NHSO), supplemented by interviews with key stakeholders, to understand how the internal and external environment impacts leadership effectiveness. Alaimo examined the role leadership played in building organizational capacity via program monitoring and evaluation competencies. Forty-two executive directors from NHSOs within the Atlanta and Indianapolis metropolitan areas participated. Alaimo concluded slightly more than two-thirds of the executive directors claimed the organization used program evaluation to adapt programming. Forty-one executive directors claimed the organization benefited from program evaluation, however, less than a quarter (24%) claimed program evaluation was most useful in demonstrating organizational effectiveness. Alaimo argued leadership must understand the external and internal environment in order to balance the funding constraints typical in non-profit organizations against demonstrating effective and efficient programming. Alaimo further claimed that organizational leaders "can recognize their internal and external organizational contexts by building an internal supportive culture for evaluation capacity building (ECB), while integrating the demands from external stakeholders" (p. 77). By strengthening ECB, leadership fosters an adaptive organizational environment (Alaimo, 2008). This study supports proposition one by recognizing leaders who were aware of their external environment (i.e., program effectiveness) were fundamental to organizational adaptability and effectiveness.

Somers (2009) studied how organizational planning influenced organizational response to crisis situations. Furthermore, by viewing planning more as a process than an outcome, Somers concluded that the various competencies gleaned from planning might positively influence organizational response during a crisis. In short, Somers postulated that planning as a process builds organizational resilience by increasing adaptive capacity. Somers determined there were six factors within the relevant literature to assess organizational resilience and, if successful in addressing these factors, organizations were more effective in adapting to the context. The six factors were

- Goal-directed solution seeking
- Risk avoidance
- Critical situational understanding
- Ability of team members to fill multiple roles
- Reliance on information sources
- Access to resources

Senior management from 142 public works departments in Arizona, New Mexico, Oklahoma, and Texas were sent a survey, of which 96 (67.6% of total) were completed and returned. Figure 9 illustrates the summary statistics for the six descriptors, which were pre-tested on 11 public works managers in the southwestern United States, using a 7-point visual analog scale.

Element	Scores			Mean	SD
	Low resilience	Mid-point	High resilience		
Goal-directed solution seeking	Work teams expected to follow Standard Operating Procedures	Ability to adjust procedures within established guidelines	Teams systematically trained to improvise solutions	3.92	1.36
Risk avoidance	Employees avoid taking any significant risks	Employees seek specific direction from supervisors	Employees address problems with minimal supervisor intervention	4.65	1.14
Critical situation understanding	System and process information is access protected	Employees given access; must put problems into context	Employees gather information; consider consequences of alternative fixes	4.45	1.34
Ability to fill multiple roles	Key positions are highly specialized	Cross training/job rotation are systematic	Key positions are generalists	4.28	1.28
Reliance on information sources	Supervisors alone define direction	Employees given structured decision-making tools	Employees given knowledge; minimal supervisor intervention	4.26	1.43
Access to resources	Work teams have access to central supply cache	Work teams have access to multiple sources of materials	Work teams have authority to purchase materials as needed	4.42	1.62

Note: Reliability $\alpha = .72$.
Range of scores for all ORPS elements on the Visual Analog Scale = 1–7.
ORPS, Organizational Resilience Potential Scale.

Figure 9. Resilience descriptors and statistics. Reprinted from "Measuring resilience potential: An adaptive strategy for organizational crisis planning" by S. Somers, 2009, *Journal of Contingencies and Crisis Management, 17*, p. 16. Copyright 2009 by Blackwell Publishing Limited.

Somers (2009) concluded leaders who were situationally aware also supported organizational contingency planning and preparedness, however, the correlation was not statistically significant ($p = .256$). However, situational awareness and organizational resilience were correlated, indicating that a leader's ability to assess and synthesize the external environment for effectively preparing and responding to a crisis was critical. This study affirms proposition three.

Savoia et al. (2009) studied public health capabilities in preparation for and response to crises, simulated through three tabletop exercises with 179 public health officials from Maine and Massachusetts over a 13-month time frame. This study concentrated on five domains, however, the relevant domain for this dissertation is

leadership and management. The remaining domains - mass casualty care, communication, disease control/prevention and surveillance/epidemiology - are beyond the scope of this dissertation. A panel consisting of 10 senior level emergency experts vetted the survey tool consisting of 37 questions grouped into 11 taxonomies on leadership and management. The survey component followed a health crisis tabletop exercise that simulated a coordinated response among many organizations (Savoia et al., 2009). One hundred and twenty-six surveys out of the 179 were completed. Incomplete responses were eliminated. Cronbach's alpha was 0.95 for the five domains combined, while the coefficient for the leadership and management domain was 0.93. Savoia et al. concluded that the competencies within the leadership and management domain were relevant and fundamental to effective preparation and response to crisis. This study supports propositions one and two, whereby leaders must be able to assess and synthesize the environmental context, as well as be flexible and agile in order to effectively respond to a crisis situation.

Peus et al. (2011) examined the individual as well as group-level antecedents of authentic leadership competencies in two distinct organizational units: business organizations and research entities in Germany. Peus et al. explored the concept of authentic leadership during organizational crises by collecting data from two venues. The business study targeted 306 individuals while the research organizations had an $n = 105$. Specifically, Peus et al. empirically examined the antecedents, mediators and outcomes of authentic leadership. The business study targeted groups from two different venues. First, an on-line survey using professional platforms (Linked-In) was corroborated by randomly selected individuals in public places (p. 336). The organizational disaggregation of the sample, which included 306 individuals, included services (23.9%), health care and social affairs (12.4%), manufacturing (9.5%) as well as miscellaneous others (Peus et al., 2011, p.

336). The size of the organizations from which participants were drawn varied greatly, with almost half (46.1%) working in organizations with fewer than 500 employees, while almost a quarter (23.9%) worked in organizations with 500–5,000 employees. Less than a fifth (17.6%) worked in organizations with more than 5,000 employees and 12.4% did not specify. Additionally, the authors aimed to expand the current understanding of authentic leadership to a group setting (Peus et al., 2011, p. 339). The second study undertaken in two large government-funded research organizations surveyed employees twice. The first survey was an online assessment of employee perceptions of supervisor leadership competencies. Six weeks later, a second survey was done concentrating on supervisor satisfaction and team effectiveness (Peus et al., 2011). The second study targeted two objectives, confirming the relationship between authentic leadership and followers' work-related attitudes in an organizational context distinct from the 'traditional' business context. The authors concluded that self-awareness, relational transparency, internalized moral perspective and balanced processing are indicative of authentic leadership. Peus et al. found skills such as analyzing information, listening and moderating, compassion and expressing feelings were critical for leadership effectiveness. This study supports proposition one where leaders who were cognizant of the environmental context were more effective in crises scenarios.

Summary

Chapter 3 has provided a review of the theories and empirical literature relevant to the RQ and the three propositions. Complex adaptive systems theory, complex leadership theory, and organizational learning theory were reviewed along with the relevant empirical evidence for leadership competencies in preparation for a more effective organizational response to crises. Most of the empirical evidence reviewed related to complex adaptive

systems theory and confirmed proposition one, although two of the 11 studies did not directly address managing ambiguity and uncertainty as fundamental leadership competencies. The evidence relating to complex leadership theory demonstrated the fundamental competencies leaders must possess. Finally, organizational learning theory focused on the influence leaders' fundamental competencies have on effectively preparing for and responding to crises. Chapter 4 provides an analysis and discussion of the findings in Chapter 3 following the evidence-based research methodology outlined in Chapter 2.

Chapter 4: Analysis and Discussion

Introduction

To better understand the fundamental competencies required for effective leadership, the research for this dissertation focused on analyzing and synthesizing a broad spectrum of heterogeneous evidence. Specifically the findings strive to answer the following research question: *what are the fundamental leadership competencies that will positively influence or impact organizational effectiveness when preparing for the potential impact of natural disasters (crises) and responding to natural disasters?* Organizational effectiveness encompassed leader actions fostering collaboration toward minimizing or eliminating duplication and maximizing resources for the benefit of those impacted by a disaster and was achieved when the networked organization structure improved the ability of each individual organization to be better prepared and respond more efficiently than if the individual organizations were acting alone (McGuire & Silvia, 2009, p. 37). As mentioned in Chapter 1, the four dimensions used to frame organizational effectiveness were management, program, network, and legitimacy -- recognizing that these dimensions provided the basis for evaluating whether decisions and actions among NSO leaders positively impacted individuals affected by a disaster (Lecy et al., 2012). In order to answer the research question, three propositions formed the basis for framing the systematic literature review and subsequent configurative analysis and synthesis.

P1. The ambiguous and uncertain nature of natural disasters creates a need for NSO organizational leaders to acquire a keen situational awareness.

P2. Leader flexibility and agile decision-making in dynamic and fluid scenarios positively influence organizational response to and preparation for crises.

P3. A dynamic organizational learning culture improves the information and knowledge exchange within NSOs throughout the disaster life cycle.

As discussed in Chapter 2, a methodological approach for analysis and synthesis of the multifaceted variables was required in light of the complexities that influence leadership and organizational effectiveness when responding to and preparing for crises. McGuire and Silvia (2009) determined that the linkage between leader competencies and organizational effectiveness centered on sharing plans and harmonizing actions among network organizations (p. 40). For example, leadership coordination of mitigation and preparedness activities significantly influenced the effectiveness of the NSO (p. 52).

Applying the CIMO-logic by Denyer et al. (2008) permitted a methodological approach for synthesizing the literature. The CIMO-logic is an approach that strives to understand "the human condition by developing knowledge to solve field problems, i.e. problematic situations in reality" *(*Denyer et al., 2008, p. 394). The CIMO-logic stipulates that within a certain context *C,* certain interventions *I,* are manipulated by specific mechanisms *M* for achieving said outcome(s) *O (*Denyer et al., 2008). As noted in Chapter 1, the frequency and impact of natural disasters are increasing and those organizations that do not identify and nurture the fundamental leadership competencies needed to manage more effective and efficient NSOs may be in a vulnerable position, exposing populations to greater ancillary calamity and impact. Thus, the context was identified as 'natural disaster', and the outcome was a 'better-prepared and more efficient response by NSOs'. The mechanism was determined to be the 'process of responding to and preparing for crises', however, the intervention or competencies exhibited by NSO leaders were the fundamental components of the CIMO-logic this dissertation strived to answer – the essential and core competencies needed by NSO leaders.

Utilizing empirical evidence within the context of crises scenarios, an array of literature was explored regarding the influence of leadership competencies on crisis management in response to and preparation for crises. The vast majority of scholarship was published within the last decade, underscoring the contemporary nature of the literature and importance of this dissertation in assessing and synthesizing the heterogeneous scholarship from noteworthy contexts for application in crises scenarios (Peterson & Van Fleet, 2008, p. 505). Three quarters of the articles included in this dissertation (23 of 32) were published post 2008. The remaining nine, published prior to 2008, focused on leadership competencies by proxy; that is, they highlighted aspects of organizational effectiveness during crises, rather than describing precise leadership competencies. The 32 articles included in this dissertation displayed by year of publication in Figure 11 confirmed that scholarship on NSO leadership competencies exhibited during crises scenarios increased starting in 2008.

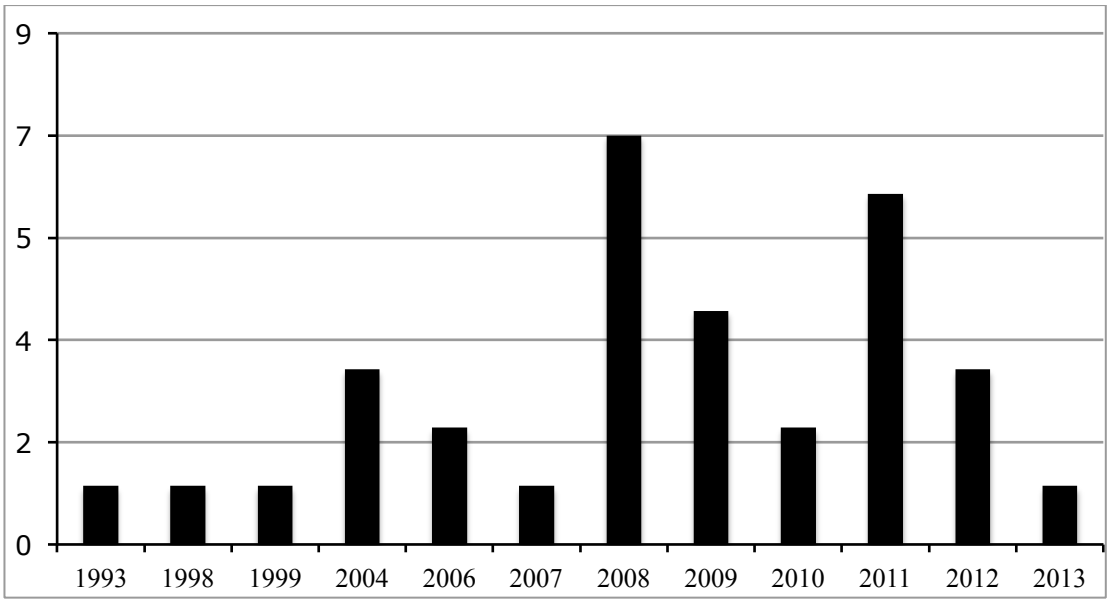

Figure 10. Articles by year of publication. Baranick (2014)

The findings were thematically grouped based on the synthesis of scholarly literature and were organized according to the three propositions. At the most fundamental level, the literature explored centered on 'knowledge' as the underpinning factor for decision-making. The literature provided an array of leadership competencies as they related to 'knowledge', such as gathering, processing, sharing, understanding, decoding, utilizing, and adapting the information, for which, without context and meaning, 'knowledge' was found to be an ambiguous concept and not useful in decision-making for responding to and preparing for a disaster.

Three findings provided a foundation for competencies related to the preparation for and response to crises scenarios as it pertained to NSO systems and structures: Finding One concentrated on leadership environmental awareness and analysis; Finding Two analyzed leader flexibility and agile decision-making; and, Finding Three focused on establishing a culture of organizational learning. Overall, NSO leaders were more successful if they had the ability to acquire the necessary knowledge of their environment by being attuned to and aware of the internal and external conditions within a dynamic and fluid scenario, and had the capability to adequately decode and process that information into decisional knowledge. Each of the three findings was based on the context of natural disaster crises and each identified the interventions (competencies) moderated by the mechanisms (processes) that achieved an outcome of organizational networks capable of minimizing operational duplication and the negative consequences of natural disasters on the individuals being affected.

Comparable to the disaster management cycle (Figure 1), the disaster life cycle (Figure 12) consists of four phases. Both cycles provide a graphical representation of the interlinked phases, which independently can involve a variety of complex sub-activities and leadership actions. Depending on a variety of factors ranging from organizational operations to community perception, the disaster life cycle can be initiated in any of the four phases. For example, from the perspective of an NSO, if the first time activities were initiated in a community following a disaster event, then the start of the cycle would be considered at the response phase. However, if the NSO was already situated in the community, prior to the event, and working to reduce the impact of an imminent natural disaster, the start of the cycle would be at the mitigation or preparedness phase. Malilay et al. (2014) noted the distinction of phases was underpinned by the crisis event, meaning pre-crises versus post-crises. "The pre-disaster period, occurring between disaster events (i.e., before the next disaster) entails work to prevent or mitigate the impact of a future disaster" (p. 2094). Likewise, for the purposes of this dissertation it was accepted that the cycle had the potential to start with any one of the phases, depending on prior interventions of the NSO, actual on-going crises, and community perspectives.

Figure 11. Disaster life cycle. Adapted from "Linking the actors and policies throughout the disaster management cycle by agreement on objectives -- a new output-oriented management approach" by S.S Greiving, S.S. Pratzler-Wanczura, K.K. Sapountzaki, F.F. Ferri , P.P Grifoni, K.K. Firus, & G.G. Xanthopoulos, 2012, *Natural Hazards & Earth System Sciences, 12,* p. 1086. Copyright 2012 by Copernicus Gesellschaft mbH.

NSO leaders must understand the critical actions and decisions needed for each of the phases of the cycle in order to possess the necessary leadership competencies required to effectively and efficiently respond to a natural disaster crisis.

Finding One: Environmental awareness underpinned effective NSO leader decision-making.

Analysis: Crises by their very nature are dynamic and fluid situations. Leaders of NSOs charged with overseeing an organizational response confront complex environments requiring specific competencies. The available evidence confirmed that environmental awareness was a fundamental competency for leaders managing crises situations (Baran & Scott, 2010; Bharosa et al., 2010; Hamlin et al., 2011; Kimberlin et al., 2011; Pathirage et al., 2012; Seville et al., 2008; Thach, 2010). For NSO leaders, the 'environment' included

any contextual factor and circumstance, either internal or external to the network, that could potentially impact the NSO's operation. Specifically, the external environment included political and cultural elements, available physical infrastructure and stakeholder perceptions, while internal environmental factors encompassed organizational networks and communication, as well as consideration of resources - both human and financial.

Environmental awareness encompassed a continuous assessment and analysis of the situational and contextual settings, followed by adequately synthesizing the information gleaned for improving NSO response and preparation actions. Baran and Scott (2010, p. S52) found that environmental awareness was underpinned by two specific leader actions - continuous analysis of assumptions and constant monitoring of the environment for changes. Leaders needed to continuously collect information, assess it, and make adjustments in response to dynamic scenarios. The resulting feedback loops among leaders led to better collaboration among NSOs. Similarly, leaders who understood the environment and the successive changes needed based on the dynamic impact of the natural disaster showed a greater likelihood to implement organizational changes resulting in effective organizational outcomes (Lin et al., 2006; Thomas et al., 1993). Moreover, leaders who were able to comprehend and utilize the incoming information and adjust the organizational system and structures accordingly were able to maintain organizational operations for a more effective response to dynamic scenarios (Kimberlin et al., 2011).

Similarly, it was found that both public and private NSO leaders confronting crises needed to possess an environmental awareness competency. The mechanisms to obtain the competency of environmental awareness varied in the public and private organizations, but the outcomes nonetheless were similar. Private sector leaders concentrated on intra-organizational behaviors and outcomes in response to the environmental issues, while

public sector leaders focused on "gaining societal support and volunteers" to assist in the recovery (Thach, 2010, p. 721). This difference highlighted that leadership environmental awareness capacity was applicable in both public and private sector organizations in crises preparation and response actions, albeit the application of the competency was targeted at different goals but had the same outcomes.

Assessment and analysis of the environment underpinned the competency of environmental awareness and the enabling sub-competencies as 'interpretation' or 'fitting the information into the situational context' (Thomas et al., 1993). NSO leaders who understood the external environment (i.e., suddenness, scale, impact, and restricted time frame) inherent in crises and were able to anticipate and decode the constraints and forces working within the environment (make sense in relationship to the current situation) improved their crisis preparation and response (Van Wart & Kapucu, 2011, p. 491). Complementing these sub-competencies were leader competencies that focused on mobilizing organizational change, scanning the environment, and embedding a system of organizational learning (Charbonnier-Voirin, 2011, p. 126). Leaders who were successful in conducting an environmental scanning and analysis process were able to obtain valuable information as a function of their environmental awareness capabilities. Providing relevant information for coding and decoding to make decisions limited the potential for ambiguity and uncertainty for future decision-making in the crises response process. This gave additional support to Argyris' (1976) double loop learning theory for organizational effectiveness. Finally, the literature confirmed that understanding and analyzing the environment was fundamental to leadership, underpinned by the interactive aspect of leadership as a "social process of reducing contextual ambiguity through interaction to achieve goals" (Baron & Scott, 2010, p. S46). The dynamic social process highlighted the

dyadic nature of environmental awareness whereby leaders analyzed and integrated the changing contextual understanding into decision-making (Baron & Scott, 2010; Peus et al., 2011).

In conclusion, environmental awareness was found to be a fundamental leadership competency underpinning effective and efficient response and recovery operations. The ability of NSO leaders to maintain a situational awareness of the uncertain and ambiguous nature of a natural disaster and the changing environment as the disaster life cycle moved through the four phases, as well as adapting to the changing context within each phase, were considered critical. The Chapter 3 study results highlighted environmental awareness, underpinned by sub-competencies of continuous analysis and review of assumptions contrasted against incoming information as critical. Finding One validated proposition one by explaining the critical importance for NSO leadership to have a keen internal and external awareness, to decode and assess the dynamic and fluid scenarios, and to positively influence organizational networks to work collaboratively throughout the disaster management cycle.

Finding Two: Leader flexibility, agility, and adaptability to contextual situations positively influence organizational response to crises.

Analysis: The synthesis of the systematic literature review confirmed that leader flexibility and agile decision-making in dynamic and fluid scenarios positively influenced organizational response to and preparation for crises. Furthermore, leader flexibility and adaptability, as found in the literature, confirmed Anderson's (1999) position within CAS theory, in that leaders confronting crises were able to positively influence organizational adjustment due to their understanding of the environmental context (p. 228). Flexibility was defined as leadership's ability to maintain operational functionality in spite of contradictory

information from within the operating environment. Therefore, leadership adaptability was the capacity to 'change' in light of new information gleaned (Kimberlin et al., 2011; Van Wart & Kapucu, 2011). In particular, leaders modified or changed a decision as an ambiguous scenario became less confusing due to the information obtained through environmental awareness. Peterson and Van Fleet (2008) determined leadership problem solving was a fundamental competency in crises settings, which was corroborated by Baran and Scott's (2010) determination that leadership's ability to "think and act quickly" (p. 52) underpinned effectiveness in crises settings. Thus, the ability for a leader to maintain flexibility and adaptability was based on a keen understanding of the environment (Baran & Scott, 2010; Gibson & Birkinshaw, 2004).

Gibson and Birkinshaw (2004), Malhotra et al. (2007), and Somers (2009) determined leadership's ability to adapt the organizational structure to the changing environment was important for an effective organizational response to crises. Furthermore, the literature demonstrated that 'adjusting' to the environment was an inherent culmination of the environmental awareness process and provided a logical linkage between situational context and agility and flexibility (Baran & Scott, 2010; Somers, 2009). Similarly, leader aptitude in assessing the environment, followed by adjusting to the fluid situation, was fundamental in crises scenarios, suggesting that adaptability and flexibility were intertwined competencies. The amalgamation of flexibility and agility for mobilizing organizational change, scanning the environment, and embedding a system of organizational learning were necessary in crises scenarios (Van Wart & Kapucu, 2011). Thus leaders who were capable of adjusting or adapting the organizational response and preparedness actions in reaction to the external environment were able to increase the impact of the NSO activities (Van Wart & Kapucu, 2011; Kimberlin et al., 2011). Overall,

the literature underscored the importance of leadership flexibility in crises scenarios whereby leadership's environmental awareness strengthened the ability to adjust to changing scenarios.

Anderson (1999) noted that highly interactive, complex systems could result in predictable behavior, while the exact opposite is also plausible, meaning very simple systems produced outcomes that were impossible to predict. No organization was exclusively complex or always simple, thus leadership flexibility was the median of these two poles whereby leaders demonstrated adaptability to change operational directions quickly (Hamlin et al., 2011; Katz et al., 2006; Seville et al., 2008). However, the literature noted that for the adaptation to be effective, leaders had to be environmentally aware (Baran & Scott, 2010; Somers, 2008). Thus, the external linkages, underpinned by stakeholder involvement, provided leadership with greater environmental awareness and, therefore, flexibility and adaptability for decision-making in response to or preparation for a crisis scenario (Kapucu, 2008; McGuire & Silvia, 2009; Seville et al., 2008).

In summary, the flexible and agile decision-making by NSO leadership was determined to be a critical competency supporting effective and efficient organizational response and preparedness initiatives. However, decision-making was not an isolated concept. The literature highlighted that flexibility, adaptability, and agility underpinned leader decision-making. Finding Two demonstrated the positive influence leader flexibility had on agile decision-making in dynamic and fluid scenarios, thereby validating Proposition Two.

Finding Three: Leader facilitated organizational learning reduced ambiguity and uncertainty.

Analysis: Organizational learning had a significant impact on organizational effectiveness and efficiency as highlighted within the scope of this dissertation. The ambiguity confronting leaders was mitigated through the transfer of knowledge, specifically when experiences from one disaster were documented and applied to similar events (Pearson & Mitroff, 1993, p.52). Alaimo (2008) underscored the value of organizational learning through feedback loops and lessons-learned analyses, both in successful crises responses as well as those not considered effective (p. 77). For leaders of NSOs to minimize the ambiguity and uncertainty that exist, it was important that the organizational structures and decision-making systems include institutionalized learning processes (Alaimo, 2008).

When leaders integrated organizational learning into the decision-making process, utilizing open information channels and regular communication with stakeholders, the potential for leaders of NSOs to identify accurately the problem and the solution increased (Alaimo, 2008; Lin et al., 2006). Furthermore, organizations learned through a multistage process of "knowledge acquisition, information dissemination, information interpretation, and organizational memory" (Kapucu, 2008, p. 246). The ability for organizations to capture the 'learning' relied on a structured knowledge management system, which played a critical role in NSO leader ability to adequately respond to crises. The literature noted organizations that established systems to capture feedback from those affected by crises recognized the importance of a knowledge management system for creating, sharing, and utilizing information, and thus reduced the impact of future disasters (Alaimo, 2008, p. 240; Pathirage et al., 2012).

NSO leaders that adequately interacted during the preparation phase of the disaster cycle with other entities involved in the response operation were more effective during the recovery phase of the operation (Kapucu, 2008; Seville et al., 2008). Information and the exchange of information both internal and external to the network organizational structure were fundamental priorities during crises scenarios (Bharosa et al., 2010; Nolte & Boenigk, 2011). The literature recognized that information collection, synthesis, and exchange enhanced a leader's ability to assess the environment. Therefore, it is incumbent upon NSO leaders to build internal and external information exchange structures to facilitate data exchange during fluid scenario developments throughout the preparation as well as the response phase of a disaster. In some instances, the flexibility stemmed from redundant information systems and structures, however, duplicative systems did not always result in positive outcomes, particularly without previously understanding the environmental context (Lin et al., 2006). Consequently, organizational learning in a crisis scenario was critical for leaders when considering the structure of an NSO. This implied that during crises, organizational learning encompassed *how* to implement an adequate organizational structure rather than prolonged dialogue regarding *if* the appropriate organizational structure should be implemented (Lin et al., 2006, p. 613).

Organizational learning was linked to knowledge management and knowledge management was the merging of the "right knowledge, in the right place, at the right time" (Pathirage et al., 2012, p. 239). Recognizing the critical nature of the dynamic and fluid situations in disaster response activities, NSO leaders cultivated a knowledge management structure that adapted to rapid changes in the external environment. The structures varied by organization; however, focused and concentrated knowledge management processes reduced uncertainty through integrated communication with stakeholders and planning with

other entities during the preparation phase of the disaster life cycle (Pathirage et al., 2012, p. 243). In a crisis scenario, transformative changes were caused through an alteration in knowledge (Peterson & Van Fleet, 2008). Thus, it was concluded, an organization prepared for a crises scenario through a structured organizational learning system built upon dynamic and fluid changes was more likely to be agile and flexible during the critical moments of the disaster response.

In summary, the analysis of the literature within the realm of Finding Three demonstrated that organizational learning had a significant impact on organizational effectiveness and efficiency. Leaders who established a robust knowledge management structure, utilizing a broad information exchange system via stakeholder communication demonstrated effectiveness and efficiency in response to crises scenarios. Finding Three validated proposition three.

Alternative Perspective

A range of concepts exists about how to manage disasters from an organizational and leadership perspective. The literature had notable areas of inconsistencies in building leader competencies to manage crises. However, the scholarly variances appeared to be more of a discrepancy about different lenses rather than completely opposing perspectives. For example, this dissertation focused on organizational learning through information exchange for strengthening leader and organizational effectiveness, whereas Mehalko (2013) and Mostafa et al. (2004) focused on interventions within the strategic planning process. In both instances, organizational effectiveness in responding to and preparing for crises was the outcome, but the path to achieve the outcomes was different. Much of the literature focused on leadership competencies provided perspectives that leader attitudes toward organizational structures and systems were pivotal in determining their

effectiveness and efficiency. Peterson and Van Fleet (2008) found that leader attributes, such as motivation and inspiration, greatly influenced organizational performance in a crisis scenario. Ismail and Ford (2008) characterized leader attributes such as integrity, collaboration, decisiveness, modesty, participation, and diplomacy as fundamental for leader effectiveness. While leadership attitudes and attributes were important, this dissertation focused on leadership competencies and traits needed by NSO leaders in order to respond effectively and efficiently to crises situations.

Hoeppner, Olson, and Larson (2010) postulated that educational curriculum and training of individuals were critical aspects of building organizational effectiveness and efficiency for disaster preparation and response. This was an intriguing perspective, albeit the evaluation of educational curriculum was beyond the scope of this dissertation.

A further alternative perspective was a theoretical debate that focused on the target of the response and preparedness activities. This dissertation focused on the organizational dimension, however some scholars stipulated, in order to have the greatest impact on reducing the consequences of disasters, the target of the preparedness interventions should be the community or individuals in harm's way (Berke & Campanella, 2006). Including stakeholders in the response and preparedness interventions was part of this dissertation, and inclusion of one group should not entail the exclusion of the others. As this dissertation has demonstrated, an integrated approach was necessary whereby both the organization and the stakeholders were included for effective organizational response and preparedness.

The additional alternative perspective related to leader flexibility. This alternate view perceived flexibility to be a potentially harmful competency, if not properly directed. Volberda (1996) noted that unchecked flexibility could lead to indecision and chaos. Thus

flexibility that has boundaries was deemed valuable, and flexibility within a deliberate environment was most beneficial. Similarly, unrestrained organizational adaptability could breed organizational overreaction and cloud organizational response and preparedness. Volberda (1996) asserted flexibility was the median between overreaction and rigidity.

Another alternative perspective targeted the notion of what constitutes a leader's set of competencies and how to measure them as adequate for any given position or job. With a range of situations and perspectives on leadership, different viewpoints on what constitute fundamental or critical competencies for leaders abound. Hamlin et al. (2011) listed a variety of leader competencies, and while flexibility was a competency listed as important, it was not identified as fundamental for effective operational outcomes.

A final alternative perspective targeted organizational effectiveness. A wide array of literature exists on organizational effectiveness measures, ranging from goal attainment to financial metrics (Forbes, 1998). In this dissertation, four dimensions were utilized: management, program, network, and legitimacy. However, the literature provided other dimensions to include organizational governance systems and structures, particularly focused on governance's interaction with management as the predominant metric for effectiveness (Forbes, 1998). This dissertation recognized the multitude of metrics for determining organizational effectiveness, but the influence of governance on organizational effectiveness was beyond the scope of this dissertation.

Summary

This chapter has presented the findings and analysis based on a synthesis of the systematic literature review. The chapter organized the evidence within the boundaries of the three propositions broadly summarized as 1) leader's ability to assess the environment, 2) leader's ability to make decisions in uncertain contexts and 3) leader's disposition

toward organizational learning. This chapter synthesized a number of heterogeneous interventions applicable to disaster response and preparedness, resulting in effective and efficient NSO structures. The author of this dissertation synthesized the empirical evidence presented in the relevant literature and presented the analysis in conjunction with the propositions outlined in Chapter 1. The analysis provided a link between leadership competencies and effective organizations as well as elaborated on the underpinning competencies fundamental for organizational response and preparedness to crises. The analysis of the findings demonstrated there were synergies among a variety of competencies required for effective organizational response in preparation for and response to a natural disaster. This was a rational conclusion, as natural disasters are unique events requiring leaders to have a multitude of self-reinforcing competencies that strengthen organizational systems and structures, not the least of which was flexible and agile decision-making informed through environmental awareness.

Chapter 5: Conceptual Framework

This chapter provides a graphical representation of the concepts and theories outlined in Chapter 3 and the findings and conclusions in Chapter 4. The purpose of the conceptual framework was to provide an illustration of interlinked concepts and related theories for understanding complex and multifaceted phenomena (Jabareen, 2009, p. 51). In this dissertation, the conceptual framework provided graphical linkages of the concepts fundamental to leadership competencies prevalent during the disaster life cycle, with the goal of improving organizational effectiveness. The conceptual framework (Figure 12) utilized two principle figures to convey the relationship. First, a circle signifies the disaster management life 'cycle' demonstrated through response, recovery, mitigation, and preparedness. It surrounds a triangle of competencies divided into thirds, but connected nonetheless, and at the core of this entire framework are disasters. This chapter provides a detailed explanation of each competency within the confines of the framework with the theoretical underpinnings woven in accordingly. One aspect not easily conveyed in the conceptual framework was the 'movement' or transition within the cycle from one dimension to the next, consistent with the organizational environment and more closely reflecting the NSO practitioner reality.

The first step in building the conceptual framework was the identification of the fundamental concepts related to effective organizational response and preparedness to crises scenarios. This began with the research question and three propositions. The research question in this dissertation asked: what are the fundamental leadership competencies that will positively influence or impact organizational effectiveness when preparing for the potential impact of and response to natural disasters (crises)? The conceptual framework provided a visualization of the specific thematic elements borne out

of the research question and propositions, underpinned by the theoretical lenses. The three propositions analyzed by isolating the pertinent variables, were:

P1. The ambiguous and uncertain nature of natural disasters creates a need for NSO organizational leaders to acquire a keen situational awareness.

P2. Leader flexibility and agile decision-making in dynamic and fluid scenarios positively influence organizational response to and preparation for crises.

P3. A dynamic organizational learning culture improves the information exchange and knowledge-sharing process within NSOs throughout the disaster life cycle.

The focus of the dissertation was on leadership competencies that impact organizational effectiveness and efficiency during natural disasters. Each of the concepts gleaned from the synthesis was an aspect of the disaster life cycle, which, through the circular design, implied a perpetually continuous and repetitive flow of the stages: response, recovery, mitigation, and preparedness.

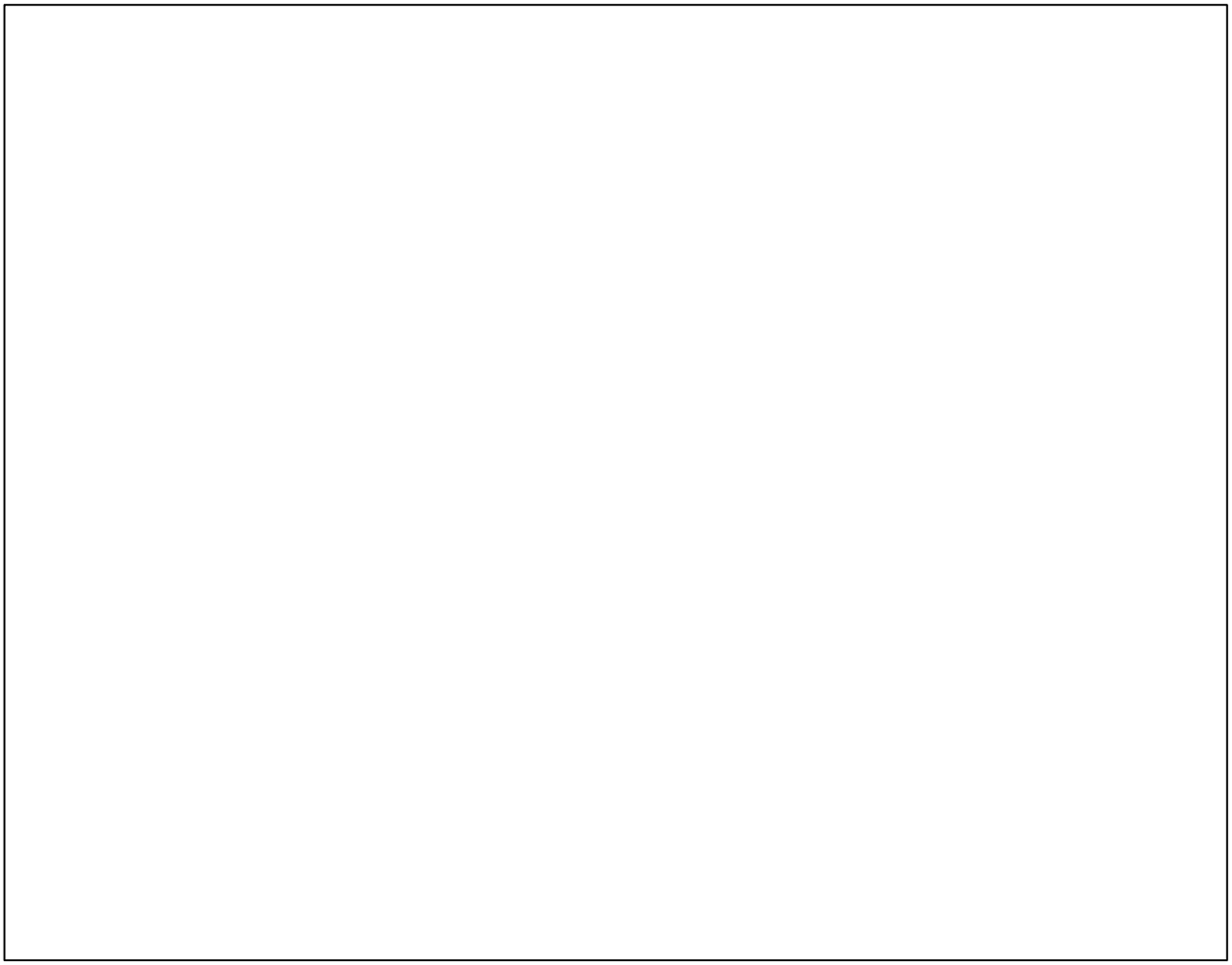

Figure 12. Conceptual Framework- Leadership competencies needed for managing the natural disaster crisis management life cycle. E. Baranick, 2014.

The propositions targeted leadership competencies and traits, and their relationship to effective organizational preparation and response. Accordingly, a configurative approach was applied to the analysis facet, combined with a realist approach to the synthesis component by incorporating the concepts ascertained from the systematic literature review detailed in Chapter 3 and outlined in Figure 12. A functional objective of the conceptual framework in this dissertation was to provide NSO leaders with a graphical depiction of leadership competencies, applied within a dynamic and nonlinear context throughout the disaster management life cycle, for organizational effectiveness and efficiency.

Propositions	Related sub-competencies
P1. Environmental Awareness	Internal and External Awareness Decoding Assessment
P2. Decision-Making	Agility Flexibility Adaptability
P3. Organizational Learning	Stakeholder Communication Information Exchange Knowledge Management

Figure 13. Propositions and related leadership competencies. E. Baranick, 2014.

Sub-competencies (Figure 13) were needed for managing critical processes in order to achieve the respective competency related to each of the propositions. With regard to proposition one, the empirical evidence established that in order to successfully make use of their acquired environmental awareness, leaders must not only exhibit internal and external awareness, but must also be able to decode the information acquired, and finally assess the information gleaned for adequate decision-making toward a more efficient and effective response and preparedness. The literature highlighted that decision-making was influenced by environmental awareness, but was also closely linked to leader flexibility, adaptability, and agility. Organizational learning was also dependent on environmental awareness, but had specific sub-competencies including stakeholder communication, information exchange, and knowledge management.

Thematic Issue One: Complex adaptive systems theory provides an explanation for organizations demanding environmental awareness in crises scenarios.

Disasters are inherently chaotic and complex events. Complex adaptive systems theory underpinned leadership traits within a NSO faced with a crisis scenario based on two significant aspects. The first aspect was the complexity of the organization itself. The various linkages and interactions within and among other NSO and stakeholder entities create a complex and oftentimes ambiguous and uncertain scenario for leaders to manage (Anderson, 1999, p. 217). Specifically, the linkages reinforced the relationships within the network for sharing of information, and highlight the interdependencies related to processes, priorities, and responsiveness. The second aspect was the organizational complexity reflected in the various external relationships and linkages within and among the organizational structures and systems. The conceptual framework incorporated environmental awareness as one of three critical components of the leadership competency triangle, identifying three specific and subordinate actions, internal and external awareness, decoding, and assessment. Leaders of NSOs who were mandated to respond to disaster events as their primary responsibility confront ambiguity and uncertainty, and at the same time strive for organizational effectiveness and efficiency through informed decision-making (Thomas et al., 1993, p. 243). Pearson and Mitroff (1993) recognized that leaders, beyond making informed decisions, must be able to aptly infer and interpret stakeholder perceptions in order to reduce organizational vulnerabilities (p.56). Pearson and Mitroff also recognized the ambiguous and uncertain environment inherent in a disaster and underscored the importance of "preparing for the unthinkable" (p.59) as fundamental. James and Wooten (2005) noted that understanding the environmental context was a significant component of the decision-making process for leaders in order to overcome

crises (p. 148). The research was explicit that leaders must be keenly aware of the internal and external environment in order to operate effectively and efficiently, and the conceptual framework reflected this critical competency in a separate triangle, but nonetheless linked to decision-making. The points or corners of each "sub-triangle" are touching, reflecting the linkages between the various competencies as well as the relationships to disasters, which are at the center of the triangle. The conceptual framework illustrates the requirement for leaders to adjust to the dynamic environment, whereby leaders recognize the disaster life cycle and are able to demonstrate the noted competencies in each of the disaster phases.

NSOs, by their very nature, have an organizational structure that requires connectedness to each of the included organizations and individuals. Complex adaptive systems theory explains that through this connection the organization is dependent on the interaction and subsequent reaction of others within the four phases of the disaster life cycle. Leaders of NSOs therefore must connect to external entities, including stakeholders, for the effective and efficient operation of the organization. Leaders that react positively to feedback loops are perceived as more effective (Hamlin et al., 2011, p. 224). The importance of the feedback loop for leaders is directly related to contextual awareness and leadership understanding of the environment. Therefore, the ability of leaders to be contextually aware via gathering, decoding, and assessing the internal and external environment is directly relevant to the applicability of complex adaptive systems theory in networked organizational structures confronting crises scenarios. This thematic issue has demonstrated the relationship of leadership contextual awareness as a component of the leadership competencies linked to effective organizational disaster response, recovery, mitigation, and preparedness.

Thematic Issue Two: Complex leadership theory clarifies how flexibility, adaptability, and agile decision-making improve NSO preparedness and response to natural disasters.

An additional aspect of the conceptual framework was informed decision-making, underpinned by flexible, adaptable, and agile leadership attributes. Within the complexities of leadership there are many areas to review, however, a significant factor for leaders of NSOs during a crisis scenario was weighing the critical need for rapid decision-making against the rampant ambiguity and uncertainty. Uhl-Bien and Marion (2009) underscored the complexity leaders confront, claiming that complex leadership theory was predicated upon a complex intermingling of components whose direction and function were unpredictable (p. 631). While the conceptual framework did not demonstrate this inherent randomness, it did illustrate the cyclical nature of disasters and the implied complexities leaders confront when no clear distinction among the phases was evident, nor management direction was provided. Complexity stemmed not only from the disaster event itself, but also from the intricacies resulting from a wide variety of systemic, structural, and social interactions at personal and organizational levels (Bharosa et al., 2010, p. 50). Here again, there was the direct link with the first component of the conceptual framework – environmental awareness – whereby leaders need to be fully engaged and aware of the environment in which they are operating.

Brown and Eisenhardt (1997) underscored the importance of operating in a dynamic environment, requiring leaders to continuously adapt and adjust in a synchronized manner to the environment (p. 1). The conceptual framework provided a tripartite competency graphic within a continuous disaster life cycle to highlight the importance of the competencies throughout the four phases of the disaster. Leaders of NSOs must be able to

confront crises at any point in the continuous and ongoing disaster life cycle. In other words, disaster events occur at any stage during the cycle and leaders must be prepared to mitigate the impact of these events despite the inherent ambiguity and uncertainty. Furthermore, the fluid and dynamic setting contributes to contradictory and limited information, highlighting the critical importance of agile decision-making under the circumstances.

The conceptual framework was arranged with disasters in the middle triangle to highlight that a disaster event or scenario played a central role in building the research question and propositions. Furthermore, the central component of this dissertation was recognizing how leader competencies were fundamental to organizational effectiveness in the fluid, dynamic, and distinctive nature of disaster events. Marcum et al. (2012) noted "effective decision-making is enhanced by the ability to draw on previous experience, to have access to available information, and to manage one's own events, all things that are more easily achieved when interacting directly with other organizations" (p. 536).

Thematic Issue Three: Organizational learning is a critical component of how NSOs are able to prepare for and respond to crises.

Implementing a lessons-learned process for managing the disaster life cycle was a critical organizational learning aspect of how NSOs deal with ambiguity and uncertainty (Pathirage et al., 2012). The literature placed importance on two major attributes underpinning organizational learning, both within the boundary of knowledge management. First, Argyris (1991), one of the leading scholars in organizational learning, noted that problem identification and definition required the same or greater reflection as finding the potential solutions to the problem (p. 100). This would indicate that the leader's ability to communicate important issues internally and externally was a critical competency for

organizational effectiveness. Second, Lalonde (2007), underscoring the importance of organizational learning as a key aspect of organizational effectiveness in crises scenarios, claimed, "the challenge is to transfer the accumulated knowledge flowing from concrete experiences, well-documented by crisis management researchers, to a comprehensive learning model in which organizational actors will be actively engaged" (p. 98). As was mentioned in the previous section, the link between decision-making and organizational effectiveness was underpinned by the association between organizational learning and environmental awareness, highlighting the nexus between the three components within the conceptual framework.

Bharosa et al. (2010) recognized the fundamental importance of information exchange for two reasons; first, the access to critical information built organizational capacity to effectively prepare for and respond to disasters, and second, the sharing of information relevant to the event positively influenced network coordination (p. 49). Within the dimension of organizational learning there were two fundamental competencies leaders of NSOs must exercise. The first leader competency included in the conceptual framework within the organizational learning dimension was stakeholder communication, and the second was information exchange. The importance of stakeholder communication is multifaceted. Critical lessons learned from an open and transparent communication link with those individuals involved in executing the response of the organization was associated with knowledge management (Pathirage et al., 2012, p. 237). However, Bharosa et al. (2012) noted the challenge leaders confronted in the disaster life cycle was capturing critical information, most often related to the innumerable and on-going communication links among the many actors within each organization (p.50). The importance of a continuous information exchange was underscored by Argyris' (1976) claim that

organizational learning was a process whereby problems are identified and solutions are outlined and then applied to other scenarios. (p. 37). Finally, the transversal aspect of knowledge management within organizational learning underpinned the fundamental importance it played in NSO leaders' ability to access accurate information in a crisis scenario, and underscored its association with the NSO leader decision-making processes (Pathirage et al. 2012, p. 238).

Summary

This chapter has provided an explanation of the graphical presentation of the linkages between the various concepts and individual variables used to explore the NSO leadership competencies. The findings and analysis from Chapter 4 provided the platform for the illustration of the concepts outlined in the conceptual framework. Chapter 6 provides the conclusions and implications for future research.

Chapter 6: Conclusions, Implications and Trends

Introduction

This dissertation explored the fundamental competencies needed by leaders within NSOs directing the efforts to deal with natural disasters. The purpose of this dissertation was to identify the leadership competencies (interventions) required to prepare for and respond to (mechanisms) the impact of natural disasters – potential and ongoing. In spite of the growing frequencies and complexities of natural disasters confronting leaders of NSOs, academe has been indecisive on how to develop a categorical typology of leadership traits, or establish a circumscribed list of competencies NSO leaders must exhibit to achieve success. However, based on the synthesis of the empirical evidence, leader environmental awareness, leader decision-making, and advancing organizational learning were validated as fundamental competencies.

This chapter starts with a general conclusion of the dissertation. The implications for management are separately outlined with a specific focus on actions for leaders and NSOs to consider. This section is followed by a general discussion of emerging leadership and management trends. Next is a discussion of the limitations of this dissertation and possible future areas of research. Finally, there is a brief summary and discussion on future considerations of this study's results.

Overall Conclusions

This dissertation concludes that there are three fundamental leadership competencies required to advance NSO response and preparedness operations in crises scenarios - environmental awareness, decision-making, and organizational learning. First, leaders must maintain an active awareness of the environment, which includes the social, political, and operational context within the peripheral environment that could potentially impact the

organization's behavior and response to natural disasters. Environmental awareness is underpinned by a number of sub-dimensions including analysis, collection, and decoding, as well as assessing the information gleaned for adequate processing and decision-making. Moreover, environmental awareness, beyond having a number of sub-components, in itself has two distinct dimensions. The first dimension is the external environment, which includes those issues that influence the organization, but which the organization does not have direct control over, such as the phenomenon of a natural disaster. The second, internal dimension encompasses such issues as human resource policies, employee motivation, economic resources, and customer satisfaction. Leaders who are attuned to the organizational environment appear to have a more effective relationship with stakeholders and a greater ability to influence change. An awareness of the environment underpinned by the interdependent sub-processes appears to be the foundational competency for influencing the interdependent cycles, such as knowledge management, disaster management, organizational learning, and the related processes – all resulting in more effective and efficient organizations in crises scenarios.

The dynamic and fluid scenarios inherent in crises situations, whereby leaders of NSOs remain flexible and agile in light of incomplete or even contradictory information, pose additional challenges. The external environmental awareness is important in order for organizational leaders to sustain operations and remain competitive. For both external and internal environmental awareness, the sub-components of analysis, collection, and decoding, as well as assessing the information are critical. Leader ability to understand the environment but also to interpret the information and accurately cull valuable knowledge for decision-making is unquestionably a fundamental trait of effective leaders.

Organizational learning is closely linked to organizational effectiveness. Organizational learning is the mechanism whereby leaders accumulate stakeholder communication and exchange information to minimize the impact of the current crisis as well as reduce the impact of future crises. This dissertation rejects the common belief that NSOs have all the answers and those affected by disasters are simply waiting for assistance. The research demonstrates that it is incumbent upon leaders to implement systems and structures whereby stakeholders can provide input, but also to gather information for use in a fluid information exchange with those directly impacted by the crisis.

This dissertation underscores the need for organizations working in complex environments to ensure their leaders have the experience and capacity to adequately gather, analyze, and assess critical information available in the environment for rapid decision-making. In a dynamic situation, leadership effectiveness was predicated on a keen environmental awareness. Furthermore, information exchange in crises scenarios appeared to significantly impact organizational effectiveness. The information exchange had dual functionality. First, information was utilized by the leader for decision-making in preparing and planning the organization for future crises. Second, information shared within the network structure reduced duplicity leading to a more effective organizational response. This dissertation affirms that organizations that are openly communicative with other organizations in the network, as well as with those individuals being attended to during the crises, were perceived to have more effective and efficient response mechanisms. Finally, organizations that are able to adapt structures and systems based on lessons learned or information acquired during the event tend to be perceived as more effective by the stakeholders.

Implications for Management/Practitioner

This dissertation utilizes an evidence-based research approach for gathering, analyzing, and synthesizing the literature. The studies included in this dissertation provide insight into the fundamental leadership competencies required during crises. However, a major implication for organizations revolves around environmental awareness or situational understanding. Leaders must develop an awareness of the environmental context, using systems and structures to analyze and assess the information. Organizations must ensure that leaders of NSOs have the skills and capacity to gather contextual information from the external environment, and have a keen understanding of the internal workings for adequate preparation and response to crises. Two of the most significant competencies identified for leadership effectiveness and efficiency are the comprehension of the situation (environmental awareness) and the ability to adjust as the situation changed. This concept closely resembles the construct of sensemaking (Weick, 1993).

Organizations must establish a more comprehensive manuscript of situational leadership competencies in crises scenarios, and academia must push for deeper and closer ties with NSOs through strengthened alliances to empirically test the impact of specific leadership competencies. This would lead to the ability of an organization to learn and adapt, whereby competencies and actions in previous crises scenarios are integrated into organizational structures and systems in preparation for future calamities. NSOs have existed for decades, yet the research on the fundamental competencies to lead such organizations is sparse (Peterson & Van Fleet, 2008). Academia must invest more into studying the structures and systems of these organizations to have an empirical base from which to improve and sustain activities.

Finally, organizations operating in a network structure have distinct challenges when working in crises scenarios. Centralization of governance functions and decision-making influence leader flexibility as a dynamic and fluid scenario unfolds. Leaders of NSO 'field offices' have to establish an open and transparent knowledge management structure with the home office as well as the other members of the NSO community in the area of operation in order to work toward a unified or common goal, and a robust information exchange system. The ensuing open communication will minimize duplication of efforts and reduce operational costs for all members of the network, leading to an increase in the effectiveness and efficiency of the NSO interventions.

Implications of Emerging Trends

Two trends are emerging in the management of crises scenarios. The first is related to new technology, which has had a significant impact on the management of NSOs. The ability of organizations to interact virtually presents vast benefits. Yet it also poses significant challenges for continuous engagement between headquarter offices thousands of miles from its satellite locations, and more directly with the entities the NSOs strive to serve. Technology allows for innovative ways to communicate, especially when conveying decisions to a range of actors and beneficiaries who, in the past, might not have been able to receive information so easily or rapidly. Likewise, information is also being relayed back to the NSO, and leaders must be able to rapidly capture incoming data for use in decision-making. In the future, the need will not be so much the gathering of all the information, as systems will be developed where people will be able to "push" information in an automated fashion to NSOs about the situational context, but rather the storing of it in a manner that enables the NSO leaders to quickly and effectively access it for decision-

making. Thus, the NSO will evolve into more of a digital network rather than a face-to-face based structure.

A second emerging trend relates to geopolitics. The 'politicizing' of work generally carried out by NSOs is creating a new operating dynamic. Historically, NSOs have operated independently of any government influence, however, this trend is changing and governments are conditioning their financial support based on working in countries deemed 'friendly' or meeting certain political criteria. This is a precarious trend, as those who are most impacted by the crisis event might already be politically disenfranchised, further complicating the ability to provide the services. In terms of response to crises, there is a trend to 'militarize' the response efforts. This does not refer to organizations functioning as military groups, rather it refers to the armed forces of nations providing responses to crises. Militaries have vast logistical and human resources and are able to mobilize relatively quickly. A recent example was the Haiti 2010 earthquake, where military units from numerous nations joined the relief effort. This trend has an impact on the implicit neutrality and impartiality of NSOs working in disaster response and will require additional safeguards for NSOs.

The nature of geopolitics has an impact on the definition of crises to which NSOs have traditionally responded. In spite of natural disasters remaining prevalent, the man-made conflicts are potentially changing how NSOs perform in crises situations. While man-made crises were not within the scope of this dissertation, there are numerous examples of man-made events causing widespread destruction and having long-term impact on individuals and communities. Organizational security is becoming a significant concern for NSOs, as population movements resulting from religious or ethnic persecution are forcing significant numbers of individuals to live in vulnerable conditions, without access

to adequate infrastructure and resources. These changes in the scope of the crises to which NSOs are required to respond will require NSOs to adjust operational modalities.

Limitations and Areas for Future Research

The limitations of this dissertation fall within a few areas. First, the evidence-based research methodology poses a challenge in that the approach is limited by existing empirical evidence in the literature. A more extensive review and inclusion of primary data could provide additional insights into leadership competencies. Second, natural disasters are but one aspect of crises management leaders of NSOs encounter, and as noted previously, this dissertation does not address the varying nature of crises scenarios. Leadership competencies could differ when faced with man-made crises, an issue for NSOs to consider as the nature of crises becomes more complex. Third, this dissertation did not attempt to rank or prioritize the leadership competencies. While scholars have ranked competencies, these ranking are neither agreed upon by academia nor generalizable across the broad spectrum of NSOs. Fourth, this dissertation did not attempt to quantify the influence of leadership competencies on organizational effectiveness and efficiency, something feasible for a primary-research study.

Finally, issues for future research include developing an understanding between environmental awareness and NSO effectiveness in two aspects of the disaster management cycle not addressed in this dissertation, mitigation and recovery. In essence, organizations would benefit from a deeper understanding of how leadership competencies influence disaster mitigation and recovery within disaster management in order to reduce impact during the crisis event. Additionally, further exploration to quantify the influence of leadership competencies on organizational effectiveness by enumerating and ranking the leadership traits that influence NSO operational effectiveness is necessary.

Summary

This dissertation was organized into six chapters. The first chapter provided background and established the importance of the study by presenting the research question and propositions. Chapter 2 followed with an explanation of the research method, and Chapter 3 presented a systematic review of the literature. Chapter 4 discussed the findings and Chapter 5 provided a graphical depiction of the concepts presented in the previous chapter. Chapter 6 concluded the dissertation with a general summary.

This dissertation has underscored that environmental awareness, flexible and agile decision-making, and organizational learning are critical leadership competencies essential for organizational effectiveness when responding to and preparing for crises. Furthermore, leaders attuned to stakeholder perceptions and also promoting information exchange facilitate organizational learning through formal feedback loop processes. This positively influences the impact of the current crises and has the potential to decrease the impact of future ones. The dynamic nature of crises combined with the ambiguity leaders confront when making everyday decisions highlight the complexities that NSOs experience. This dissertation contributes to the understanding of the relationships of leadership competencies, organizational structure, and the effectiveness of NSOs. It also reinforces that leadership competencies are critical in natural disaster crises scenarios, pointing out specifically that leaders and organizations must be fully aware of their environment, internal and external, to effectively and efficiently operate and sustain activities. Environmental awareness is fundamental to a leader's ability to make appropriate decisions to adjust organizational structures and operations. In a complex environment, it is a matter of responding and reacting in the most efficient and effective manner, rather than always needing to have the correct answer (Peterson & Van Fleet, 2008, p. 504). Understanding

the environment by ‘making sense’ of the situational context, and including those affected by the crises into the disaster response cycle are competencies all NSO leaders should strive to incorporate into their daily decision-making.

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Appendix A: Subject Matter Expert Evaluation & Feedback Form

For DMGT 891 student - Eric Baranick, Confronting Crises Agile and Resilient Leaders
Feedback from: Harold Brooks

Please provide your insights and suggestions for each of these topic areas. Comments and suggestions under each topic are expected and very much appreciated.

Clarity of the Study Problem – Is the topic's relationship to the field of management practice made clear and explained? What is the potential of this study to address a management problem or concern in a way that will be valuable to management practitioners or management scholars?

The topic's relationship to the field of management practice is made clear. The importance of agile, resilient leaders in the face of catastrophic events is well laid out by the writer. Citing Hurricanes Katrina, Andrew among other disasters exhibit disasters where leadership was surprised, lacked or did not use communications and collaboration skills.

Your observations:
While the point is made, it may be helpful to point to some of the leaders who might have done things better. In each disaster, no matter how well or badly run, will have heroes and bad actors. FEMA Director Brown was the most high profile person during Katrina. Some of his missteps could be illustrative. On the other hand, US First Army General Russel Honore came in and managed to rise to hero status by his clear communications and good decision making. He was the poster boy for agility when he came in with the mission to bring peace and did it in an amicable way that never required weapons. His personality and quick decision making allowed the government to regain control of a chaotic situation.

Significance of this Study – To what extent would this study contribute to the practice of management? How original is this study? How would you rate the importance of this study to management practitioners?

This study is significant and very timely. There are Centers for Resilience, New departments at universities studying it. It is an idea for the times. Most work is being done on resilience in conflicts, disasters or vulnerable communities. To look at agile and resilient leaders as they confront crises is fresh enough to warrant some time and attention.
Your insights, including awareness of similar studies or research that would duplicate or enhance this study: Studies have been conducted by many organizations. USAID has several. The UNDP 2013 (Community Based Resilience Assessment) is a recent study that captures all facets of resilience. However, it is very helpful to zero in on leaders and resilience.

Scope of this Study – Is the scope of this study made clear? Is it focused on management issues that can be realistically investigated? Does the research question(s) and proposal have the level of depth and breadth to frame a doctoral dissertation? To what extent does the research question(s) and proposal reflect what is already widely known about the problem and its potential solutions?

I am no expert in doctoral dissertations. I can only say the research question and solutions make sense for the emergency management community. This is a field that can benefit from such deliberations. It's an adrenaline driven field that must take time to reflect on what makes a community resilient what the elements of being an agile, resilient leader are.

Your observations about its do-ability: I believe the study is both do-able and useful. The foundation is in place for a very successful study.

Literature informing this Study – Does the type and relevance of literature reviewed provide the proper direction for this study? Is there sufficient rigor and credibility of the proposal to bring a variety of evidence to bear on the problem?

The literature informing the study is relevant and will provide a solid path to a great study. Great books on agility, resilience and leadership should yield a great study of the subject with great relevance and rigor.

Your observations and suggestions literature sources that would be helpful:
Disaster Resilience: An Integrated Approach, Douglas Patton.

Conceptual Framework – Does the student present a clear picture of how key factors are related, and how those factors would be explained through theoretical and empirical research?

The student does present a clear picture of how key factors are related. The theoretical and empirical research is extensive and supports his propositions. It was actually enjoyable following the complex adaptive theory, complex leadership theory and organizational learning theory. I did find myself arguing with some of the statements made by contributors to support the propositions. For example, 3.1.3 says that organizations learn more from failures than from success. When a leader like FEMA Administrator Brown acts foolishly, it makes news. While Katrina is often cited as a big teachable moment, more is always learned in the aftermath of a well done response. Super Storm Sandy has made New York and New Jersey's emergency management community the gurus of best practices as people from around the world come to learn how an urban disaster was managed so well. Leaders learn from other leaders who have done a great job. Best practices spread quickly without a lot of noise or attribution.

Your comments: Good job. Who knew it could be fun reviewing such a paper!

Overall Written Quality – Does this study present a clear line of reasoning consistent with other management research materials you are familiar with? How would you assess the quality and clarity of the writing of the draft chapters?

As mentioned above, it has been a good read. So much so, I engaged in the debate. As an experienced disaster response person, I empathized with much of what was written. It is accessible, logical and interesting to read.

Your suggestions for overall improvements that can be made to this approach:

Overall it is very good. Perhaps examples of historic or contemporary leaders who embody the qualities of Agile and Resilient leaders could help make theory real.

Overall Practical Value – Does this study offer a clear and recognizable opportunity to produce results that would impact a management practice?

There is great practical value to this study. The world is bracing for more catastrophic events as climate change and crowding into urban areas demand great leaders to help us prepare for and cope with these increasingly complex events.

Your comments: I look forward to seeing the final product. Again. Well thought out. Well done.

8. Your own direct experience - How would you rate your experience with the problem posed by this doctoral candidate? How useful would this project be to you personally when dealing with the management issue/concern posed by this doctoral candidate? Are there any additional perspectives on this management problem that the student seems to have ignored?

The study is very personal to me. As the Red Cross leader on many disasters over the last twenty years, I would have been better off with the information provided in this paper. This could be turned into a very useful book for practitioners.

Your comments:

Leadership matters. From governors to search and rescue teams. When leaders collaborate, learn and adapt quickly, lives are saved.

Overall Strengths of this study

Your comments:

The study is well written, well documented and has immediate practical application.

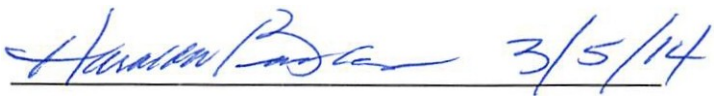
Overall weaknesses of this study: No weaknesses.

Your comments: As was mentioned earlier, point to some real live agile, resilient leaders.

If there were one thing that the doctoral candidate should change about the project, what would that be?

I have no suggestions for change beyond earlier mentioned suggestions.

Reviewer's Signature/date



Subject matter Expert Evaluation & Feedback Form

For DMGT 891 student: Eric Baranick
Proposed dissertation title: Confronting Crises: Agile and Resilient Leaders Feedback from: Dr. Tim. O. Peterson

Please provide your insights and suggestions for each of these topic areas. Comments and suggestions under each topic are expected and very much appreciated.

1. Clarity of the Study Problem - Is the topic's relationship to the field of management practice made clear and explained? What is the potential of this study to address a management problem or concern in a way that will be valuable to management practitioners or management scholars?

Your observations: I am not sold on the methodology. At this point it just seems like a glorified literature review with no real analysis or synthesis.

2. Significance of this Study - To what extent would this study contribute to the practice of management? How original is this study? How would you rate the importance of this study to management practitioners?

Your insights, including awareness of similar studies or research that would duplicate or enhance this study:

In my opinion, the study does not contribute to the practice of management. It certainly is not original. All you have to do is look at Chapter 3 and see all the studies that have been done on crisis and managerial leadership. I don't see a practitioner using it.

3. Scope of this Study - Is the scope of this study made clear? Is it focused on management issues that can be realistically investigated? Does the research question(s) and proposal have the level of depth and breadth to frame a doctoral dissertation? To what extent does the research question(s) and proposal reflect what is already widely known about the problem and its potential solutions

Your observations about its do-ability:

At this point, I find the scope very fragmented. The title indicated to me that the writer

has already decided that agile and resilient leaders are needed in a crisis. If this is so and we know this, why do the study? None of the twenty-five behaviors in Peterson and Van Fleet point to these two attributes? Are agility and resilience competencies that you can develop in a person or does it come embedded in the individual as a talent? Then I come to page 8 and I am hearing about leadership competencies, training and organizational contingency planning. At this point I think this manuscript lacks focus.

4. Literature informing this Study - Does the type and relevance of literature reviewed provide the proper direction for this study? Is there sufficient rigor and credibility of the proposal to bring a variety of evidence to bear on the problem?

Your observations and suggestions literature sources that would be helpful:

As I commented within the manuscript, which I a return, Mitroff and Barton are completely absent from the literature review. They have both written extensively on crisis and leadership in crisis. I don't think you can have a complete discussion and review without their work included

Conceptual Framework - Does the student present a clear picture of how key factors are related, and how those factors would be explained through theoretical and empirical research?

Your comments:

I do not think there is a clear conceptual framework. In some ways, the manuscript reads as if the author has already determine what he believes the answer is and is just looking for evidence to prove his belief. That is not science or scholarship.

6. Overall Written Quality - Does this study present a clear line of reasoning consistent with other management research materials you are familiar with? How would you assess the quality and clarity of the writing of the draft chapters?

Your suggestions for overall improvements that can be made to this approach:

My biggest issue is in Chapter 3. It appears to me that one study after another are written about with no attempt to integrate what we find from one study to the next. In addition, the choice of what table to include from the different studies sometimes seems puzzling.

6. Overall Practical Value - Does this study offer a clear and recognizable opportunity to produce results that would impact a management practice

Your comments: I don't think so.

7. Your own direct experience - How would you rate your experience with the problem posed by this doctoral candidate? How useful would this project be to you personally when dealing with the management issue/concern posed by this doctoral candidate? Are there any additional perspectives on this management problem that the student seems to have ignored?

Your comments:

It shows me that there are a lot of studies that have been conducted on leadership and crisis. However, it provides me no clear direction for my own leadership development or what I would develop in the people who work for me.

8. Overall Strengths of this study

Your comments: The strength seems to be in that the student has collected a significant number of studies on the topic.

9. Overall weaknesses of this study

Your comments: No rigorous integration of the knowledge.

If there were one thing that the doctoral candidate should change about the project, what would that be?

Become clear on what you hope to understand from this dissertation. I know I still am not clear on that issue.

Reviewer's Signature / date

Terri O. Peterson 3/9/14

Subject matter Expert Evaluation & Feedback Form

For DMGT 891 student: Eric Baranick
Proposed dissertation title: Confronting Crises: Agile and Resilient Leaders Feedback from: Dr. Naim Kapucu
Please provide your insights and suggestions for each of these topic areas. Comments and suggestions under each topic are expected and very much appreciated.

1. Clarity of the Study Problem – Is the topic's relationship to the field of management practice made clear and explained? What is the potential of this study to address a management problem or concern in a way that will be valuable to management practitioners or management scholars?

Your observations:
The dissertation study focuses on crisis leadership competencies. From this body of knowledge the author tries to develop a model for resilient leadership (not complete yet). I think if completed carefully the model would be a significant contribution.

I recommend you develop research questions and a theoretical perspective(s) earlier in the paper to guide your research study. Some hypotheses/propositions developed but not significantly build on the literature.

2. Significance of this Study – To what extent would this study contribute to the practice of management? How original is this study? How would you rate the importance of this study to management practitioners?

Your insights, including awareness of similar studies or research that would duplicate or enhance this study:

The literature review uses some of the key research in the field. But still some are missing. I recommend you to take a look at key journals in public policy and administration covered public sector leadership. Such as Public Administration Review, American Review of Public Administration. In the US emergency management is considered one of the quint essential role of government. There are some sociological journals might include some useful research to help strengthen this study. The study does not include implications yet, it is hard to judge at this time.

3. Scope of this Study – Is the scope of this study made clear? Is it focused on management

issues that can be realistically investigated? Does the research question(s) and proposal have the level of depth and breadth to frame a doctoral dissertation? To what extent does the research question(s) and proposal reflect what is already widely known about the problem and its potential solutions

Your observations about its do-ability: I think I addressed this in response to the first question. This is an important topic. Needs to be developed fully. What I have read so far is a literature review a new insight /synthesis has not been developed yet.

Literature informing this Study – Does the type and relevance of literature reviewed provide the proper direction for this study? Is there sufficient rigor and credibility of the proposal to bring a variety of evidence to bear on the problem?

Yes, I think I did addressed this one already. Please take a look at some of the journals I recommended earlier. There is research on leadership from resilience perspective (organization studies, psychology) might be useful as well. Some of the terms used in the study not carefully defined. Make sure you define the concepts earlier. Check key terms, theories for consistency such as complex adaptive systems theory (not complex adaptive theory). What is complex leadership theory? Is there such a theory? How do those three theoretical perspectives inform the study? These are not integrated in the form of a new conceptual framework.

Your observations and suggestions literature sources that would be helpful:

I listed some below. I hope these are useful.

Boin, A. (2004). Lessons from crisis research. *International Studies Review, 6*(1), 165-94

Boin, A. &'t Hart, P. (2003). Public leadership in times of crisis: Mission impossible. *Public Administration Review, 63*(5), 544-53.

Cigler, B. A. (2007). The big questions of Katrina and the 2005 great flood of New Orleans. *Public Administration Review, 67*(1S), 64-76

FEMA 2011. IS-240a Leadership & Influence (online)

Kapucu, N., Berman, E., & Wang, X. (2008). Emergency information management and public disaster preparedness: Lessons from the 2004 Florida hurricane season. *International Journal of Mass Emergencies and Disasters, 26*(3), 169-97.

Kapucu, N., Hawkins, C., & Rivera, F. (eds.). 2013. Disaster Resiliency: Interdisciplinary Perspectives. New York, NY: Routledge.

Kapucu, N. & Ozerdem, A. (2013). Managing emergencies and crises. Boston, MA: Jones & Bartlett Publishers.

Kapucu, N. & Van Wart, M. (2008). Making matters worse: Anatomy of leadership failures in catastrophic events. *Administration & Society, 40*(7), 711-40.

McGuire, M, & Silvia, C. (2010). The effect of complexity, problem severity, and managerial capacity on intergovernmental collaboration: Evidence from local emergency management. *Public Administration Review, 70*(2), 279-88.

McGuire, M. & Silvia, C. (2009). Does Leadership in Networks Matter? Examining the Effect of Leadership Behaviors on Managers' Perceptions of Network Effectiveness. *Public Performance and Management Review, 33*(1), 34-62.

Moynihan, D. P. (2008). Learning under uncertainty: Networks in crisis management. *Public Administration Review, 68*(2), 350-61.

National Academy of Public Administration (NAPA). (1993). Coping with catastrophe: Building an emergency management system to meet people's needs in natural and manmade disasters. Washington, DC: NAPA.

National Academy of Sciences (NAS). (2012). Disaster resilience: A national imperative. Washington, DC: The National Academies Press.

National Research Council (NRC). (2006). Facing hazards and disasters: Understanding human dimensions. Washington, DC: National Academies Press.

Peterson, T. O. & Van Fleet, D. D. (2008). A Tale of two situations: An empirical study of behavior by nonprofit managerial leaders. *Public Performance & Management Review, 31*(40), 503–16.

Sylves, R. (2008). Disaster policy and politics: Emergency management and homeland security. Washington DC: CQ Press.

Tierney, K. (2012). Disaster governance: Social, political, and economic dimensions.

Annual Review of Environment and Resources, 37,341-63.

Waugh, W. L. Jr., & Tierney, K. (eds.). (2007). Emergency management: Principles and practice for local government (2nd ed.). Washington DC: ICMA.

Conceptual Framework – Does the student present a clear picture of how key factors are related, and how those factors would be explained through theoretical and empirical research?

Your comments: The conceptual framework is a good start. Not finalized for a comment.

Overall Written Quality – Does this study present a clear line of reasoning consistent with other management research materials you are familiar with? How would you assess the quality and clarity of the writing of the draft chapters?

Your suggestions for overall improvements that can be made to this approach:

Please see my earlier comment. The study will benefit a careful organization and logical presentation.

Overall Practical Value – Does this study offer a clear and recognizable opportunity to produce results that would impact a management practice?

Your comments: Again, hard to evaluate without seeing the final chapters with implications.

Your own direct experience - How would you rate your experience with the problem posed by this doctoral candidate? How useful would this project be to you personally when dealing with the management issue/concern posed by this doctoral candidate? Are there any additional perspectives on this management problem that the student seems to have ignored?

Your comments: I do research on emergency and crisis management. Not a practitioner.

Overall Strengths of this study

Your comments: It has a good potential to contribute to crisis leadership and management literature.

Overall weaknesses of this study

Your comments: Theoretical perspectives are not complete and comprehensive. I like to see a clear integration of the theoretical perspectives to the conceptual model (and hypotheses).

If there were one thing that the doctoral candidate should change about the project, what would that be?

I believe I did comment on this earlier specifically. Since this is not an empirical study. You should probably replace methodology with method. What is included under method can probably go somewhere else unless evidence-based management used as a method on here.

Dr. Naim KapucuFebruary 11, 2014

Reviewer's Signature / date

Appendix B: Literature Summary Table

Title	Author	Year	Proposition	Keywords and phrases
Nonprofits and Evaluation: Managing Expectations From the Leader's Perspective	Alaimo	2008	3	Organizational learning, internal and external organizational context
Organizing Ambiguity: A Grounded Theory of Leadership and Sensemaking Within Dangerous Contexts	Baran & Scott	2010	1&2	Framing, Heedful Interrelating Adjusting,
Challenges and obstacles in sharing and coordinating information during multi-agency disaster response: Propositions from field exercises	Bharosa, Lee, & Janssen	2010	3	Coordination, Information Sharing
Planning to be Prepared: An Empirical Examination of the Role of Voluntary Organizations in County Government Emergency Planning	Brudney & Gazley	2009	2	Connectedness and adaptability
The development and partial testing of the psychometric properties of a measurement scale of organizational agility.	Charbonnier-Voirin	2011	1,2,3	Organizational learning, flexibility, reactive capacity
The antecedents, consequences, and mediating roles of organizational ambidexterity	Gibson & Birkinshaw	2004	1	Contextual ambidexterity
Perceived managerial and leadership effectiveness in a non-profit organization: an exploratory and cross-sector comparative study	Hamlin, Sawyer, & Sage	2011	1,2,3	Effective leadership traits
Is Anybody Out There? Antecedents of Trust in Global Virtual Teams	Jarvenpaa, Knoll, & Leidner	1998	1&2	Organizational effectiveness

Collaborative emergency management: better community organizing, better public preparedness and response	Kapucu	2008	3	Organizational learning, networking
Preparing For The Unknown, Responding To The Known: Communities And Public Health Preparedness	Katz, Staiti, & McKenzie	2006	3	Organizational collaboration
Growth and Resilience of Pioneering Nonprofit Human Service Organizations: A Cross-Case Analysis of Organizational Histories	Kimberlin, Schwartz & Austin	2011	1	Environmental understanding
In Search of Archetypes in Crisis Management	Lalonde	2004	1&2	Agility and environmental awareness
Organizational Design and Restructuring in Response to Crises: Lessons from Computational Modeling and Real-World Cases	Lin, Zhao, Ismail & Carly	2006	1	Environmental awareness
Leading Virtual Teams	Malhotra, Majchrzak & Rosen	2007	3	Information sharing, trust
Mechanisms of Control in Emergent Inter-organizational Networks	Marcum, Bevc, & Butts	2012		Communication, quality information exchange
Does Leadership in Networks Matter? Examining the Effect of Leadership Behaviors on Managers' Perceptions of Network Effectiveness	McGuire & Silvia	2009	3	Leadership awareness, information exchange
Strategic Preparation for Crisis Management in hospitals: Empirical evidence from Egypt	Mostafa, Sheaff, Morris, & Ingham	2004	1&2	Environmental awareness, flexibility
Learning under Uncertainty: Networks in Crisis Management	Moynihan	2008	1&3	Communication, environmental awareness

Public-nonprofit partnership performance in a disaster context: The case of Haiti	Nolte & Boenigk	2011	1&2	Environmental awareness, flexibility, agility
Managing disaster knowledge: identification of knowledge factors and challenges	Pathirage, Seneviratne, Amaratunga, & Haigh	2012	3	Knowledge management
A Tale of Two Situations An Empirical Study of Behavior by Not-for-Profit Managerial Leaders	Peterson & Van Fleet	2008	1&3	Problem solving, learning
Authentic leadership: An empirical test of its antecedents, consequences, and mediating mechanisms.	Peus, Wesche, Streicher, Braun, & Frey	2011	1&3	Effective leadership traits
Assessing Public Health Capabilities During Emergency Preparedness Tabletop Exercises: Reliability and Validity of a Measurement Tool	Savoia, Testa, Biddinger, Cadigan, Koh, Campbell & Stoto	2009	1,2,3	Environmental awareness, flexibility, agility
Organizational Discourse and the Appraisal of Occupational Hazards: Interpretive Repertoires, Heedful Interrelating, and Identity at Work	Scott & Trethewey	2008	2	Agility and flexibility
Organizational resilience: Researching the reality of New Zealand organizations	Seville et al.	2008	1&2	Environmental awareness, flexibility, agility
Measuring resilience potential: An adaptive strategy for organizational crisis planning.	Somers	2009	1	Environmental awareness
Managerial Perceptions of Crisis Leadership in Public and Private Organizations: An Interview Study in the United States	Thach	2012	2&3	Flexibility, agility and organizational learning
Building Trust and Cooperation through Technology Adaptation in Virtual Teams: Empirical Field Evidence	Thomas & Bostrom	2008	1&2	Internal awareness and flexibility

Strategic Sensemaking and organizational performance: Linkages among scanning, interpretation, action, and outcomes	Thomas, Clark, & Gioia	1993	1	Understanding the environment
A Structural Perspective on the Emergence of Network Organizations	Topper & Carly	1999	1&2	Environmental awareness, flexibility, agility
Crisis Management Competencies: The case of emergency managers in the USA	Van Wart & Kapucu	2011	2	Flexibility
Managing Disaster Networks in India	Vasavada	2013	3	Networking, trust

Appendix C: Affirmative responses to network traits

Partnership input	Number of affirmative statements	Partnership output	Number of affirmative statements	Partnership outcome	Number of affirmative statements
- *communication*	7	- *time*	7	- *community outcome*	4
- *coordination*	5	- *reach the region*		- *strengthened community*	
- *mutuality*	6	- *provide products & services*		- *promoted healthy development*	
- *common norms*	5	- *faster through collaboration*		- *protection from threats*	
- *trust*	7	- *quality*	7	- *promoted social stability*	
- *experience*	7	- *appropriateness*		- *protection from disaster*	
- *sympathy*	5	- *desired effect*		- *promoted learning*	
		- *acceptance*		- *network outcome*	7
		- *equal quality*		- *grown network*	
		- *efficiency*		- *grown range of service*	
				- *absence of duplication*	
				- *stronger relationship*	
Additional Inputs:		Additional Output:		- *commitment to network goals*	
- *openness to collaborate*	3	- *cost*	4	- *better coordination & integration*	
- *personal networks*	3			- *sunk costs*	
				- *organization actor outcome*	6
				- *new knowledge*	
				- *diffusion of risk*	
				- *survival*	
				- *enhanced legitimacy*	
				- *acquirement of bigger resources*	
				- *sunk costs*	

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