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Leadership Traits, Tools, and Practices: Decision Making in a Crisis

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LEADERSHIP TRAITS, TOOLS, AND PRACTICES: DECISION MAKING IN A CRISIS

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LEADERSHIP TRAITS, TOOLS, AND PRACTICES: DECISION MAKING IN A
CRISIS

by

Linda M. Murawski

A dissertation presented to the
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Dedication

For their unconditional love, support, and encouragement, this dissertation is dedicated to my family.

This study is also dedicated to those who love learning, who take the journey of a doctoral program, and who complete that journey.

Finally, this study is dedicated to those who serve in the crisis management community.

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Abstract

Crises often present complex, uncertain, and unstable situations where routine decision making is not enough. Crises are typically unpredictable yet leaders must prepare to make decisions using a variety of traits, tools and practices. While all leadership is dependent on many factors and subject to many variables, in a crisis, those variables are magnified. Effective decision making during a crisis is a key trait of crisis leaders and is developed over time and with practice.

Using the classic Delphi Technique, the researcher obtained qualitative data from experts in crisis management concerning (a) the difference between non-crisis and crisis decision making, (b) the traits and tools of a crisis leader, and (c) evidence of effective crisis leadership practices. This research method was selected because of its flexibility, its use of experts, and the varied locations of those experts.

Literature reviewed for this study considered traditional leadership as well as crisis leadership. Crisis leaders use traditional decision making strategies, tools and practices as well as those adapted to a crisis environment. This study seeks to capture some of that data and disseminate it to the community of practice as well as the research community.

The goal of any research is to improve the field of practice, add to the body of knowledge, and increase awareness of an idea, concept, or theory. Recognizing the complexity of crisis environments, the researcher suggests recommendations that may assist the crisis management community to improve decision making and to share traits, tools, and practices of effective crisis leaders.

Keywords: Crisis, emergency, leadership, crisis leadership, decision making ,Delphi Technique.

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Chapter 1: Introduction

The study of leadership during crises is increasingly important in our changing world because these crises are unpredictable, longer lasting, and more costly than in the past (Pinsdorf, 2004). Leaders around the globe struggle with the challenges of planning for, responding to, and recovering from a crisis. Both predictable and unpredictable threats to organizations and communities provide challenges for decision makers facing a crisis. Crises often present complex, uncertain, and unstable situations when routine thinking and action are not enough.

There are many types of natural and human-made disasters. Bridge collapses, pandemics, major traffic crashes, wildfires, floods, ice storms, earthquakes, hurricanes, tornadoes, chemical spills, school shootings, and various forms of terrorism are examples of incidents that individuals in the emergency management[1] community respond to every day. Crisis events vary in size, complexity, and duration; however, each has the common thread of a need for decisive and appropriate leadership to mitigate the situation (Bourne, 2005).

Events such as the media and consumer scrutiny faced by Ford Motor Company in the 1990s for its sport utility vehicles accidents, Hurricane Katrina in 2005, and the financial crises of 2009 are examples of crises that call for decisive, effective, and calm leadership. The emergence of acts of terrorism as crisis events has expanded the meaning of what constitutes a crisis and elevates concern over crisis management to an even higher level. Most notably, the terrorists events of the first World Trade Center bombing in 1993, the Alfred P. Murray Building in Oklahoma in 1995, and the devastating results of the

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[1]*Emergency management* and *crisis management* are used interchangeably in this document.

September, 11, 2001 World Trade Center and Pentagon terrorist's attacks are constant reminders of the need to develop leaders who can make timely, effective decisions during a crisis (Kean & Hamilton, 2004).

Effective, timely, and seasoned leadership during times of crisis is critical to a positive outcome. The discipline of crisis management addresses much of the required preparation and response actions needed to minimize negative outcomes. Experienced crisis leaders believe that a crisis plan and proactive preparations are needed to mitigate (reduce) the impact of a crisis event. Quarantelli (1988) indicates that "prior planning can limit management difficulties but cannot completely eliminate all of them" (p. 373). Preparing for a crisis enables those in a leadership role to anticipate, identify, and organize strategies and tactics to prevent or modify the impact of events. González-Herrero and Pratt (1996) emphasize the importance of research and planning as essential measures which allow an organization to identify and address potentially threatening issues that might lead to a crisis.

Organizations prepare for crises differently but have some actions in common, such as a shared understanding of what defines a crisis. The nature of a crisis is often unpredictable yet leaders must prepare for action using a variety of traits, tools and practices. No one method will be applicable to all situations. As stated previously, each crisis is different thereby requiring different leadership approaches. The plethora of information on crises and their impact is portrayed in the media, in organizations, and in people's personal lives. This study focuses on addressing crises through the decision making process, the traits of decision-makers, and the tools and practices used by those who lead during crisis situations.

Despite the uncertainty that crises bring, there are often leaders in a decision making role who excel or even thrive on the ability to direct in such circumstances. These leaders are poised and ready to respond as the need arises. Leaders of this type are those who typically have been tested in a crisis before and have learned lessons that assist them in future crisis

decision making. The propensity for a positive outcome is often dependent on effective

decisions that are made quickly despite the uncertainty, time pressure, and high stakes

associated with such crises (Pearson & Clair, 1998). Leaders in a crisis are faced with the

challenges of both limited and uncertain data and feedback delays as they attempt to

understand and maintain control over a changing situation. This is especially true in the case

of crisis management (Kean & Hamilton, 2004). Addressing challenges, reducing

uncertainty and increasing the amount of data available to the decision maker are critical.

Crisis leadership and day-to-day leadership are characterized by similarities as well as

differences. Crisis leadership requires a leader to make decision in a timely manner given

high stakes, stress, and unknown information.

Information that focuses on various kinds of crises and crisis planning is gaining

momentum. Kushma and Rubin (2009) report a growing number of articles and books

published recently addressing the topics of disasters, disaster management, impact on the

public and private sectors, and the policies, practices and theories resulting from disasters.

They identify five factors that have increased the number of crisis and disaster publications:

the impact of the 9/11 World Trade Center and Pentagon events in 2001; the impacts of

Hurricane Katrina, Rita and Wilma in 2005; the formation of the Department of Homeland

Security in 2002; the proliferation of courses in crisis and disaster management; and efforts

by publishers to publish new books about crisis events (Kushma & Rubin, 2009).

Crisis management is an emerging discipline. There are no seminal theories of crisis

management. The debate regarding a definition of crisis or emergency management

continues to evolve. As a nascent field of study, crisis management primarily depends on

other theories for its foundations. Recent literature searches for this study revealed little

information on crisis management theory. Much of the information available resides in the

social, psychological, and medical disciplines. A search using the term *crisis management*

yielded information on crisis theory, chaos theory and decision-making theory. Lacking a

definitive theory of crisis management, the researcher used available definitions of crisis management as a basis for this study.

Defining what emergency management embodies requires a number of definitions, several of which are suitable for this study. There is no consensus on a definition of emergency management. Haddow and Bullock (2003) define emergency management as "the discipline dealing with risk and risk avoidance" (p. 1). Similarly, Canton (2007) describes emergency management as "a mechanism for a jurisdiction or organization to manage risk" (p. 75). The implications of his definition include the need to identify risks and to develop strategies to manage risks. Mitroff (2004) distinguishes between crisis management and crisis leadership by implying that crisis management is reactive while crisis leadership is proactive.

Crisis management distinguishes itself from routine or traditional management in several ways. Aside from the actual situation of a crisis or unscheduled event, other differences between crisis events and non-crisis events include the lack of anticipation, the level of impact, the nature of the response, and the time available to respond. For those experienced in the field of crisis management, it can be said that crisis events are simply extensions of non-crisis events but involve much greater intensity.

Crisis management is a proactive discipline with a focus on identifying hazards, decreasing risks and saving lives, preserving the environment, protecting property and the economy (Bullock, Coppola, & Haddow, 2007). Crisis management is predicated on the four tenets of preparedness, mitigation, response, and recovery (Federal Emergency Management Agency (FEMA), n.d.). The focus of crisis management is a comprehensive, all-hazards approach (McEntire, Fuller, Johnston, & Weber, 2002). As a discipline, crisis management does not limit the focus to one agency or one type of hazard; rather, it focuses on the interaction of various agencies and various hazards within a jurisdiction.

Crisis leadership, as a component of crisis management, is dependent on an understanding of traditional leadership practice. Leadership practice refers to leadership theory and the application of that theory including the source and nature of leadership. Hackney (2004) calls this the "cultural structure of leadership, which is shaped by the assumptions, beliefs, values and shared practices among leaders" (p. 2). Understanding successful crisis leadership practice and the supporting theory can provide critical insight into preparation for crisis, selection and training of leaders, recognition of the beginning and end of crises, and meeting crises head-on.

Effective decision making during a crisis is a key trait of crisis leaders and is developed over time and with practice. This study looks at the traits of crisis leaders who face challenges and opportunities during crisis events and provides selected conclusions about how they approach day-to-day decision making versus how they make decisions in a crisis environment. Additionally, the study considers what practices and tools these leaders use in a crisis situation.

A starting point for crisis leaders to develop their decision making skills is their daily work environment. These skills are tested when a crisis intervenes and they are required to make decisions in a high stress, time sensitive environment. Most crises are ambiguous situations which call for crisis leaders who can use their knowledge, skills, and abilities (KSAs) to make these decisions. Moore (1999) discusses the role of KSAs in the performance of one's job duties and notes that a job title by itself does not provide enough information on how job performance is accomplished. An examination of the KSAs needed for crisis decision making reveals they are learned over time and support timely decision making in the midst of a crisis situation. Moore (1999) describes what he calls *job language* which contains descriptors for standards of quality performance; the knowledge, skills, and abilities required for quality performance; and the technologies employed for quality performance.

Background of the Study

The incidences of crisis events have seemingly increased in frequency and intensity in the last decade (Mitroff, 2002). There are those who contend that crises have been a part of the human condition since the beginning of recorded history, and the difference today is the amount of media coverage and the intentional focus placed on disasters by the media industry (Gerber, 2007). The numbers continue to increase. Mitroff (2004) identifies 40 major crises over the past two decades including the Enron collapse, the World Trade Center attacks, the Ford-Firestone tire crisis, several airplane disasters, the Union Carbide disaster at Bhopal, and the Tylenol poisonings. Schoenberg (2004) reports that, in the past ten years, over 65 major US financial crises have occurred. The website *US Disaster Statistics* lists numbers and types of disasters that have occurred from 1980-2010 with an ever increasing number tied to economic disasters (US Disaster Statistics, 2010).

As the nature and magnitude of crises change, so do the traits of leaders and decision makers in crisis situations. Bolman and Deal (2008) provide a number of traits or characteristics that reflect leadership such as the "ability to articulate a vision, set standards for performance, create focus, communicate effectively, and display commitment or passion" (p. 345). However, they note that "no characteristic is universal, however, vision and focus are most often involved in describing a leader" (Bolman & Deal, 2008, p. 345). Kouzes and Posner (2007) discuss a general change in leadership styles from authoritarian directive leadership to an attitude of collaboration, teamwork and participative management in many organizations. In a global economy, business enterprises contend with more complexity and uncertainty than ever before, which lead to an ever-increasing need for awareness of interruptions or worse, crises. These changes have transformed the traditional crisis leadership response from heroics by a solo charismatic leader to a coordinated team effort that calculates numerous possibilities and integrates diverse perspectives to determine the optimal solution.

Definitions of Terms

There are several terms essential to understanding leadership and the practice of crisis management. Within this study the terms emergency management, crisis management, and disaster management will be used interchangeably. A working definition of leader and leadership is included. Other terms of importance include crisis, emergency and decision making. Terms applicable to the practice of crisis management are included below. These definitions of crisis management are reflected in the literature and in practice.

Definitions applicable to the practice of crisis management are provided by a number of sources listed below.

- *Crisis* is an unstable time or state of affairs in which a decisive change is impending (Fink, 1986, p.15). Pearson & Clair (1998) define a crisis as "a low-probability, high-impact event that threatens the viability of the organization and is characterized by ambiguity of cause, effect, and means of resolution, as well as by a belief that decisions must be made swiftly" (p. 60.)

- *Crisis leadership* denotes a set of actions undertaken by a leader to bring about immediate change in people's behavior and beliefs as well as to achieve needed outcomes (Gardner, 1995). In a crisis situation, a leader provides "stability, reassurance, confidence, and a sense of control" (Lussier & Achua, 2004, p. 382).

- *Crisis management (emergency management)* refers to the organized analysis, planning, decision making, and assignment of available resources to mitigate, respond to, and recover from the effects all hazards (FEMA, n.d.).

- *Decision making* means directing and coordinating the activities of other people in order to achieve results (FEMA, n.d). A mental frame used to produce an outcome (Thaler, 1999, p. 186). An assessment of and choice from among alternatives in terms of their probability of occurrence and their expected value (Galotti, 2002, p. 97).

- *Disaster* is an accidental or uncontrollable event, actual or threatened, that is concentrated in time and space, in which a society undergoes severe danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfillment of all or some of the essential functions of the society is prevented (Haddrow & Bullock, 2003, p.15).

- *Emergency* is an unexpected event that places life and or property in danger and requires an immediate response through the use of routine community or organizational resources and procedures (Kushma & Rubin, 2009, p. 243).

- *Emergency management (crisis management)* is the management of governmental and non-governmental preparedness and response at federal, state, and local levels to unplanned events that affect public health and safety and destroy property (Kushma & Rubin, 2009, p. 243).

- *Emergency manager* is the person who has day-to-day responsibility for emergency management programs and activities. The role is one of coordinating all aspects of a jurisdiction's mitigation, preparedness, response, and recovery capabilities (FEMA, n.d.).

- *Emergency Operations Center* (EOC) is a central location from which centralized emergency management can be performed during response and recovery. The use of EOCs is a standard practice in emergency management, and is one type of multiagency coordinating tool. Local governments should have designated EOCs. The physical size, staffing, and equipping of a local government EOC will depend on the size and complexity of the local government and the emergency operations it can expect to manage. The level of EOC staffing will also vary with the specific emergency situation (FEMA, n.d.).

- *Emergency preparedness* refers to those activities, programs, and systems that exist before an emergency and that are used to support and enhance response to an emergency or disaster (FEMA, n.d.).

- *Expert* is a person who has a comprehensive and authoritative knowledge of or skill in a particular area (Oxford Dictionaries Online, n.d.).

- *Federal Emergency Management Agency* (FEMA) is an independent agency of the federal government whose mission is to reduce loss of life and property and protect the Nation's infrastructure via an emergency management program of mitigation, preparedness, response, and recovery (FEMA, n.d.).

- *Homeland Security* is a concerted national effort to prevent terrorist attacks within the United States, reduce America's vulnerability to terrorism, and minimize the damage and recover from attacks that do occur (Kushma & Rubin, 2009, p. 243).

- *Incident* is an occurrence or event, natural or human-caused that requires an emergency response to protect life or property. Incidents include major disasters, emergencies, terrorist attacks or threats, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, war-related disasters, public health emergencies, and other events requiring an emergency response (FEMA, n.d.).

- *Leader* is someone in a position of legitimate authority who influences others to understand and agree about what needs to be done and how it can be done effectively. A leader uses the process of facilitating individual and collective efforts to accomplish shared objectives (Yukl, 2009).

- *Leadership* is a process whereby an individual influences a group of individuals to achieve a common goal (Northouse, 2007, p. 3).

- *Mitigation* refers to activities taken to eliminate or reduce the probability of the event, or reduce its severity or consequences, either prior to or following a disaster or emergency (FEMA, n.d.).

- *National Incident Management System* (NIMS) is a system mandated by Homeland Security Presidential Directive (HSPD)-5 that provides a consistent nationwide approach for federal, state, local, and tribal governments; the private-sector, and nongovernmental organizations to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. To provide for interoperability and compatibility among federal, state, local, and tribal capabilities, the NIMS includes a core set of concepts, principles, and terminology. The cores set includes the Incident Command System (ICS); multiagency coordination systems; training; identification and management of resources; qualification and certification; and the collection, tracking, and reporting of incident information and incident resources (FEMA, n.d.).

- *Situational awareness* is the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning and the projection of their status in the near future (Endsley & Garland, 2000, p. 2).

- *Terrorism* is the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives (Kushma & Rubin, 2009, p. 244).

- *Weapons of Mass Destruction* are any weapons or devices that are intended to cause, or have the capability to cause death or serious bodily injury to a significant number of people through the release, dissemination, or impact of a toxic o poisonous chemical or their precursors; a disease or organism or radioactivity (Kushma & Rubin, 2009, p. 245).

Fink (1986) posits that a crisis is an "unstable time or state of affairs in which a decisive change is impending" (p. 15). He sees a crisis as an extended event with sufficient warning signs that precede the event to impact the possible outcome which may be positive or negative.

Research on decision making yields a number of definitions such as to direct and coordinate the activities of other people in order to achieve results (FEMA, n.d). Thaler (1999) suggests that decision making is "a mental frame used to produce an outcome" (p. 186), whereas Krantz and Kunreuther (2007) simply say decision making is a choice based on goals. Galotti (2002) suggests that "decision making refers to an assessment of and choice from among alternatives in terms of their probability of occurrence and their expected value" (p. 97). This assessment and consideration may be explicit and complex or implicit and rapid, but without consideration of alternatives, no decision-making can be said to have taken place.

Statement of the Problem

In the past, much attention has been focused on the heroic crisis leader's behavior as the solution to whatever crisis befalls the organization. Peter Senge (2006) states "this idealization of great leadership leads to an endless search for heroic figures that come in to rescue the rest of us from unmanageable situations" (p. 11). Literature describing what constitutes crisis leaders and their practice is minimal. Further, little is written on the traits of a crisis leader and the leadership practices that have been most effective in dealing with crises. Literature is more plentiful in the areas of traditional leadership and decision making, therefore this literature makes up the bulk of what is used in this study.

The literature on crisis management theory is limited for this study. When searching for the terms *crisis management theory*, *emergency management theory* or *disaster management theory*, the researcher was able to glean little information from the internet or online database searches. Scholarly information for these terms, in particular, is extremely

lacking. This void of information is an indication that this area of research is rich with possibilities. Additionally, consensus on definitions of the terms crisis management, emergency management, or disaster management is inconclusive. Covington and Simpson (2006) state:

> The variance in taxonomies makes it difficult to extract a particular topic, such as disaster preparedness, from the existing literature. Many authors use such terminology as disaster preparedness, hazard mitigation, and disaster reduction interchangeably where each term could be perceived as distinctive. Other authors provide definitions that may suffice for one field but would be fundamentally inadequate in another (pp. 11-12).

Information sources such as the Federal Emergency Management Agency, the Department of Homeland Security, and the International Association of Emergency Managers (2007) possess the primary information sources used in this study.

Purpose of the Study

The purpose of this study was to obtain qualitative data concerning (a) the difference between non-crisis and crisis decision making, (b) the traits and tools of a crisis leader, and (c) evidence of effective crisis leadership practices. The study looks at both day-to-day and crisis leadership and examines how leaders transfer their day-to-day knowledge, skills, and abilities to decision making in a crisis environment. This study uses a model that examines inputs, outputs, and research strategies appropriate to the subject of crisis leadership. Assumptions and external factors are considered as well.

Using the Delphi Technique, the researcher surveyed experts in the field of emergency management. The Delphi Technique was developed in the 1950s by research scientists Olaf Helmer and Norman Dalkey (Dalkey, 1972) and later refined by Linstone and Turoff (1979). This methodology represents a highly structured and focused approach to establish consensus opinions from experts. As an iterative process, the Delphi Technique

aims to obtain a broad range of opinions from experts in a multi-round collection of survey data. After data are collected, they are analyzed and the experts are given a final opportunity to respond to others' opinions. The ultimate outcome for the Delphi Technique is a synthesis of expert opinions into applications for future use.

Rationale for the Study

This study will add to the body of knowledge which examines crisis leadership decision making and practices that assist making those decisions. While considerable research has been conducted concerning traditional leadership traits and decision making in day-to-day activities little research exists that ties theory to crisis leadership decision making and practice. Covington and Simpson (2006) suggest that "the phenomena of disaster management tends to create rifts in the disaster preparedness profession, as no single theory, or set of theories, can be identified as the core concepts upon which disaster preparedness plans and practices are based" (p. 4). This study identifies practices and tools used by crisis leaders through surveys and analyses of data reported by subject matter experts using the Delphi Technique. Leadership practice (theory and application) normally takes a back seat to the successful crisis leader's behavior.

The Delphi Technique was originally developed as a tool for forecasting future events using a series of intensive questionnaires interspersed with controlled-opinion feedback. The participants in this Delphi study are experts with backgrounds in national defense and various scientific disciplines. The Delphi process begins with an open-ended questionnaire that is given to a panel of selected experts to solicit specific information about a subject or content area. In subsequent rounds of the procedure, participants rate the relative importance of individual items and also make changes to the phrasing or substance of the items. Through a series of rounds, typically three, the process is designed to yield consensus.

Research Questions

The following research questions guided this study:

1. Is there a difference between day-to-day leadership decision making and crisis leadership decision making?

2. What are the traits of a crisis leader and what tools or practices does that leader use for decision making given ambiguous (limited and/or unconfirmed) information?

Significance of the Study

Crisis leaders are acutely aware of the need to respond in a timely and expedient manner to various types of crises or emergencies that have the potential to threaten the public's life, health or safety. These leaders have honed their skills or as Covey (1991) suggests they "sharpen the saw" over time in order to impact events in a positive rather than negative way (p. 38). Making decisions during a crisis is a key trait of crisis leaders and has developed over time in the practice of crisis management. This emerging field has grown in response to a number of watershed events over the past fifty years. Events such as the Three Mile Island Nuclear Power Plant accident in 1979 (Walker, 2004) and the Alfred P. Murray Federal Building bombing in 1995 (*Bombing*, 2005) have changed the face of crisis management and impacted not only the decisions to be made but also how crises events are dealt with before and after they occur. While the practice of crisis management continues to gain recognition, scant research is available on the traits, tools, and decision making behaviors of crisis leaders.

The findings and conclusions of this study are applicable to further research efforts and will add to the body of knowledge for the practice of crisis management and crisis leadership decision making. Further, the researcher's practice of emergency management will benefit from knowledge gained from this study.

Limitations

The participants for the first round of this study were limited to attendees at the Emergency Management Issues Special Interest Group (EMISIG) annual conference held in

Las Vegas, Nevada in May, 2010. The researcher selected this conference based on the number of participants that attend annually. Attendance is typically around two hundred and fifty people. Attendees consist of emergency management professionals from the Department of Energy (DOE) contractor sites, state and local emergency management practitioners, and private consultants who support the DOE complex across the United States. Conference attendees are representative of practitioners in the larger emergency management community.

Those who participated in this study did so voluntarily; no pre-selection was made. To take part in the study, the researcher set up a table in the exhibit area of the conference hall and provided blank surveys. Participants picked up a blank survey, filled it out in pen, signed the sign-in sheet, and returned the form at the end of the conference. After this conference, additional experts were selected based on their experience in emergency management and availability to respond via email.

Some limitations of the findings and conclusions of this study are based on the following:

- The researcher's interpretations of crisis management, crisis leadership, and decision making.
- The limited amount of available crisis leadership data.
- The researcher's personal connection to practice of crisis management and crisis leadership.

This Delphi study had one additional limitation. Since there were no interviews conducted based on the nationwide geographic locations of the experts, the researcher needed to remind participants periodically to return the surveys. Typically, in interviews, the data are collected immediately and clarified later. In this study, the personal interaction was

limited due to the respondents' locations; therefore, the researcher emailed and telephoned

the participants to ensure the most surveys possible were completed.

Chapter 2: Literature Review

With the availability of 24-hour live news, crisis events are a constant source of information and concern. These events afford the opportunity to see various aspects of the nature of crises, those who are involved in the crises, and the role each individual takes in the outcome. Within this environment are those individuals who possess leadership tools used to make decisions impacting the outcome of crises. These crisis leaders are uniquely positioned to make a difference in the management of those events often with limited or ambiguous information in a time sensitive environment.

The basic challenge for crisis leaders is to make timely and accurate decisions in a complex, intense, and ever-changing global landscape (Bolman & Deal, 2008). To inform the reader and to better understand this dynamic environment and the impact of both traditional and crisis leadership practices, a literature review is needed. This study includes that literature review and explores leadership styles, traits, and theories as well. Additionally, the study provides several operational definitions including terms such as "crisis," "leadership," and "decision making."

A number of theories evaluated for this review are crisis decision theory (Sweeny, 2008), situational awareness theory (Endsley, 2000), and classical leadership theories such as contingency theory, path-goal theory, leader-member exchange theory, transformational theory, and situational leadership theory (Hersey, Blanchard, & Johnson, 2001). The presentation of each leadership theory includes a discussion about leadership and leadership traits. Through these discussions the reader will gain an understanding of the relationship between leaders in crisis events and traits, tools and practices they embody.

The emerging field of crisis management is explored with the understanding that crisis management, as a practice, has its roots in civil defense, firefighting, nuclear energy, emergency medicine and other disciplines (Kushma & Rubin, 2009). The background for

crisis management was born out of other disciplines such as those previously stated. These disciplines have laid the foundation for crisis management concepts, theories, and principles. Information regarding each discipline and its relation to others and disasters is important to the understanding of how crisis management has evolved. As more research is conducted, the discipline of crisis management generates new knowledge, identifies gaps in the literature, and provides recommendations for the discipline. Sources gleaned for this review were derived from documents such as articles from scholarly journals, reports, dissertations, books, library database searches, and the internet.

Review of Crisis and Emergency

A crisis can be defined in a number of ways. For example, a financial crisis in a business setting is viewed differently from a natural disaster such as a hurricane. Cooper (2007) suggests that a crisis "represents an opportunity for intervention, a moment at which the outcome, for good or ill, might be influenced" (p. 16). The Federal Emergency Management Agency publishes and updates a complete glossary of terms pertaining to crisis events. Several of those definitions, and others used for this study, are located in Chapter 1.

Scholars continue to debate an acceptable definition of what makes a crisis. For example, Fearn-Banks (2002) defines a crisis as "a major occurrence with a potentially negative outcome affecting an organization, company, or industry, as well as its publics, products, services, or good name" (p. 1). Hamblin (1958) argues a crisis is ". . . an urgent situation in which all group members face a common threat" (p. 322). Pauchant and Mitroff (1992) perceive a crisis as "a disruption that physically affects a system as a whole and threatens its basic assumptions, its subjective sense of self, and its existential core" (p. 12). Fink (1986) claims a crisis is any event that may escalate in intensity, fall under close media and government scrutiny, interfere with normal business operations, and affect the image and bottom line of a company. Barton (1993) notes a crisis "is a major, unpredictable event that has potentially negative results which may significantly damage an organization and its

employees, products, services, financial condition, and reputation" (p. 2). Lebinger (1997) perceives a crisis as "an event that brings, or has the potential for bringing, an organization into disrepute and imperils its future profitability, growth, and possibly its very survival" (p. 4). Ray (1999) tends to view a crisis as an event triggered by organizational fallacies. Finally, Pearson and Clair (1998) view a crisis as "a low-probability, high-impact event that threatens the viability of the organization and is characterized by ambiguity of cause, effect, and means of resolution, as well as by a belief that decisions must be made swiftly" (p. 60).

Review of Crisis or Emergency Management

Along with the need to define crisis is the need to define crisis management. Emergency management is defined by FEMA (n.d.) as "the organized analysis, planning, decision making, and assignment of available resources to mitigate, prepare for, respond to, and recover from the effects of all hazards." The practice of emergency management has undergone changes through numerous watershed events. Many of the standards and affiliated laws have been codified within and through agencies such as the International Atomic Energy Agency, FEMA, the Department of Homeland Security (DHS), the Department of Energy (DOE), and the National Fire Protection Agency (NFPA). Standards are maintained at the state level as well as through business and industry initiatives such as the Occupational Safety and Health Agency (OSHA).

The process of decision making for command and control of crisis events by crisis management professionals in the United States is articulated in several documents including the National Incident Management System (NIMS), *National Response Framework* (2008), and the National Fire Protection Agency's *Standard on Disaster/Emergency Management and Business Continuity Programs (NFPA 1600).* The NIMS is an outgrowth of the Incident Command System (ICS) which dates back to the 1970s. Within these documents, the responsibilities for decision making are articulated at the federal, state, and local levels.

Decision making within the practice of crisis management has evolved slowly but steadily over the last half century.

Emergency management is typically implemented in phases as suggested by FEMA. Figure 1 depicts these stages as: *mitigation*, *preparedness, response* and *recovery.* Each phase is distinctive in its process and requires decision making strategies. Mitigation efforts attempt to prevent hazards from developing into outright disasters or to reduce the effects of disasters when they occur. The mitigation phase focuses on long-term measures for reducing or eliminating risk (Haddrow & Bullock, 2003).

Figure 1. Phases of emergency management. Adapted from the National Earthquake Hazards Reduction Program (NEHRP) website, http://www.nehrp.gov

Preparedness is a continuous cycle of activities including planning, organizing, training, equipping, exercising, evaluation and improvement activities to ensure effective coordination (FEMA, n.d.). As a process, preparedness enhances an organization's capability to prevent, protect against, respond to, recover from, and mitigate the effects of natural disasters, acts of terrorism, and other man-made disasters.

Response is defined as "the actions taken to save lives and prevent further damage in a disaster or emergency situation" (FEMA, n.d.). Critical to the response phase is implementing preparedness plans into action. Activities conducted during this phase may

include damage assessment, search and rescue, fire fighting, and providing shelter for victims.

Recovery is defined as the "actions taken to return the community to normal following a disaster" (FEMA, n.d.). The recovery phase seeks to restore the affected area to its previous state. It differs from the response phase in its focus; recovery efforts are concerned with issues and decisions that must be made after immediate needs are addressed. Examples of recovery include repairing, replacing, or rebuilding property.

Review of Leader and Leadership

Gardner (1995) defines a leader as "a person who, by word and/or personal example, markedly influences the behaviors, thoughts or feelings of a significant number of their fellow human beings" (pp. 8-9). As a starting point in the discussion of leadership, the focus typically centers on traits and behavioral perspectives. Kouzes and Posner (2007) suggest "leadership is not about personality; it's about behavior" (p. 15). Goleman (1999) adds to the traits and behavior aspects of leadership by injecting the concept of emotional intelligence. By emotional intelligence, he posits four domains of a leader's capabilities: self-awareness, self-management, social awareness, and relational management (Goleman, Boyatzis, & McKee, 2002). Using these criteria, a crisis leader can impact the outcome of a crisis in positive ways. These leadership traits suggest the tendency to think about the welfare and rights of others while acting with feelings of concern, empathy and a willingness to help and share with others without concerns for rewards. Leaders who demonstrate these values to their followers demonstrate responsibility and willingness to further the organization's goals in an efficient and equitable way.

Northouse (2007) defines leadership as "a process whereby an individual influences a group of individuals to achieve a common goal" (p. 3). In a similar way, Braden, Cooper, Klingele, Powell, and Robbins (2005) state that the leader "defines what the future should look like, aligns the structures and process, and inspires people to 'make it happen'" (p. 32).

Kouzes and Posner (2007) express the view that leaders are those persons who, when confronted with a critical incident, take the opportunity to teach important lessons.

The September 11, 2001 attack in the United States produced fears and uncertainty regarding the country's national security and its ability to survive the impact from a terrorist event. This event brought attention to the decision making process as well as the need to ensure an appropriate response by military and federal, state, and local organizations. Protection of the country's infrastructure, including its modes of transportation and sporting, cultural, and political venues require unprecedented levels of security (Mitroff, 2004). Leaders at all levels and in all sectors of government and the private sector have been searching for answers as they continue to redefine and clarify new leadership roles in times of crisis. In this search, new leaders emerge and new opportunities to exhibit leadership are born. The common link between today's leaders and those of the past is that modern day leaders have had to seek and create new opportunities to lead their organizations (Acord, 2009). Reducing the fears and concerns of communities is a goal that leaders have strived for throughout history, although the methods to accomplish that goal have changed over time. Leadership itself has changed gradually and new models have emerged in recent times.

The notion of what a leader is, in the Western tradition, is grounded in a stereotyped image. According to this traditional approach, a leader is "a strong and powerful individual — someone who makes decisions, commands many others, and speaks with charisma" (Omatus, 2003, p. 5). This idea of leader embodies special qualities only rarely found in one person. Typically, a leader is characterized as an older male, perhaps a CEO in some corporation, a U.S. President, or general in the U.S. military (Omatus, 2003). Fortunately, this leadership image is changing. Northouse (2007) speaks to the empirical—although limited—research which indicates small differences in leadership style and effectiveness between men and women. Others point to specific differences in leadership traits, styles and behaviors between women and men in leadership (Rosner, 1999).

Leadership studies, in the past, focused on the belief that individuals who have the right characteristics or traits will be good leaders. Kouzes and Posner (2007) note five leadership traits including honesty, forward-looking, competent, inspiring, and intelligent. Further, they believe that simply having these traits is not enough; one must model the traits in a way that makes others notice and want to emulate them. Northouse (2007) refers to the trait approach as the "great man" theory which focused on identifying the innate qualities and characteristics possessed by great social, political, and military leaders (p. 15). Bolman and Deal (2008) believe that "effective leaders help articulate a vision, set standards for performance, and create focus and direction" (p. 345).

Leaders' traits, as well as their relationships with their followers, can be predictive of their action in a crisis. Those leaders who exhibit strong bonds with their followers perform somewhat differently than those whose bonds are weaker (Kouzes & Posner, 2007). In ambiguous situations such as a crisis, these "relationship-oriented" leaders perform well and have a loyal following because they are open, participative, and tend to motivate followers to solve problems in creative ways (Kouzes & Posner, 2007). The research of Bennis and Thomas (2002) suggests that one of the most reliable indicators and predictors of true leadership is the ability to learn from even the most negative experience. Interviewing more than forty leaders in the business and public sectors over three years, the authors discovered that these leaders had endured intense and often traumatic experiences that transformed them and became the source of their distinctive leadership abilities. Bennis and Thomas (2002) call these "shaping experiences," or "crucibles," after the vessels medieval alchemists used in their attempts to turn base metals into gold (p.40).

Review of Crisis Leaders and Crisis Leadership

Defining what makes a crisis leader is a challenge because of the lack of specific theories in the existing literature. Crisis leader theories are lacking, perhaps owing to the fact that crisis leadership is more situational and temporary than traditional leadership. Hadley,

Pittinsky, Sommer, and Zhu (2009) state "… there is very little research about the specifics

of how leaders effectively respond to a crisis and how the capabilities of leaders can be

assessed in advance of a crisis occurring" (p. 5). Similarly, Schoenberg (2004) affirms that

"many articles have been written on leadership, crisis preparation, crisis management, and

the tactical elements involved in addressing a crisis scenario, but very little research exists on

the skills and expertise to succeed as a crisis leader" (p. 2).

A crisis requires swift and decisive decision making, yet many leaders do not have

the necessary skills or experience to make those decisions. Decisiveness requires more than

relevant knowledge and temperament. Decisiveness is characterized by the ability to

conceptualize and act upon the moment using available tools and practices (Cooper, 2007).

Inevitably, every organization will face a crisis and its leaders will be expected to respond

effectively to the crisis. Leaders cited for excellent performance during times of crisis have

demonstrated strong functional skills in the areas of adaptive capacity, the ability to engage

others in a shared meaning, a distinctive and compelling voice for the organization or the

nation, and a sense of integrity and values (Bennis & Thomas, 2002).

Decision Making

Sometimes referred to as "problem solving," rational decision making employs an

approach that can be depicted in a step by step model in Figure 2 below.
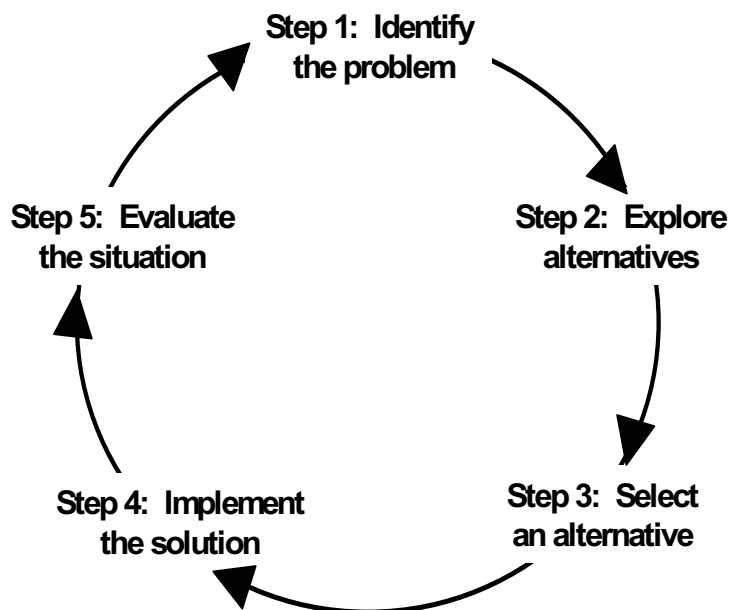
Figure 2. Problem solving model. Adapted from FEMA Courseware (http://www.fema.gov/).

Rational decision making is a critical part of the crisis leader's professional repertoire and the leader's ability and skills to make decisions and engage in problem solving techniques. As a part of the decision making process, crisis leaders perform tasks of information assessment and decision making under tremendous psychological and physical demands (Hadley et al., 2009). The core elements that define a crisis—ambiguity, urgency, and high stakes—also severely constrain the ability of individuals to assess information and make decisions effectively (Pearson & Clair, 1998). Leaders in crisis situations are under severe time pressure, therefore, they often have less time to acquire, secure, and process information effectively (Hadley et al., 2009).

Decision making in a crisis is not limited to a rational model as depicted in Figure 2. The literature suggests that decision making is based on both rational thinking as well as intuition. In the past, social scientists dismissed the use of intuition as an effective decision making approach. Mintzberg (1994) found that in many instances decision makers do not appear to use a rational systematic or step-by-step approach to decision making. Rather,

Mintzberg argues for the use of decision making based on "hunches" or what some might term "gut feelings."

Klein (1998) suggests that skilled decision makers rely on deeply held patterns of learned experience in making quick and efficient decisions. For Klein, these deeply held patterns of learned experience (templates) represent tacit knowledge that has been implicitly acquired over time. For experts who possess high levels of tacit knowledge, many decisions they face are routine or programmed decisions. These decisions become somewhat automatic given that their knowledge allows them to recognize and identify a situation and the course of action that needs to be taken. Making decisions in this way is no easier than any other way, it simply means that experience and knowledge provide the ability to see problems more easily and recognize and implement solutions more quickly. In short, effective intuition results when people have a certain amount of tacit knowledge.

Others, as the literature reveals, hold that decision making is both rational and intuitive. Eisenhardt (1999) posits the use of rational decision making as well as heuristic, insightful and intuitive decision making. Burke and Miller (1999) suggest that, in ambiguous situations or under other previously described conditions, decision-makers tend to use intuition in conjunction with rational analysis. Khatri (2000) suggests that both intuitive and rational processes are equally important for effective strategic decision making. Intuition allows us to synthesize isolated bits of data and experiences into an integrated picture (p. 5).

In crisis situations, professionals face critical decision making scenarios that demand split second action. The pressure of making informed, timely, and life impacting decisions creates an environment in need of immediacy and shared information such as those described by Argyris and Schon (1978) in action learning situations. Action learning implies that the learning is not merely superficial and easily forgotten but that it changes the knowledge base of individuals through some type of action. Action learning, as espoused by Argyris and

Schon (1978), is used by individuals who come together to benefit from collective knowledge and to solve a shared problem such as a crisis.

Decision making under stress has its own challenges. Rosati (2001) suggests that "stress produced by crises often contributes to a more closed decision-making process, poor performance, and maladaptive behavior" (p. 70). Disasters are often full of failure-prone decision-making practices (Nutt, 2002). Stress can overwhelm the practice of rational decision making at a time when it is most needed (Rosati, 2001). Boin, McConnell, and Hart (2009) suggest that decisions made under conditions of crisis include uncertainty and volatility. There is little time to consult and reach agreement with colleagues, advisors and others who would normally be engaged in decision-making processes.

In order to simplify the decision making process, leaders will compare current situations to past situations, or they will look for similar cases in the past that might provide some insight or knowledge that is applicable to present events. Protracted conflicts are ideal settings for relying on historical examples when making decisions. Crises taking place in these settings occur in a historical framework in which the parties already have firsthand knowledge of each other. This approach has support from Festinger (1954), who in the 1950s proposed that, in general, people depend on others to assist in the evaluation of the correctness of information. In order to judge the merit of their own opinions and decisions, leaders must be able to compare themselves and their actions with those of other individuals. To do this, leaders need other people involved in the decision making process. This social comparison cannot happen if leaders make decisions in seclusion. Research by Taylor, Buunk, and Aspinwall (1990) showed that this desire for social comparison increases in stressful and threatening situations. This suggests that as stress increases, leaders experience an increased need to evaluate their ideas in relation to the thoughts and ideas of other people.

Of interest to the discussion on decision making is the emerging crisis decision theory as postulated by Sweeny (2008). Sweeny explores the idea that crisis decision theory offers

unique predictions above and beyond previous theories of coping behavior or decision making. She states, "crisis decision theory addresses two questions regarding responses to negative events: First, what are the decision processes that occur when people respond to a negative event? Second, what are the factors that predict response choices?" (Sweeny, 2008, p. 61). Crisis decision theory contributes to the concept of another coping theory by incorporating decision-making principles that can predict people's specific responses to negative events. Likewise, crisis decision theory also extends the decision-making literature by distilling the research relevant to stress and coping into a predictive theory. More generally, no previous theory offers a systematic organization of the information people use when responding to a negative life event. Crisis decision theory has direct implications for crisis management and is one that needs further investigation.

A seasoned crisis decision maker reads, analyzes, and assesses the overall situation, makes the most appropriate decision within that context, and aims toward the most desired outcome. Naglewski (2006) suggests that in this decision making process, the decision maker chooses any number of reactions requiring specialized skills, confidence, experience, foresight, and broad thinking. He states further, "whereas some people seem to have an innate ability to make effective crisis decisions, others, equally qualified, fail" (Naglewski, 2006, p. 48). Despite the fact that some leaders have the education, intelligence, and experience to be effective decision-makers, there is no guarantee that these traits will ensure that effective decisions will be made.

As a technique of crisis decision making, the process of situation awareness (SA) theory is often used by decision makers. This theory is predicated on the notion that an individual needs awareness of the environment (surroundings) and the ability to act on stimuli in that environment (Endsley, 2000). There is considerable evidence that a person's manner of characterizing a situation will determine the decision process chosen to solve a problem. Manktelow and Jones (1987), in a review of literature concerning deductive

problem solving, note that "it is the situation specifics that determine the adoption of an appropriate mental mode, leading to the selection of problem-solving strategies" (p. 10). Taylor and Selcon (1991) state:

> SA is a multi-dimensional construct that can be modeled in terms of the processes of memory and attention. SA concerns the state of knowledge about the world, or the model of external reality that enables adaptive decisions to be made in uncertainty (p. 789).

It is the uncertain situation that crisis decision making addresses most poignantly.

Selected Leadership Theories

Leadership theories are typically presented as traits, skills or styles (Northouse, 2007). All are behavior-based and vary slightly depending what research is read. Each of these approaches is relevant to the discussion of leadership however for this study, they are used interchangeably.

During times of crisis, leaders exhibit varying styles of leadership. Some by necessity become more task-oriented or directive. There are situations where leaders become more relational so that those they lead will follow more closely. Some leaders, during times of conflict, become withdrawn and exhibit leadership behaviors that involve self-presentation (Hadley et al., 2009). Whatever traits a crisis leader exhibits it is that opportunity to act during a time of chaos that Fullan (2001) might refer to as leading in a culture of change.

Leadership is associated with such terms as power, influence, authority, management, administration, and control (Yukl, 2006). The functions of leadership include helping to interpret the meaning of events, creating alignment on objectives and strategies, building task commitment and optimism, building mutual trust and cooperation, encouraging and facilitating collective learning, developing and empowering people and promoting social justice and morality (Yukl, 2006).

Kouzes and Posner (2007) suggest the principles and practices that support basic human needs are characteristic of an effective leader. They emphasize that encouragement is essential to sustaining a person's commitment. Through the study of many leaders over time, they found that extraordinary leaders are those that "challenge the process, inspire a shared vision, enable others to act, model the way, and encourage the heart" (Kouzes & Posner, 2007, p. 14). Regarding the last principle of encouraging the heart, they urge leaders who use this style to "build a strong sense of collective identify and community spirit that can carry a group through extraordinarily tough times" (Kouzes & Posner, 2007, p. 23).

Leadership styles or behaviors are connected to the idea of setting goals and accomplishing tasks. Goleman et al. (2002) report the results of a large study involving over 3800 executives that identifies seven distinct leadership styles:

- Visionary leader move people toward a shared dream

- Authoritative leaders that mobilize people toward a specific vision

- Affiliative leaders that create emotional bonds and harmony (relational)

- Democratic leaders value people's input and get commitment through participation

- Coaching leaders connect what people want to the organization's goals

- Pacesetting leaders meet challenging and exciting goals

- Commanding leaders soothe fears by giving clear direction in an emergency (p. 55).

Of these, Goleman suggests the first four styles enhance performance, while the last two styles are useful in specific situations—such as crises. Finally, Goleman determined that effective leaders are flexible and can switch among styles as the situation merits (Goleman et al., 2002). This theme of flexibility or adaptability appears throughout the literature of crisis leadership. Cooper (2010), in an interview with Adm. Thad Allen, examines the paradigm

shift in crisis management and suggests that adaptability or flexibility is the key to responding to the new genre of unknown and unprecedented types of crises. In an interview, Allen states:

> I think that we need to understand and hopefully accept the fact we're going to have large anomalous and unprecedented events, and they're not always going to fit the molds of the current statutes, regulations, and response plans, and I think we need to learn how to be more flexible and agile in how we adapt.

This theme of flexibility or adaptability appears throughout the literature of crisis leadership.

Drucker (2001), in his studies on leaders and leadership, believes that leaders are not born. He suggests that leadership can and must be learned over time. Specific leadership personalities, styles, and traits do not exist for Drucker. He advocates that effective leaders know four things:

- The only thing that defines a leader is to have followers. Some leaders are thinkers; some are prophets. Both roles are important and needed but without followers, there can be no leaders.

- An effective leader is not someone who is loved or admired. He or she is someone whose followers do the right thing. Popularity is not leadership; getting results is leadership.

- Leaders are highly visible; there they set examples thought their actions.

- Leadership is not rank, privileges, titles or money; leadership is responsibility (Drucker, 2001, p. xii).

Drucker (2001) states that leaders are most effective when they "value diversity and strength in their associates, and spend time in self-reflection" (p. xiv).

All in all, gaining an understanding of leadership traits, skills and styles is a necessary part of understanding leadership theory. Following is a brief explanation of five specific

theories of leadership used in this study: contingency, path-goal, leader-member exchange, transformational, and situational leadership.

Contingency Theory

Contingency theory holds that a leader's success depends on how well the leader's style or personality fits the situation or setting (Fiedler & Chemers, 1984). Widely recognized for his study in contingency theory, Fiedler explains that success depends on the interaction between the leader's personality and the situation. Fielder's theory is typified by two types of leaders—one is task-based and the other is people-based.

Either approach may be effective depending on the situation. Contingency theory suggests the leader's success depends on the match between subordinate needs that motivate leader behavior (style), and the amount of power or influence the leader has over the situation. Leadership effectiveness is measured by a) how clearly and structured the job is, b) how much positional power the leaders exerts, and c) the relationship between leaders and followers (Fiedler, 1967).

Fiedler's contingency theory postulates that there is no single best way for managers to lead. The situation dictates which leadership style a leader will use and each situation is different enough to require differing styles. For example, a highly routine environment where repetitive tasks are common would require a different style than a dynamic, ever-changing, environment.

Path-Goal Theory

Path-goal theory postulates that "leaders motivate subordinates to be productive and satisfied with their work" (Northouse, 2007, p. 148). In addition, it focuses on employee motivation in terms of the leader's style, the characteristics of the employees, and the work setting (Northouse, 2007). The leader is challenged to use the leadership style that best meets the employees' motivational needs. The basic assumptions are that employees will be motivated if a) they believe they are capable of doing their work, b) they expect a certain

outcome will come from their efforts, and c) the payoff from doing the work will be worth

the effort (Northouse, 2007). The leader must match the right style (directive, participative,

achievement-oriented, and others) to the employees' motivational needs and to the situation.

For example, path-goal theory predicts that employees with strong affiliation needs (a need

for camaraderie and acceptance) respond well to supportive leadership, because this approach

gives the employees a feeling of satisfaction. On the other hand, employees who prefer an

authoritarian leader, respond best to directive leaders who clarify goals and remove

ambiguity. These leaders define the "path" whereby employees may reach not only

individual goals, but also, the organization's goals (House, 1996).

The path-goal approach requires the leader to recognize the functions that motivate

employees to achieve high levels of performance and then fulfill them (Schriesheim &

Neider, 1996). In this case, the organization consists of a highly motivated workforce

dealing with problems, benefiting from the synergy of the group, and not relying on the

leader alone. The leader prepares the path, while the group achieves the goal or goals.

Leader-Member Exchange Theory

Leader–member exchange (LMX) theory focuses on the relationship between leaders

and followers. Northouse (2007) described this theory of leadership, which focuses on the

two way relationship between leaders and followers, as a way to enhance positive

interactions between the two. LMX theory suggests that leaders classify employees in two

different ways: the in-group and the out-group. The in-group, which works well with the

leader, receives more in exchange, based on this relationship. The out-group, which does not

work well with the leader, does only what is minimally required in a job or task. The in-

group wants to expand their influence and increase their responsibility by going beyond what

is expected. In response, the leader favors the in-group with more information, privilege and

praise than the out group. In doing so, the leader focuses on the group that produces the

greatest results and most positive work environment. Employee and leader personalities and

preferences are a definite influence on who belongs to what group. However, by focusing on the employees who are willing to go beyond the contractual requirements of the job and who have the compatible personality to comfortably fit with the leader, the objectives of the organization are advanced.

Yukl (2006) suggests that LMX theory develops leaders who experience different exchange relationships with different subordinates as the two parties mutually agree. This relationship evolves based on personal compatibility and subordinate competence. With time, a leader will develop either a high or low exchange relationship with each subordinate. Normally most leaders will develop high exchange relationships with a small number of subordinates. The employees will receive more desirable tasks, be privy to more information, and allowed to participate more and or at a higher level.

There are arguments in favor of LMX which could be applicable to leaders confronting a crisis. Northouse (2007) suggests that most employees have experienced the reality of "in" and "out" groups, and, therefore, have a reasonable set of expectations on what is required of them. In an emergency, these expectations will be known at the outset. Leaders prefer in-group people and might use them more effectively in a crisis. LMX focuses on the relationship between leaders and followers while minimizing the individual traits and characteristics of both, and highlights the importance of the relationship. LMX values communication by creating and nurturing relationships based on trust and commitment which bodes well in a crisis. LMX focuses on the interaction between leaders and group members, encourages team building, and allows both members and the leader to deal with a crisis.

Transformational Leadership Theory

Transformational leadership behaviors include idealized influence, individualized consideration, inspirational motivation, and intellectual stimulation (Bass & Jung, 1999). Transformational leadership can be a unifying force within an organization where the

followers feel trust, admiration, loyalty, and respect for the leader. During times of crisis, the followers are motivated to do more than they originally are expected to do (Yukl, 2009). Transformational leaders lean toward increasing the motivation and performance of their followers by clarifying workers' expectations for rewards and punishments.

In studying transformational leadership behaviors, Bass and Jung (1999) introduced a factor analysis of a behavior description questionnaire called the Multi-factor Leadership Questionnaire (MLQ). Since the introduction of the MLQ, researchers have examined the components of transformational leadership through the use of factor analysis, observations, interviews, and descriptions of a follower's ideal leader (Bass, Avolio, Jung & Berson, 2003). The current version of the MLQ identifies four distinct constructs of transformational leadership. These constructs include: a) a leader who is admired, respected, and trusted by the followers who share risks with the leader and exhibit behavior consistent with the ethics, principals, and values of the leader, b) a leader who motivates the follower by providing meaning and challenge to their work, c) a leaders who stimulates followers by asking them to be creative, question assumptions, and find new solutions to problems, and, d) a leader who pays attention to their followers' needs for achievement and growth (Bass & Jung, 1999).

Transformational leadership offers another approach to crisis leadership. In this approach, the focus is on preparing the organization, not the leader or the employees, for a potential crisis. However, for this theory to be valid, there must be a charismatic leader who leads others and "fills in the gaps" even in a crisis. This leader is "in control" and can be the lynchpin to success or failure of responding to a given crisis.

Situational Leadership Theory

Situational leadership theory requires a leader to adapt or change with each new or different situation. This approach considers both internal and external environments,

situational characteristics, and contingencies. Leaders who practice situational leadership realize quickly that each facet of this approach intensifies in a crisis.

Bass (1990) suggests that some leaders focus on the task to be completed while others concentrate on relationship building. Situational leadership enables shifts in a leader's focus depending on the organizational needs at a particular point in time.

Situational leadership theory (Hersey, Blanchard, & Johnson, 2001) focuses on the characteristics of the followers as an important element of a leader's effectiveness. The situational approach is based on the concept that there is no one best style of leadership and emphasizes the interplay among leader, follower, and situational variables. This theory emphasizes an individual's leadership style is defined as the behavior pattern, as perceived by others, and how that individual influences the activities of others. This leadership style is based on the combination of two types of behaviors: task behavior and relationship behavior (Hersey et al., 2001).

The Leadership Effectiveness and Adaptability Description (LEAD) instrument was developed by the Center for Leadership Studies, Inc., to assess the four leadership styles proposed by Hersey and Blanchard in their original work conducted in 1977. These styles are: telling/directing (high task, low relationship), selling/coaching (high task, high relationship), participating/supporting (low task, high relationship), and delegating (low task, low relationship). The instrument also assesses the style range and adaptability of an individual. Style range refers to the total number of styles that individuals perceive themselves to use, and provides respondents with an idea of how flexible they are in the use of the behaviors of each style. Style adaptability provides individuals with an indication of the degree to which they are able to vary their leadership style and utilize the appropriate style in various situations (Hersey et al., 2001).

Northouse (2007) states that leaders using a situational style should "behave based on the demands of the situation" (p. 110). The situational and contingency approaches to

leadership were researched in the mid-1960's with the aid of an instrument developed by Fred Fiedler known as the least preferred coworker (LPC) scale (Fiedler, O'Brien, & Ilgen, 1969). The LPC measures a person's leadership style. This scale also makes it possible to identify and track the following situational control variables: a) leader-member relations, b) task structure, and c) position power (Schermerhorn et al., 2003). The preferred outcome for this scale results in a match between the leader and an individual's personal style and the demands of a specific situation. Selecting the wrong type of person for the situation can produce negative consequences for both the leader and the organization. Situational leadership suggests leaders who focus on subordinates, assess performance in a specific situation, and adjust their leadership style effectively to that situation. A criticism of situational leadership is a lack of research-based findings to support its theory. Contingency theory, much like situational leadership, addresses behavior within a given situation. However, contingency theory measures the leader's ability to influence others in a given situation rather than the subordinate's behavior on a specific task or situation. Additionally, contingency theory is based on more supportable research data (Northouse, 2007).

Emerging Trend in Leadership

An emerging trend in leadership is occurring which affects both day-to-day and crisis leadership. The concept of *meta-leadership* is gaining momentum in the literature although not as much in the field of practice. Marcus et al., define meta-leadership as the ability to provide "guidance, direction, and momentum across organizational lines that develops into a shared course of action and a commonality of purpose among people and agencies that are doing what appears to be very different work" (p. 4). Meta leaders are those who require a distinct mindset, a unique set of skills, and a network to encourage cross-agency thinking, risk taking, and productivity (Ashkenas, Ulrich, Jick, & Kerr, 2002). The prefix "meta" is likened to its use in "meta-research," which systematically identifies cross-cutting themes found in many different studies, or "meta-analysis," which likewise combines and

synthesizes findings about a range of questions in search of overarching thinking and conclusion.

Further review of the literature reveals that *meta-leadership* focuses on new ways of approaching leadership across organizational boundaries. To unleash the full effects of meta-leadership, Marcus et al, present the five dimensions of *meta-leadership* which include:

1. the person of the leader and that leader's awareness or assessment of the issue;

2.   the problem, change, or crisis which compels response;

3.   leading one's entity and/or operating in one's designated purview of authority;

4.   leading up to bosses or those to whom one is accountable; and

5.   leading cross-system connectivity" (p. 2).

Each component enlists the knowledge, skills, and abilities of a leader who embraces change. The difficulty appears to be in a broad acceptance of this emerging phenomenon. While this change in leadership has potential, the ability to engage others in a shift in thinking and application of any discipline is problematic. Further research and time will be needed to determine if this new approach is embraced by academia and the practice of crisis management.

Summary

There is more art than science to predicting how a leader will react to a crisis environment. Some leaders are unable to deal with issues effectively during periods of normal operation, yet they can make effective decisions during times of crisis. Other leaders who are considered successful and even revered in times of normal operations can in a time of crisis lack the ability to lead and can succumb to the pressure and anxiety of the moment, causing them to literally fall apart. Nevertheless, crises offer the opportunity to lead. Cooper (2007) suggests that a crisis provides an opportunity to decide and to act upon the decision so as to influence the course of the event after a desired fashion. A decision not to act will also

have consequences either for good or bad. A non-decision position can be taken deliberately in the belief that it represents the best course to influence a favorable outcome.

In summary, leaders and leadership use varying theories and definitions. Typically, these usages pertain to everyday or normal environments. This literature acknowledges those and incorporates the non-normal, or crisis, environments in which leaders can find themselves. During times of crisis, leaders embody differing styles of leadership in order to reduce the stresses that a crisis induces. Seeger (2006) suggests that crises create a set of challenging exigencies and constraints that modify the standard context and parameters for effective decision-making. These exigencies revolve around high levels of crisis related uncertainty, restricted response time which limits information collection and processing capacity, and high levels of perceived threat (Seeger, 2006).

As the incidences of crises and disasters continue to proliferate, the need to address leaders and leadership in these crisis environments is apparent. Crises create significant challenges as decision-makers seek to remain dedicated to effective responses. The skills of a leader in a crisis environment are tested; yet this environment is an opportunity to excel in those leadership traits that separate the effective leader from the ineffective leader.

Chapter 3: Methodology

Creswell (2009) described three approaches to research: quantitative, qualitative, and mixed methods. This study is qualitative research which relies on claims of knowledge based on the researcher's construction of a convincing case built on individual experiences, historical facts, and documented observations (Creswell, 2009). This research method explains complex phenomena through verbal descriptions rather than testing hypotheses with numeric values (Sutter, 2007). Seeking themes in the text data which is not numeric, the researcher uses open ended questions or other emerging data techniques such as coding and labeling. Narrative structure or descriptions are the hallmark of qualitative research.

The qualitative method of research may be explained as a "mode of inquiry" (Sutter, 2007, p. 40). The researcher is inquiring about the nature of a phenomena or process. When conducting qualitative research, the researcher considers the qualities of the data more than the quantity of the data. The essence of qualitative data collection is the emergence of patterns, themes, categories or even new ideas that may be attributed to the collection process. Qualitative research relies on the researcher's commitment to engaging in complex and time-consuming data analysis, writing longer passages of narratives, and, often, participating in research that does not have firm guidelines or specific procedures and, finally, research that is evolving and constantly changing (Creswell, 2009).

The methodology for this study is a Delphi Technique which is a form of qualitative research. Qualitative research uses a naturalistic approach that seeks to understand phenomena in context-specific settings, such as "real world setting [where] the researcher does not attempt to manipulate the phenomenon of interest" (Patton, 2001, p. 39). In a broad sense, qualitative research reflects any research that produces findings not gleaned from statistical procedures or quantifiable means (Corbin & Strauss, 2007). This kind of research

produces findings arrived at from real-world settings where the "phenomenon of interest unfold naturally" (Patton, 2001, p. 39).

Within the qualitative research process, the researcher uses the process of sampling to evoke data. Sampling is the process of drawing a sample from a population. Within this study, a nonrandom sampling technique using a convenience sample was used. The convenience sample was selected using participants who were convenient or they volunteered willingly to participate (Johnson & Christensen, 2008). Those used in this study were participants at the DOE EMISIG conference held in Las Vegas, NV in May, 2010. The availability of subject matter experts at this conference is well known in the emergency management community. Additionally, the researcher's work in the field of emergency management enhanced the availability of participants who were willing to participate by email after the conference ended.

The Delphi Technique

The Delphi Technique was developed in the 1950's by research scientists working at The Rand Corporation under the title Project Delphi to obtain consensus of opinion among a panel of experts through the use of questionnaires with controlled feedback (Dalkey, 1972). Since that time, various fields of study have replicated the process for use in planning, forecasting and assessing the needs of organizations, groups, and communities of learning (Adler & Ziglio, 1996). The Delphi Technique allows for interaction with group members whose opinions are sought on an individual and anonymous basis. The collected feedback of each questionnaire is provided to panel members so they can consider their responses and provide additional information to others in lieu of a face-to-face group interaction (Linstone & Turoff, 1979). Delphi allows for dialogue between geographically separated experts as learning and feedback are increased (Adler & Ziglio, 1996).

Rowe and Wright (1999) characterize the classical Delphi method by four key features:

1. Anonymity of Delphi participants: allows the participants to freely express their opinions without undue social pressures to conform from others in the group. Decisions are evaluated on their merit, rather than who has proposed the idea.

2. Iteration: allows the participants to refine their views in light of the progress of the group's work from round to round.

3. Controlled feedback: informs the participants of the other participant's perspectives, and provides the opportunity for Delphi participants to clarify or change their views.

4. Statistical aggregation of group response: allows for a quantitative analysis and interpretation of data (p. 254).

The Delphi Technique begins with an open-ended questionnaire that is given to a panel of selected experts to solicit specific information about a subject or content area. In subsequent rounds of the procedure, participants rate the relative importance of individual items and also make changes to the phrasing or substance of the items. Through a series of rounds, typically three, the process is designed to yield consensus.

Delphi may be characterized as a method for structuring a group communication process which allows those groups, and the individuals that comprise them, to deal with complex issues or problems (Linstone & Turoff, 1979). It is a collective approach to problem solving, addressing issues, or responding to requested information. Hiltz and Turoff (1993) report that collective intelligence derives from the collaboration between the individuals in a group, resulting in a synergistic effect. They suggest that the group will be at least as smart as the smartest individual, but more so, that the group will reflect a collective intelligence greater than any one group member could have offered (Hiltz & Turoff, 1993).

The literature suggests that Delphi panel sizes range from a few to fifty or more participants. In Brockhoff's (1975) study of Delphi performance, he suggested that for forecasting questions, groups with eleven participants were more accurate in their predictions

than larger groups. For fact-finding questions, groups with seven participants had a higher performance rate in his controlled study. Other studies have found that error decreases with larger Delphi panels (Linstone & Turoff, 1975) however large panels have more difficulty achieving agreement and are more complicated to administer. Linstone (1978) suggested that accuracy improved very slowly with large numbers and that a suitable size is seven. Dalkey (1975) commented that, "…under favorable conditions, the group response can be more accurate than any member of the group" (p. 257).

Pfeiffer (1968) identified the three basic steps of the Delphi as:

1. The first questionnaire is sent to the panel of experts asking for a list of opinions or responses involving experiences and judgments.

2. The second questionnaire is distributed with a copy of the collective first round responses asking each expert to rate or evaluate each item by some criterion of importance.

3. The third questionnaire includes the list, the ratings indicated, and the consensus, if any of previous rounds. The experts are asked to either revise their opinions or discuss their reasons for not coming to consensus with the group.

Selecting panel members for a Delphi study includes using pre-selected items. These pre-selected items are drawn from various sources such as synthesized reviews of current literature, previously collected data, and interviews with selected content experts.

The characteristic of anonymity in a Delphi study is advantageous primarily because it reduces bias in the influences one has when making a decision (Dalkey, 1972). Anonymity promotes an open environment for honest opinions, where an individual's inhibitions should be lifted and ideas flourish (Turoff & Hiltz, 1996). Bias can appear, however, from the sample population of experts in a Delphi approach as well. To minimize this aspect of bias, Baker suggests that when groups work together in a Delphi fashion, the members should be from the same discipline (Baker, Lovell, & Harris, 2006). This means that they have been

exposed to the same information, have been in the similar corporate culture and have been provided the same general information. Similarly, Linstone and Turoff (1979) suggest that heterogeneity of participants must be preserved to assure the validity of results. The sample pool should come from a large group that is selected to represent all geographic areas and subspecialties (Hardy et al., 2004). Finally, Helmer (1983) speculates that a group of experts may be under a moral influence where the decisions are a matter of principle and thus influence the incoming and outgoing information.

In Delphi processes, feedback may be given in the form of summarized information in interactive rounds which are conducted in a controlled manner. Dalkey (1969) refers to controlled feedback as a noise reduction device. He points out that "noise" is any information that is not conducive to productive decision making; for example, it could be group members arguing about trivial matters or injecting bad information such as personal or other unrelated information. Additionally, a researcher must consider the bias that may be reflected in the summarized data and the filtering needed to reduce the noise in the data (Dalkey, 1969).

The Delphi process uses experts in the process of soliciting data and provides descriptive statistics to support the data. Delbecq, Van de Ven, and Gustafson (1975) provide detailed guidelines on how to solicit qualified experts for a nominal group technique study: a procedure that applies to a Delphi study as well. They describe a rigorous procedure whose purpose is to ensure the identification of relevant experts and give them the opportunity to participate in a study. A Delphi study does not depend on a statistical sample that attempts to be representative of any population. It is a group decision mechanism requiring qualified experts who have deep understanding of the issues. Therefore, one of the most critical requirements of a Delphi study is the selection of qualified experts (Delbecq et al., 1975).

The Oxford Dictionaries Online defines an expert as "a person who has a comprehensive and authoritative knowledge of or skill in a particular area" (Oxford Dictionaries Online, n.d.). Baker et al. (2006) suggests that experts are defined as having knowledge but he argues that mere knowledge does not qualify as expertise. More than knowledge, an expert needs experience in a particular field of study. Experts are the reasoning behind what makes Delphi so powerful in situations where information is lacking and intuition must be drawn upon.

As a formal methodology, Delphi relies on the amount of data, the number of experts involved and the fact that diverging opinions are partially hidden behind the main emerging one. This makes the Delphi method a popular and credible approach for policy makers and researchers. Delphi forces group members to consider the problem under study logically, reach consensus, and provide written responses. Delphi surveys employ group decision-making techniques by involving experts in the field. Group decisions carry greater validity than those made by an individual (Brooks, 1979). Additionally, the heterogeneity of the participants must be preserved to assure validity of the results through avoidance of domination by quantity or by strength of personality. This method distinguishes itself from traditional questioning procedures through the feedback mechanism. As information is gathered from the group, there is an opportunity for individuals to modify or refine their judgments based upon their reactions to the collective views of the group. Groupthink is minimized as various degrees of anonymity are imposed on the individual and collective responses to avoid undesirable psychological effects (Linstone & Turoff, 1979).

Delphi Rounds

The classical Delphi Technique employs from three to five rounds of data collection and analyses (Dalkey, 1969). The first round of the Delphi process traditionally begins with an open-ended questionnaire. The open-ended questionnaire serves as the cornerstone for soliciting specific information about a content area from the Delphi subjects (Custer,

Scarcella, & Stewart, 1999). After receiving subjects' responses, the researcher converts the collected information into a well-structured questionnaire. This questionnaire is used as the survey instrument for the second round of data collection. A common practice in Delphi studies is to use a structured questionnaire in the first round that is based upon an extensive review of the literature. Kerlinger (1973) noted that the use of a Delphi process is appropriate if basic information concerning the target issue is available and usable.

In the second round, each Delphi participant receives a second questionnaire and is asked to review the items summarized by the researcher, which is based on the information gleaned from the first round. Delphi panelists may be asked to rate or rank-order items to establish priorities among them. As a result of round two, areas of disagreement and agreement are identified (Ludwig, 1997). In some cases, Delphi panelists are asked to state their rationale concerning rating priorities among items. In this round, consensus begins to be formed and some preliminary patterns or themes begin to emerge.

In the third round, each Delphi panelist receives another questionnaire that includes the items and ratings summarized by the researcher in the previous rounds. Participants are asked to respond based on previous rounds. This third round gives Delphi panelists an opportunity to make further clarifications of both the information and their judgments of the relative importance of the items. It should be remembered that the number of Delphi iterations depends largely on the degree of consensus sought by the investigators and can vary from three to five (Delbecq et al., 1975). Figure 3 is a representation of the three- round Delphi Process.
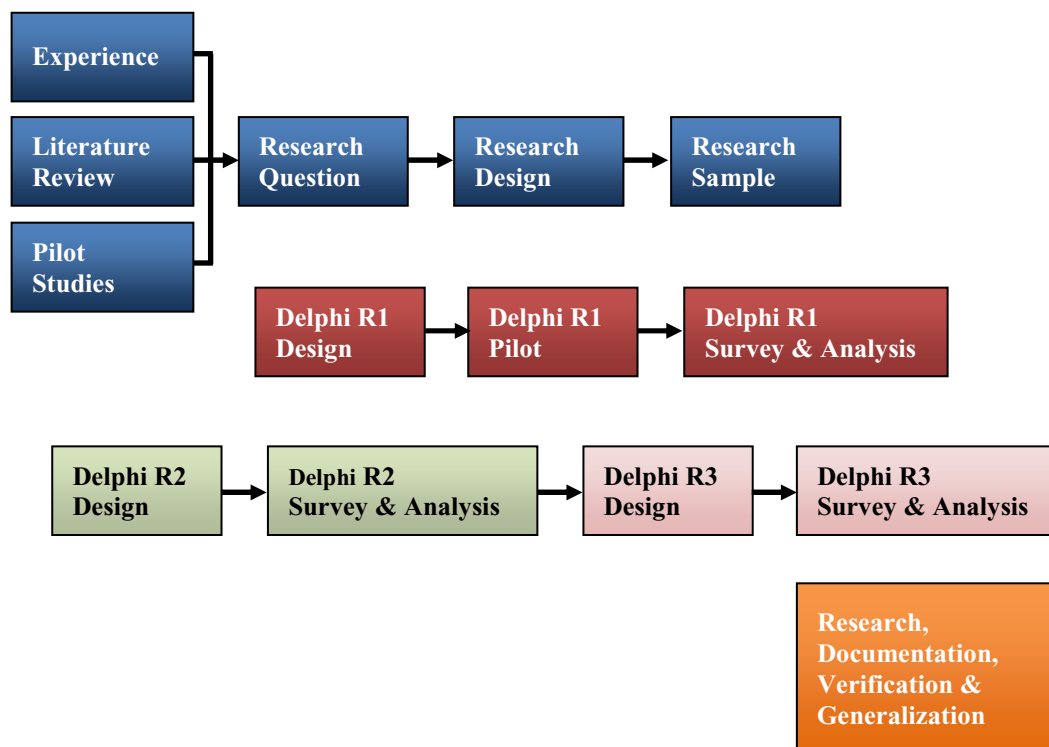
Figure 3. Three round Delphi process. Source: The Delphi Method for Graduate Research by: G. J. S. *Journal of Information Technology Education*, Vol. 6, 2007.

Selection of the Panel and Participants

This study utilized a panel of experts in the field and queried them for data. These experts interacted and supplied responses independently, reducing the possibility of groupthink (Janis, 1972) or undue influence of dominating personalities. Delphi panelists are typically selected, not for demographic representativeness, but for the perceived subject matter expertise that they can contribute to the topic.

In order to obtain the desired valid results, Scheele (1975) suggests the panel must be selected from stakeholders who will be directly affected, experts with relevant knowledge and experience, and facilitators in the field under study. Spencer-Cooke (1989) suggests that the composition of the panel relate to the validity of the results of the research. Criticisms of the use of experts include difficulties in identifying expert criterion and whether responses from experts are significantly different from those of non-experts (Mullen, 2003).

For this study, experts were selected by the researcher using knowledge gained over twenty years of experience in emergency management. The researcher is an experienced

subject matter expert in emergency management and acknowledges some level of bias on the selection of panel members. However, the panel members provided multiple perspectives, different from that of the researcher thus enriching the data as well as shaping the iteration of each questionnaire. As a control for bias, the researcher used member checking—allowing participants to review their own data (Denzin, 1998)—and the rigor of the Delphi method itself.

The target populations for this study were emergency and crisis leaders from selected Department of Energy sites who attended the Emergency Management Issues Special Interest Group meeting in Las Vegas Nevada in May 2010. These leaders are deemed experts in their field. They have responsibility for decision making during a crisis event and are considered both strategic and operational decision makers with the authority to assign personnel and resources to mitigate the crisis.

The number of participants for the first round of this Delphi survey was dependent on the number of attendees at the conference and on the number of people who volunteered to complete the survey. After the conference, the researcher selected a number of experts for additional data collection for Round One. Demographic information on those participating is presented in the body of this study. Round Two of the Delphi study was completed by a selected group of experts gleaned from Round One. The selection for Round Two participants was based on two factors: 1) comments supplied by experts in Round One that the researcher wanted to probe further, and 2) anecdotal information provided to the researcher by Round One experts expressing interest in participating in Round Two.

Instruments

The data collection instruments for the pilot study, Round One and Round Two for this research was designed by the researcher based on expertise in the field of emergency management. The first round of the survey was provided to experts at the EMISIG

Conference in May, 2010 with a cover sheet explaining the purpose and scope of the study. Each voluntary participant was asked to sign a sign-in sheet which allowed the researcher to retain pertinent information to conduct Round Two of the study. Additional Round One surveys were emailed to selected participants after the conference. These participants were asked to fax or send a portable document format or *pdf* of their signature sheets to the researcher upon completion. All survey data was kept by the researcher in a locked filing cabinet or a password protected file on a single computer that only the researcher has privileges to access.

The survey asked experts to provide feedback on leadership in a day-to-day environment, leadership in a crisis environment, traits of a leader, as well as practices and tools used by effective crisis leaders. The survey participants were asked to add additional information deemed appropriate to enhance the data. After collection of data in three rounds, the researcher compiled and analyzed the data summarizing the essential elements of leadership, leadership traits, and decision making techniques.

After the initial survey data were analyzed, the researcher developed survey two and added a rating scale for experts' comments. The survey was emailed to selected experts for completion. These rounds added the option of clarifying or adding responses, as appropriate.

Reliability & Validity

The validity of the Delphi process depends on the careful and systematic application of procedures for initial competency selection (e.g., reviewing the literature, developing a table of specifications, conducting a pilot test, etc.). In a traditional Delphi study, this careful selection process is necessary to (a) avoid biasing panelists by including inappropriate or unnecessary items and (b) increase the probability that consensus can be achieved in an efficient and timely manner. Careful initial selection is important because it increases the probability that first and second round participants would rate individual items in somewhat the same way (Custer et al., 1999).

Creswell (2009) suggests that qualitative research is different in its approach to validity and reliability than quantitative research. In qualitative research, "qualitative validity means that the researcher checks for the accuracy of the findings by employing certain procedures" (p. 190).

Reliability in a survey instrument creates stable and consistent scores or responses regardless of the number of times used in a study (Creswell, 2009). Reliability typically generates replicable or consistence scores (or responses). Some reliability procedures that can be used are transcribing information, coding information consistently, and cross checking information among methods of inquiry.

This study examines statements provided by participants on aspects related to a crisis leader's traits and decision making. In the survey process, the researcher considered the following forms of validity as presented by Creswell (2009):

- *Content* validity that reflects how well the questions represent the possibilities of available questions.

- *Criterion* validity that reflects the degree to which the scores relate to an outcome.

- *Construct* validity indicating how well the scores predict a future outcome

Summary

The methodology for this study is the Delphi Technique. As a form of qualitative research, Delphi studies seek to inform the reader about experts' opinions on a selected topic or issue. In Delphi processes, feedback is given in the form of summarized information in interactive rounds which are conducted in a controlled manner. The Delphi Technique was developed in the 1950s by research scientists Olaf Helmer and Norman Dalkey (Dalkey, 1972) and later refined by Linstone and Turoff (1979). Helmer defines the Delphi Technique as " a systematic method of collecting opinions from a group of experts through a series of questionnaires, in which feedback on the groups' opinions is distributed in rounds, while

preserving the anonymity of the respondents' responses" (Helmer, 1972, p. 217). As a highly structured and focused approach, Delphi studies offer a streamlined approach to collecting data a through its iterative process seeking to obtain a broad range of opinions from experts in a multi-round collection of survey data. After data were collected, they were analyzed and the experts were given a final opportunity to respond to others' opinions. The ultimate outcome for this Delphi Technique was a synthesis of expert opinions that might be used in applications for future use. The Delphi Technique is well suited to situations where no or very limited historical data is available (Gupta & Clark, 1996) such as crisis leadership or crisis decision making. As a versatile research tool, Delphi studies allow researchers to solicit and analyze feedback from participants, while minimizing groupthink and limiting bias through anonymous data collection. Further, the Delphi process is useful when experts are located at various geographic locations.

The Delphi Technique was selected by the researcher for this study because of its, flexibility, its use of experts, the iterative nature of the Delphi process, and the dispersed locations of those experts. In using the Delphi Technique for this study, the researcher was able to examine the differences between day-to-day decision making and a crisis leader's traits, tools and practices when making those decisions. Strengths of the Delphi Technique include:

- The technique is flexible enough to be applied in a variety of situations and to a wide range of complex problems, often for which there is often no other suitable means of analysis.
- The iterative approach allows experts to reconsider their judgements in the light of feedback from peers.
- The process also gives participants more time to think through their ideas before committing themselves to them, leading to a better quality of response.

- The anonymity of the approach enables experts to express their opinions freely, without institutional loyalties or peer group pressures getting in the way.

Chapter 4: Data Analysis

Research Questions

This study uses a Delphi methodology to obtain qualitative data concerning 1) the difference between non-crisis and crisis decision making, 2) the traits of a crisis leader, and 3) evidence of effective crisis leadership traits, tools and practices. As an iterative process, it aims to obtain a broad range of opinions from experts in a three-round collection of survey data after which the data are analyzed and the experts given a final opportunity to respond to others' opinions. The ultimate outcome for the Delphi method is a synthesis of expert opinions that may be used in further research activities.

Using the Delphi method, data were collected in three rounds or phases. These rounds were divided into three phases; a pilot study, Round One and Round Two. All of the participants in the pilot study were used in Round One and fifty one percent of the respondents were used in Round Two. The use of the similar participants in three rounds assisted with consistency of data collection and ease in data reporting due to willingness of the participants to be engaged in all three rounds. A copy of the survey instrument for Round One is included in this document as Appendix C. A copy of Round Two questions is located in Appendix D.

The following research questions were used to guide this study. The first question is intended to determine if there is a quality of uniqueness to "crisis" leadership versus "day-to-day" leadership. The second question asks if there are specific tools or practices that crisis leaders employ that inform or assist their decision making.

1. Is there a difference between day-to-day leadership decision making and crisis leadership decision making?

2. What are the traits of a crisis leader and what tools or practices does that leader use for decision making given ambiguous (limited and/or unconfirmed) information?

Assumptions on Epistemology, Ontology, and Axiology

Using interpretive analysis to assess the differences between day-to-day leadership and crisis leadership, the researcher provides an epistemological "way of knowing" that informs this paper. As a member of the community of practice in emergency management, the researcher reviewed selected policies and artifacts that are applicable to the issue of a crisis management, traditional leadership, and crisis leadership. Through "lived" experience in planning for crises, the researcher draws on familiarity from the field of practice to support views presented in this study.

The methodology used in this study is qualitative and based on an ontology that is both theoretical and field-based through observation and practice. A literature review of concepts pertinent to the day-to-day leadership as well as crisis leadership is included. The researcher's practice as a member of community of emergency management is used in the analysis.

The role of values in this study is informed by the researcher's own practice of emergency management. Qualitative research is a "social activity powerfully affected by the researcher's own motivations and values" (Blaxter, Hughes, & Tight, 2006, p. 34). Those values are, necessarily, shaped by the researcher's worldview as well. This worldview shapes the researcher's basic beliefs and assumptions. These are guided by ontology (the nature of reality), epistemology (how knowledge is gained or how we know what we know), and axiology (the role values play in the study), and the language (rhetoric) of the study.

A researcher's values may impact the approach taken to a study. That approach can be influenced by the researcher's interest in pursuing the topic, the design of the study, how

they collect the data, how they interpret the data and how they describe the implications of the study. The role of values in a qualitative researcher is value-bound (Lincoln & Gupa, 1985). While consideration of the researcher's values impact the approach to the study, the researcher must avoid as much bias as possible.

Bias occurs when, as stated by Johnson and Christensen (2008), "the researcher finds what they want to find" (p. 275). To eliminate bias, the researcher uses the process of triangulation. Triangulation is defined as "a validity procedure where researchers search for convergence among multiple and different sources of information to form themes or categories in a study" (Creswell & Miller, 2000, p. 126). Creswell (2009) offers that triangulation is used to neutralize bias that originates from one data source or method and spreads to another. The researcher uses multiple data sources, methods, and theories. Denzin and Lincoln (1998) suggest the use of triangulation to guard against the accusation that a study's findings are simply an artifact of a single method, a single source, or a single investigator's biases.

Triangulation of data is important to data validity. Equally important is the method of synthesis the researcher uses to collect and interpret data. In this qualitative study, categorizing or coding the information is important to identify themes or patterns that emerge within iterations. Qualitative studies use coding as a way to organize and interpret information. Through organization and identification through themes and codes, meaning is attributed to the information and allows the researcher to develop findings and conclusions about that information. Coding frequently uses a word or short phrase that provides an idea, concept, summary, or other descriptions of information that supplies meaning to the data. Saldaña (2009) identifies a code as

> A code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data. (p. 3)

Data typically includes interviews, transcripts, participant observation field notes, survey results, journals, documents, literature, or other artifacts that synthesize the data collection process.

Coding data is an iterative process through repeated readings of information. After several readings, the researcher codes words, phrases, or sentences that present "streams of thought" which are organized into patterns or themes. Coding is as simple as highlighting a word or phrase to elaborate software programs that look for specific "strings" of information. For this Delphi study, the researcher used the "search" and "highlight" method available in most word processing software. Words or phrases that appeared three or more times were compiled into a table and stored for future use. Additionally, the researcher read surveys repeatedly, marking or highlighting words, phrases, or sentences that were used frequently. Finally, the researcher noted repeated words or phrases looking for emergent patterns, themes or concepts. Figure 4 below illustrates the process.
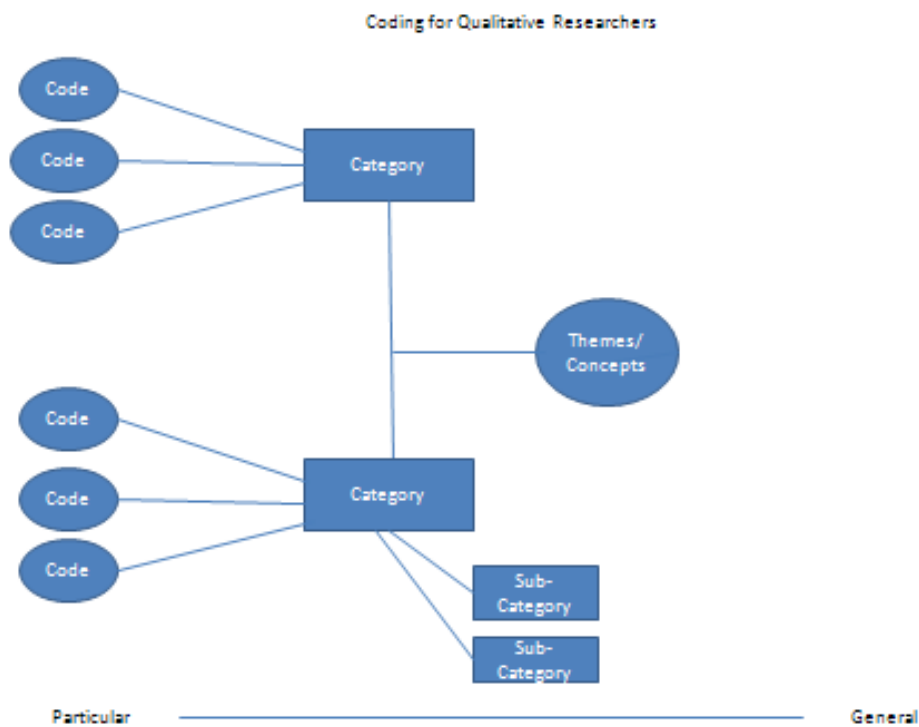
Figure 4. Coding manual for qualitative researchers. Adapted from "The coding manual for qualitative researchers," by Saldaña, J. (2008, p. 12).

Pilot Study

The purpose of the pilot study was to develop a set of questions that focus on the topic of study and to reach consensus among the experts for the most appropriate language of those questions. Using a set of pre-validated questions and responses, the researcher addressed the data validity prior to a full-panel query. Pilot survey members were selected based on professional affiliation and qualifications. Qualifications included number of years experience in the field of emergency management, position as a decision maker and willingness to participate.

Seed questions for the pilot study were designed by the researcher gleaned from the literature review and informal discussions with experts in the field of emergency management. The pilot surveys were emailed to five individuals and all five responded to the questions. Pilot surveys responses contained no major changes with the exception of minor changes to spelling and word order. Round One survey and the pilot survey were essentially the same. A copy of the survey instrument for the pilot study and Round One is included in this document as Appendix C. Using the three round Delphi Technique, the researcher enlisted a panel of experts to provide input to specific questions in each round. After each round, the researcher analyzed the information and asked for expanded replies to specific open-ended questions.

Respondent Characteristics

Delbecq, Van de Ven, and Gustafson (1975) propose the selection of participants is critical to the overall success of the study. Hsu and Sandford (2007) state that "Delphi subjects should be highly trained and competent within the specialized area of knowledge related to the target issue" (p. 3). Linstone and Turoff (1979) state "there are no general rules of thumb for creating panels" (p. 65). The number of panel experts for a Delphi study varies according to individual authors. A representative sample is appropriate; however, there is no optimal number of panel members. A major premise of Delphi is that "experts" are needed

and often the time and cost of bringing them together is inefficient or impossible. A distinguishing feature of Delphi is the feedback of the information gathered from those experts and the opportunity of the individuals to modify or refine their judgments based upon their reaction to the collective views of the group. Another characteristic of Delphi are various degrees of anonymity imposed on the individual and collective responses to avoid undesirable psychological effects (Linstone & Turoff, 1979).

Participants were selected from a purposive sample of individuals. In a purposive sample, "the researcher specifies the characteristics of a population of interest and then tries to locate individuals who have those characteristics" (Johnson & Christensen, 2008, p. 239). The population for this study consisted of experts from the field of emergency management. Two groups are represented in the panel of experts. The first group was selected from attendees at the Emergency Management Issues Special Interest Group conference held in Las Vegas, Nevada in May, 2010. The second group was a selected by the researcher from emergency management professionals who worked for various state, local, and federal employers. Thus, a nation-wide sampling was conducted. Participants provided demographic information such as the highest level of education completed, number of years in the field of emergency management, and current position by title in emergency management.

Demographic information was solicited from each participant. Data were specifically requested on position title and educational attainment. In emergency management the types of positions vary by title and responsibility. For this study, the following list represents the number of respondents with similar titles by category.

1. Program Manager/Coordinator
2. Director, Emergency Management Program
3. Training Specialist
4. Emergency Management Specialist (General)

5. Independent Consultant

6. Drill/Exercise Specialist, Emergency Management

7. Planner, Emergency Management

8. Crisis Communications

9. Risk Communication

10. Security Specialist

11. Safety & Health Specialist

12. Radiation Specialist

13. College Professor, Emergency Management

The participants' levels of education in Round One of the study were high school diploma (14%), Associate of Science (2%), Bachelor of Science (30%), Master of Science (50%), and PhD (4%).

Round One Survey Results

The total number of surveys distributed and returned was 100% in the pilot study and 96% in Round One. The high response rate is likely the result of a purposive sample. A purposive sample is one in which participants are selected based on the purpose of the study. The researcher attempts to obtain a sample that appears to be representative of the population. Purposive sampling is appropriate when choosing a particular topic that focuses on studies that are rich in information because they are unusual or special in some way. In this study, the participants are experts in a specific discipline; the discipline of emergency management. This sampling captures the central themes that cut across participant variations. Purposive sampling is best used with small numbers of individuals or groups which may well be sufficient for understanding human perceptions, problems, needs, behaviors and contexts, which are the main justification for a qualitative audience research.

After several readings and reviews of Round One data, the researcher analyzed the data. For those questions that required quantitative analyses, tables were developed that

provided the reader with numbers or percentages. For qualitative information, the researcher coded the responses using key words or phrases. An emerging theme developed from the qualitative responses, specifically, in the areas where participants were asked to provide additional information. The use of words such as "stress," "time compression," and "unknown or lack of information" provided the researcher with rich data that was appropriate for use in Round Two of the study.

Question one on the survey form was stated as follows: *Have you received training or education in leadership through any of the following?* Check all that apply." The majority of respondents received leadership training in the company where they worked (84%). The next highest percentage of participants received training from an academic source (44%), followed by military training (31%), and other (2%).

Question two was a follow-on question to the first question. This question asked: *If you answered 'yes,' to Question one, was the training extensive (multiple courses or more than one year) or limited (a single course or less than a year)?* Fifty-three percent of respondents answered "yes" or extensive (multiple courses or more than one year) and 33% answered "no" or single course or less than one year.

Question three asked: *Is there a difference between day-to-day leadership and crisis leadership?* Seventy-three percent of respondents replied *yes, definitely* that there was a difference in day-to-day decision making and crisis decision making. Twenty-five percent replied *sometimes* to this question. One respondent included a note (*not at all* response) which stated:

Interesting question: My opinion, after some thought, is that the qualities that make someone a good leader are the same for day-to-day leadership and crisis leadership. Due to experience, some people may be more comfortable or proficient in a crisis situation than others but they still need to use the same skills.

Question Four asked: *Which of the following do you consider traits of an effective leader?* Responses are provided in Table 1.

Table 1.

Traits of an Effective Leader, Round One Responses

Trait title	Percentage
Competent	96%
Trustworthy	94%
Flexible	81%
Dependable	80%
Articulate	76%
Self-Confident	75%
Intelligent	73%
Inspiring	69%
Goal-oriented	65%
Compassionate	59%

Note: The list of traits is based on leadership traits based on information in the Kouzes and Posner book, *The Leadership Challenge* (2007).

Question four provided a space for "additional" or "others" (traits) which received a number of responses including common sense; willingness to assume responsibility commensurate with authority; decisive during crisis; consensus builder during "peace" times; empathic; tactical, strategic, passionate; honest; good listener, analytical, ethical, approachable, self-aware of personal strengths and weaknesses, emotional intelligence; persuasive; decisive; experienced; assertive; has integrity; intrinsic capability; active listener; and high fidelity communicator. These responses are similar to "additional" responses that participants noted in question eight.

In question five, the focus on leadership changed to leadership and decision making. The question for this topic was: *Have you received training or education in crisis leadership or crisis decision making through any of the following? Check all that apply.* The results are listed in Table 2.

Table 2.

Training/Education Received in Crisis Leadership or Crisis Decision Making, Round One Response

Training in crisis leadership or decision making	Responses (Total = 47)
Company	57%
Academic	17%
Military	21%
Not Applicable	19%
Other	26%
Other by Type	Nuclear Power Institute (NEI)
	FBI
	Federal Training Programs
	Government
	Emergency Drills & Exercises

When comparing responses to this question to Question One (training for "traditional" leadership), the number of responses was significantly less. For Q1, the percentage was 84% and for this question (Q5) the percentage was 57%. The reason for this difference presents an interesting area of future inquiry, especially since the participants are experts who identified themselves as crisis leaders or crisis decision makers.

In question six, respondents were asked a follow-on to Q5, *If you answered "yes," then was it extensive (multiple courses or more than one year) or limited (one course or less than one year).* Fifty-eight respondents answered "yes" to this question and twenty-three percent answered "no."

In response to question seven, *Was the training or education useful to you in crisis decision making? (Useful meaning: Were you able to implement the training or education?)*, respondents indicated 82% agreement with *very useful* (41%) and *somewhat useful* (41%). This number indicates that respondents are able to use or implement training or education in some way. An interesting follow-on study would be to investigate the manner in which respondents use the training or education along with suggestions on modification to training or education they received.

Question eight asked, *Which of the following do you consider traits of an effective crisis leader?* For the question, participants were provided a list from which to choose. The

researcher based the trait options on current literature in leadership and crisis management

gleaned from several sources (Bolman & Deal, 2008; Gardner, 1989; Kouzes & Posner,

2007). Responses are shown in Table 3:

Table 3.

Traits of an Effective Crisis Leaders, Round One Responses

Trait	Percentage
Calm	72%
Decisive	67%
Adaptive	65%
Communicative	61%
Focused	61%
Experienced	55%
Solution oriented	57%
Collaborative	47%
Goal-oriented	43%

"Additional" or "others" traits participants listed in Question Eight included: handles

stress easily; ability to see the "big picture" while recognizing importance of details;

passionate; flexible; compassionate; articulate; delegator; consistent but flexible; good

listener; self-aware of personal strengths and weaknesses; innovative; active listener; and

multi-tasking.

Have you experienced a difference in your decision making from your day-to-day

position to your position in a crisis? (Question Nine). Sixty-three percent responded *Yes*

Definitely, 33% *Sometimes*, 4% *Seldom* and 0% *Not At All*.

Question ten for Round One of the survey is *In what ways have you experienced these*

differences? The respondents provided an extensive list of differences which are located in

Appendix E. Based on an analysis of the information provided, the words time, stress, and

information appeared repeatedly through the responses to this question. These words and

those that described them, such as too little or lack of, were underlined or highlighted within

the data. Three themes emerged which were compressed time, stress, and unknown

information. The following excepts describe the themes of decision making from day-today to crisis events:

- Having more time allows for decision making

- Not as much time to consider alternatives

- Time is always of essence in a crisis

- Uncertainty—must make decisions in a crisis with more unknowns

- Need quicker decision making in a crisis

- Stress, speed of decisions

- Stress level based on the potential for decision made in crisis

- Time compression (mentioned three times in these specific words)

- Must be able to make decision with limited information

The three themes of time, stress, and unknown information were used as the basis for questions in the next round of the study and can be viewed in the Round Two survey in Appendix D.

Question eleven asked: *Do you rely on specific tools or practices to make decisions in a crisis event?* Sixty-three percent responded *Yes Definitely*, 31% *Sometimes*, 3% *Seldom*, and 0% *Not At All*. When asked to provide examples of tools or practices, the experts provided an extensive list which is located in Appendix F. The following provides some of the most frequently mentioned tools and practices and provided the basis for questions in Round Two of the study:

- Emergency Management Checklists

- Position checklists, response procedures

- Training

- Experiences: both good and bad

- Resources lists

- Triangulation of data to ensure accuracy &reliability

- Position checklists can be efficient to eliminate mistakes under stress.

- Tools: Status boards, checklists, media tools (camera, mobile information tools)

- Plans , checklists

- Checklists of tasks to perform; job aids such as information exchange matrix; pre-approved templates for news releases; fill-in-the-blank forms; training, drills/exercises to gain experience and self-confidence

- Check sheets, meteorology boards, communication training.

- Standard Operating procedures (SOPs) and checklists.

- Event dynamic reports, checklists, modeling tools for hazardous materials.

- Checklists which include how each position "interacts" with others (inter-relational)

- *Fast and Frugal Heuristics* (Gigerenzer, G., Goldstein, G. & Hoffrage, 2008)

- "know/don't know/think" model

- Collaboration and communication

- I rely on previous training

- Rely on experts or trusted colleagues to evaluate/comment on decisions if time allows.

Round Two Survey Results

Based on Round One of the Delphi study, the researcher developed Round Two survey questions. As an iterative process, Delphi uses Round One data to design follow-on questions that narrow participants' responses. Round Two consisted of four questions using synthesized information from Round One. These questions addressed differences in decision making for a non crisis event versus a crisis event, leader's traits, tools, and practices. A copy of the Round Two survey is located in Appendix D. Twenty-five participants were

selected randomly for Round Two. Surveys were emailed to them and fifteen participants

completed surveys resulting in a sixty percent completion rate. The participants' levels of

education in Round Two of the study were high school diploma (7%), Bachelor of Science

(33%), Master of Science (47%), and PhD (13%). The aggregated responses are listed in

Table 4 below.

Table 4.

Differences in Decision Making, Day-to-Day vs. Crisis Situation, Round Two Responses

Most Cited Differences	**Strongly Disagree**	**Disagree**	**Agree**	**Strongly Agree**
Time compression (less time)			4%	40%
Stress		1%	25%	30%
Unknown (lack of) information			10%	50%

Note: Most often cited decision-making differences are from Round One data.

For responses to *List any others that you believe should be agree or strongly agree,*

there were a number of responses which are located in full in Appendix G. Below is a partial

list:

- We can never know the exact disaster or crisis event with which we will deal

  (unknown)

- Decision makers must provide timely information in times of crisis (Time

  compression)

- Crisis decision making requires a different framework/approach than day-to-day

  based on time and stress presented (time compression and stress).

- Decision directly affect life and safety of people adding stress (stress)

- [decision makers] must determine and implement immediate protective actions

  (time compression).

- Crisis managers experience stress daily and even more in a crisis (stress).

- In day-to-day operations, these decisions are made in a thoughtful, analyzed

  process with significant peer review. During emergency conditions, the decisions

that affect safety and health may require immediate determination and
implementation.

These responses resonate with those presented in Round One of the study. Time, stress and unknown (missing or lack of) information are the essential differences between decision making day-to-day versus in a crisis environment.

Round Two Question Two represented in table 5 asked the participants to rate their agreement or disagreement about the most used tools or practices in a crisis event. In Question Eleven from Round One (R1, Q11), participants were asked if they used tools or practices in a crisis situation. When asked to provide examples of tools or practices, the experts provided an extensive list which is located in Appendix F.

Table 5.

Most Used Tools or Practices Used During a Crisis, Round Two Responses

Based on Round One data, these are of **most** often cited tools or practices used during a crisis. Please mark your agreement or disagreement.			
	Strongly Disagree	***Disagree***	***Agree***	***Strongly Agree***
Checklists or procedures		2%	15%	55%
Previous Training		1%	30%	25%
Collaboration & communication			20%	45%

Note: Most often cited tools or practices used during a crisis are from Round One data.

For responses to *List any others that you believe should be agree or strongly agree,* there were a number of responses listed in Appendix H. Below are a representative sample:

- A decision making model which shifts between theory and fact (procedure/tool).

- I have used a software modeling program, [sic] a wonderful tool for responding to events (it handles incomplete info, has artificial intelligence, and can be tailored to the user – e.g., fire departments, hazmat, police response, etc.) (procedure/tool).

- Pre-established professional relationships with other response organizations such as the American Red Cross; Volunteer Organizations Active in Disasters; local utility companies: electric, gas, phone; hospitals and ambulance service providers; school districts, etc. (collaboration & communication).

- Positive, pre-established relationships with local media

- You need the right people, with the right experience, skills, and attitude, at the right time (training)

- Reliable communication systems (collaboration & communication)

- Go with "gut feeling." Could be instinct and/or prior training (training).

Round Two Question Three

*Based on your experience in emergencies and crisis management, which of the following do you think a crisis leader uses **most** often in decision making **during a crisis?***

☐ Make decisions alone most often

☐ Make decisions with a group (team) most often

☐ Make decisions using both equally

Thirty-two percent responded *decision with group*, 12 % *both equally*, 8 % *it depends*, 4 % *alone*, and 4 % *no answer*. The experts agreed that decision making in a group or team was most often used and in partial list below, the reasons are provided for that agreement. The responses to *List any others that may apply* are listed in their entirety in Appendix I. Below are some examples:

- There are times when a leader must make a decision alone because involving others would lead to analysis by paralysis, time is of the essence (and lives are at stake), or that leader is solely responsible for the outcome. (alone)

- decision making during a crisis is the fact that a crisis manager who refuses to delegate decisions to others is making a huge mistake. (group)

- In today's complicated environment, no one person can possibly have all of the knowledge necessary to do the right thing, each and every time. (group)

- It is critical to involve others and to avoid the perception that the crisis manager and the crisis manager alone can make a decision. (group)

- I marked "both" however I do believe it depends on the situation. At [sic], the crisis manager has a team he/she can use to help make a decision. (both)

- This question is somewhat limiting in understanding the decision-making process during a crisis because the right answer is "it depends." (both)

The final question for Round Two identified the three top traits from Round One and asked participants for agreement and ranking. Based on Round One data, an effective crisis leader was characterized calm (87%), decisive (87%), and adaptive (84%). Respondents were asked to indicate their level of agreement concerning these top three traits from Round One. All three traits were supported strongly by Round Two participants. Participants were provided with suggested meanings for each trait. Calm meaning not easily excited, quiet, composed, or unruffled with 50% selecting agree or strongly agree. Decisive meaning strong-minded, clear thinking, or determined with 55% selecting agree or strongly agree. Adaptive meaning changeable, flexible, or able to adjust with 55% choosing agree or strongly agree.

Summary

All rounds of this study were iterative processes that provided the researcher with consensus by experts in the field of emergency management. Round One represented the initial query on decision making in a non-crisis event versus a crisis event, leader traits, and tools and practices. The result of this round provided the impetus for development of the survey for Round Two. Round Two questions were designed to address the original research

questions and to build on the consensus obtained in Round One. In designing Round Two, the researcher posited four questions that sought in depth information and added to this qualitative study. Participants for Round Two were selected randomly by reviewing the list of respondents from Round One.

Chapter Four represented the initial data collection efforts by asking experts their opinions on eleven questions. These questions offered participants the opportunity to answer closed-ended and open-ended questions. In Round Two, the researcher sought to streamline consensus quantitatively and qualitative. In that process of extraction, "rich" data was gleaned that serves to clarify the conclusions and implications presented in Chapter 5.

Chapter 5: Conclusions, Implications & Recommendations

This study focuses on dealing with a crisis through the decision making process, the traits of leaders making decisions in crisis events, and the tools and practices used by those who lead in crises. Crisis leadership has been studied, defined, and modeled; yet consensus on the terms remains unsettled. The literature reflects more definitive information on traditional leadership. Northouse (2007) defines leadership as "a process whereby an individual influences a group to achieve a common goal" (p. 3). In a crisis, critical decision making affects all stakeholders and marks the difference between a positive or negative outcome. Pearson and Clair (1998) suggest that during a crisis, decision making must be done quickly and "effective crisis management involves improvising and interacting with stakeholders" (p. 66). Outcomes in crises are, many times, life and death situations. Leadership in this environment requires a leader who is willing to make tough decisions given high stakes, stress, and unknown information.

This study uses the Delphi Technique to obtain qualitative data regarding the differences between non-crisis and crisis decision making, the traits of a crisis leader, and evidence of effective crisis leadership tools and practices. As an iterative process, the study seeks a broad range of opinions from experts in a three-round collection of survey data after which the data are analyzed and the experts are given a final opportunity to respond to others' opinions. The ultimate outcome for this Delphi study was a synthesis of expert opinions that may be used in further research activities.

Findings Summary

The data from the three phases or rounds of this Delphi study are used to answer the research questions:

1. Is there a difference between day-to-day leadership decision making and crisis leadership decision making?

2. What tools or practices does a crisis leader use for decision making given

ambiguous (limited and/or unconfirmed) information?

The population for this study consisted of experts from the field of emergency

management. Two groups are represented in the panel of experts. The first group was those

who attended the Emergency Management Issues Special Interest Group conference held in

Las Vegas, Nevada in May, 2010. The second group included emergency management

professionals from various state, local and federal employers selected by the researcher.

Table 6 provides a synopsis of response rates for each round of this Delphi study.

Most likely, overall response rates were high based on the researcher's use of a purposive

sample. A purposive sample is one in which participants are selected based on the purpose of

the study. The researcher attempts to obtain a sample that appears to be representative of the

population. Purposive sampling is appropriate when choosing a particular topic that focuses

on studies that are rich in information because they are unusual or special in some way. In

this study, the participants are experts in a specific discipline; the discipline of emergency

management.

Table 6.

Response Rates for Each Round

Round	Surveys Distributed	Surveys Returned	Percent Returned
Round One (pilot)	5	5	100%
Round Two	53	51	96%
Round Three	25	15	60%

The overall findings were significant in that they answered the research questions and

provided needed information for future research. At a glance, the aggregated findings are

presented in Table 7.

Table 7.

Significant Findings at a Glance

Question	Responses
Is there a difference between day-to-day and crisis decision making?	Yes, definitely - 73%
	Sometimes – 25%
	Not at all – 2%
Differences	Time compression, Stress, Unknown information
Top three traits of a "traditional" leader	Competent, Trustworthy, Flexible
Top three traits of a crisis leader	Calm, Decisive, Adaptable
Top three tools or practices used	Checklists/procedures
	Previous training
	Collaboration & communication

Decision Making

The overarching research question asking if there is a "definite difference" between day-to-day decision making versus crisis decision making yielded an affirmative response rate of 73%. This finding of differences between day-to-day and crisis decision making reflects the literature on how decisions are made during a crisis. A significant impact to crisis decision making is the presence of stress, time compression, and unknown (lack of) information. Experts repeatedly commented that crisis decision making was predicated on unknown circumstances such as what happened, how did the crisis happen, how long will the crisis last, and when will the crisis end. Decision making in a crisis environment is dependent on a leader's traits, tools and practices, especially in previous events.

Participants were asked about their training and education in day-to-day leadership decision making as well as crisis leadership decision making. Of those who responded to the question asking about receiving day-to-day leadership decision making, 84% reported they had received company training, 44% reported academic training, and 31% reported they had received their training in the military. Of those who were asked the question regarding the receipt of crisis leadership decision making, 57 reported they had received company training, 17 received academic training, and 21 received military training. The experts were asked if they thought the crisis leadership decision making training or education they had received

was useful, 41% responded "yes" and 41% reported "somewhat" useful. Interestingly, six percent reported "not applicable" to the question. A further probing of this answer might prove useful to understanding the impact of training and education on crisis leadership decision making.

Altogether, the percentage of respondents received some type of leadership training was high. The nature of emergency management and the requirements for training are most likely the reason for this high percentage of those trained in leadership. The high percentage of those who received day-to-day leadership training suggests that either 1) companies offer more training in day-to-day leadership decision making over crisis leadership or 2) that those who serve in a crisis leadership decision making role do not seek out additional training when not provided by their company.

The difference between crisis leadership training from a company versus that from an academic source is surprising. One possible reason is that academic institutions do not offer crisis leadership training as often as they offer day-to-day leadership training. Academic institutions have an opportunity to offer crisis leadership training in view of the findings of this study. This lack of academic training in crisis leadership presents an opportunity for future research as well.

Decision making in day-to-day situations is different than decision making during a crisis according to the panel of experts in this Delphi study. There are implications for crisis leaders and those whose job it is to make decisions during crisis event. Decision making in a crisis is influenced by several variables, many of which are listed above. The nature of crisis decision making is focused specifically on protecting the health and safety of the effected populations (i.e., communities, workers, responders, etc.), so leadership must maintain focus throughout the decision making process, hence more of a directive approach. However, to make those decisions, there are casts of hundreds, depending on the scope and severity of the emergency that provide input to leaders. The ramifications for leaders and their decision

making suggests that leaders must listen, seek input, provide input and manage the minute-by-minute operations of an emergency event. Because of the level of skills required in emergency management decision making process the resulting decision making outcomes require a leader who is calm, decisive, and adaptive to a specific crisis situation. Leaders who exhibit self-confidence, but know how to make decisions under stress in a time compressed environment and with little or no information, offer the "best case" scenario for a positive outcome.

Leadership Traits

Respondents were asked to choose from a list the traits those they considered as representative of an effective (day-to-day) leader (Table 1). The top three highest rated responses were "competent" (96%), "trustworthy" (94%), and "flexible" (81%). Then, respondents were asked to choose what traits they considered representative of a crisis leader (Table 3). The top three rated responses were "calm" (72%), "decisive" (67%), and "adaptive" (65%). The terms "adaptive" and "flexible" are used interchangeably. The traits of "communicative" and "focused" are ranked fourth and fifth with ratings of sixty-one percent for each. The trait of "goal-oriented" was listed in both questions four (Q4) and eight (Q8). This trait ranked 65% on for day-to-day leaders and ranked 43% on crisis leader traits.

Open-ended responses to Q4 and Q8 included a similar response described as a "good listener" and an "active listener." These findings suggest a correlation between the fourth ranking of "communicative" in that respondents consider the activity of listening as a part of communication. Overall, respondents indicated that day-to-day leader traits and crisis traits share some similarities, but they share distinct differences as well.

Leadership Tools and Practices

In Round One, questions eleven (Q11) and twelve (Q12) in Round One (R1) addressed the issue of leadership tools and practices. R1/Q11 asked "Do you rely on specific tools/practices (such as checklists, procedures, specific techniques, training) to make

decisions in a crisis event?" Sixty-three percent of respondents replied "yes," thirty-one percent replied "sometimes," three percent replied "seldom," and zero responses to "not at all." For R1/Q11, the respondents were asked to provide examples of tools and practices they used in decision making during a crisis event.

In Round Two, question two (Q2) addresses the issue of leadership tools and practices. An open-ended response opportunity was provided as well. The highest response was "strongly agree" to the use of checklists and procedures (55%), followed by collaboration and communication (45%). The open-ended responses to R2/Q2 ranged from a need for a decision making model or program, experience, pre-established relationships, communications tools, to "gut" feeling as tools or practices used by experts.

The practice of emergency management is somewhat prescriptive through the use of checklists, procedures, training programs, and response protocols. Crisis leaders use specific tools and practices to accomplish the goals of protecting public health and safety as well as the environment. While crisis events are situational, the traits, tools, and practices of a decision maker in this environment share common ground. Notably, most of these tools and practices offer transferability to other circumstances or events. The crisis decision making leader acts appropriately depending on the situation whether it be a large-scale emergency that impacts a community or an issue that impacts an individual.

These responses by crisis management experts in both rounds of the Delphi study suggest that the use of checklists and procedures are the most widely-used examples of tools or practices by these experts. Closely following those examples is the need for collaboration and communication among all who made decisions in a crisis situation.

An effective crisis leader develops leadership and adaptability skills over time. Developing leadership capabilities strengthens the leaders' ability to mitigate a crisis successfully given stress, time constraints, and unknown information. Effective, timely, and seasoned leadership during times of crisis is critical to a positive outcome.

Implications

        This Delphi study of leadership, leadership traits, and decision making suggests a number of implications. By studying the various crisis leadership traits, a conclusion may be drawn that the situation often determines leadership traits. In crises, leaders exhibit leadership traits that are applicable to the situation. Most often, those traits are of a leader who is calm, decisive, and adaptable to the situation. The ability of leaders in crises to adapt to the situation is no small thing. Each crisis presents different challenges, different environments, different humans and many possible outcomes. Changing situations necessitate leaders who will use their adaptive knowledge, skills, and abilities (KSAs) to lead others to a successful conclusion. When addressing a crisis situation, leaders must determine who they are leading, what decision must be made, what potential outcomes are possible and, ultimately, the impact of those decisions.

        Crisis leadership is, by its nature, an extension of day-to-day leadership. The KSAs needed for decision making are embedded in each situation. The difference between the two is the time compression, the stress of the situation, and the lack of or unknown information that all crises generate.

        Leaders facing a crisis must be aware of their own KSAs before a crisis occurs. The experts of this study suggest that leaders need to embrace a situational style of leadership which manifests itself as one who is calm, decisive, and adaptable. The success of crisis leaders is measured in terms of their ability to influence or motivate key audiences toward a specific behavior.

        In day-to- day leadership events, competent leaders are perceived as those who are capable in leading (Kouzes & Posner, 2007). In a crisis environment competence is seen differently. Competence in a crisis is importance but decisiveness, calmness, and flexibility are rated higher according to the findings of this study.

In day-to-day leadership events, trustworthy leaders establish and maintain a relationship with subordinates. As stated earlier in this study, the literature on Leader-Member-Exchange leadership focuses on the relationship between leaders and followers, minimizes the individual traits and characteristics of both, and highlights the importance of the relationship. This approach magnifies the importance of communication in creating and nurturing relationships based on trust and commitment. A leader who fosters trust in others benefits from that trust by receiving trust as well. Trust instilled in day-to-day leadership has the propensity to transfer to a crisis environment.

Finally, in day-to-day events, flexible leaders are known for their ability to handle organizational change—even conflict—and respond rapidly to that change. This ability to be flexible or adaptable bodes well for them in a crisis environment.

In a crisis environment, staying calm is paramount for leaders to effectively resolve the situation toward a positive outcome. Crises events generate high stress circumstances requiring great strength and unique leadership skills to move people into action. Calmness in this scenario is a practiced skills that effective crisis leaders practice and hone over time.

Decisive crisis leaders make quick yet, often life safety decisions while frequently lacking essential information. Critical decisions, too, are made under these uncertain conditions with little time to confer with colleagues, advisors, and others who would normally be engaged in decision-making processes. Further, because crises typically are not a linear, step-by-step process, the ability to make decisive, timely and accurate decisions simply overwhelms some leaders while others are adept at the process. Effective crisis leaders facilitate – rather than direct – much of the decision making process. These leaders are able to lead by information sharing, resource allocation, problem solving, and by publicly giving credit where credit is due.

Flexible crisis leaders assess the situation, determine what needs to be done, and find ways to balance the tradeoffs. Flexible, adaptive leadership is especially important when there is substantial change in situation and the leadership behaviors that are relevant for it

(Yukl, 2009). Flexible, adaptive leadership is also important when unusual events and external changes create an immediate crisis or an emerging threat or opportunity

The differences in day-to-day leadership and crisis leadership reflect the situations in which leaders find themselves. Day-to-day leadership has its challenges to be sure. Crisis leadership moves a leader into a new dimension. In that "zone" of leadership, different skills, tools, practices, and even a change in leadership traits, is required. Gardner (1990) states "individual people—leaders—however, can and should be more agile and adaptive in the short run, and are able to prompt the sort of resilient and flexible organizational response required for quick and immediate change" (Gardner, p. 20).

Recommendations

While much has been written on traditional leadership, the research on crisis leadership is lacking. Moreover, the discipline of crisis management is not well researched or covered in the literature. The opportunities to develop crisis leaders who can make decisions in a crisis environment have never been more important in history. This Delphi study points out that crisis leadership is not well documented, yet it remains critical to organizations; perhaps even more so than a written crisis plan. Crisis leadership needs to be grounded in core crisis leadership concepts.

Using the consensus of experts, the study provides insights that may help the crisis management community evaluate their own definitions of crisis leadership, seek ways to improve decision making in crisis, and share traits, tools, and practices of effective crisis leaders. It points to a need for further research regarding a more universal definition of crisis leadership, crisis management and a shared understanding among all practitioners in the field of crisis management.

This study and its findings provide opportunities for the practitioner as well as the researcher. While all leadership is dependent on many factors and subject to many variables, in a crisis, those variables are magnified and some nearly impossible to overcome.

Recognizing the complexity of crisis environment, the researcher offers the recommendations below for consideration. The goal of any research is to improve the field of practice, add to the body of knowledge, and increase awareness of an idea, concept, or theory. In the case of crisis management, crisis leadership and decision making in a crisis environment, the desire to increase leaders' abilities to respond to crises and to encourage further research is critical. The following recommendations provide suggestions for research as well as the practice of crisis management.

Recommendation 1: Encourage and promote ways to enhance and add to the research and practice of crisis management, crisis leadership, and decision making in a crisis environment. For scholars and practitioners alike, add to the body of knowledge that informs the community of practice about crisis leadership and crisis decision making.

Recommendation 2: Increase training and educational opportunities for crisis leaders and crisis decision makers.

Recommendation 3: Consider the differences between day-to-day decision making and decision making in a crisis and the associated training to address these differences. Re-think the role of the leader in a crisis and explore, document, and articulate the needed behaviors that would ensure a positive outcome.

Recommendation 4: Examine the role that institutions of higher learning may play in contributing to the field of crisis leadership and crisis decision making, including course offerings as well as research.

Recommendation 5: Develop additional tools, practices, and models that are useful to crisis leaders. Disseminate the tools and practices of effective crisis leadership that may inform the entire crisis management community as well as the public domain.

Recommendation 6: Continue the dialogue about crisis management, crisis leadership, and effective crisis decision making strategies to include those in the field of crisis management, education, and the public domain.

Recommendation 7: Track and consider emerging trends in leadership.

Based on current research, practices, and the literature reviewed, there is an imperative for organizations to develop leaders who embody the skills and attributes needed of a crisis leader. Communities of practices, organizational leaders, and the general public should reflect on ways to improve crisis planning and response, the role of crisis leaders in their organizations and communities, and effective decision making models that will benefit all citizens who might be impacted by a crisis.

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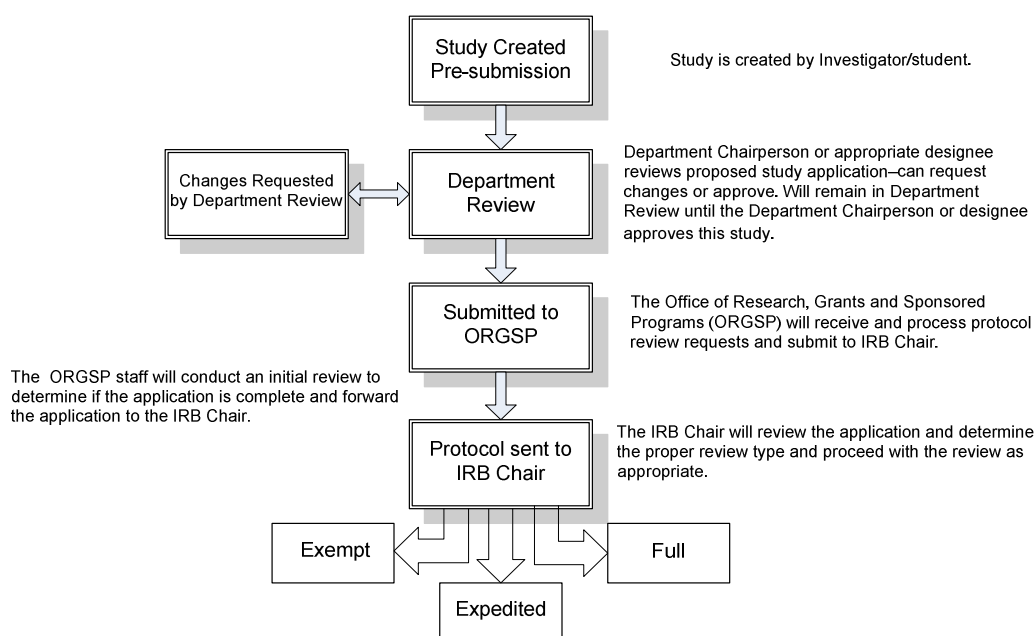
Appendix A: IRB Approval Form

Assurance of Protection from Research Risk

Regardless of funding source, all activities performed by LMU faculty or students that involve human subjects, animal subjects, the use of recombinant DNA, or the use of biohazards must be reviewed by the Institutional Review Board (IRB) or the Institutional Animal Care and Use Committee (IACUC). The PD/PI is required to forward applications for review to the ORGSP. The ORGSP will determine if the application complete and, if so, send it for review. The ORGSP will forward certification of IRB approval of the proposed research to the PI only after all IRB-required modifications have been incorporated to the satisfaction of the IRB. This process is illustrated in Figure 3. below.

- **Institutional Review Board (IRB),** Dr. Howard Teitelbaum, Chair. All proposals that involve research to be performed by LMU faculty or students that will involve the (a) human volunteers, (b) laboratory animals, (c) recombinant DNA, or (d) biohazardous materials and chemicals must be reviewed by the IRB.

- **Institutional Animal Care and Use Committee (IACUC),** Mary Hatfield, Chair. All animal care and use is under the oversight of the IACUC. The IACUC conforms to the general public health service guidelines (PHS policy at IV.A.3.B) concerning membership. IACUC responsibilities include the inspection of the animal facilities as well as all laboratories that use animals. The IACUC must approve all protocols before animals may be used and must certify that all individuals are appropriately trained. Figure 3.

IRB Flow Chart
Lincoln Memorial University

Study Created Pre-submission	Study is created by Investigator/student.
Changes Requested by Department Review ↔ **Department Review**	Department Chairperson or appropriate designee reviews proposed study application–can request changes or approve. Will remain in Department Review until the Department Chairperson or designee approves this study.
Submitted to ORGSP	The Office of Research, Grants and Sponsored Programs (ORGSP) will receive and process protocol review requests and submit to IRB Chair.
The ORGSP staff will conduct an initial review to determine if the application is complete and forward the application to the IRB Chair.	
Protocol sent to IRB Chair	The IRB Chair will review the application and determine the proper review type and proceed with the review as appropriate.

Exempt   **Full**

Expedited

1. **PROJECT TITLE**

Title of Project: **Decision Making in a Crisis Environment**

2. **TYPE OF REVIEW:** (See Exempt and Expedited Categories Lists)

This project may fall under: ☐ Exempt   ☒ Expedited   ☐ Full

    a. For an exempt review, please check the appropriate review category below.

☐ Category 1

☐ Category 2

☐ Category 3

☐ Category 4

☐ Category 5

☐ Category 6

    b. For an expedited review, please check the appropriate review category below.

☐ Category 1

☐ Category 2

☐ Category 3

☐ Category 4

☐ Category 5

☐ Category 6

☐ Category 7

☐ Category 8

☐ Category 9

3. **PROJECT DATES**

	June 2010	to	**May 2011**

    a. Anticipated starting and completion dates:

NOTE: Project may not start prior to approval from the IRB.

b. This project may be conducted on an annual basis: ☐ Yes

4. PRINCIPAL INVESTIGATOR INFORMATION

a. Contact Information

Principal Investigator:	**Linda M. Murawski**
Department or Affiliation:	**Executive Leadership EDD**
Telephone: **865.607.8032**	Email: **Linda.murawski@lmunet.edu**
Name of chair/supervisor:	**Dr. Betty Standifer**
Email of chair/supervisor:	

b. Status

PI status: Undergraduate: ☒   Graduate: ☐   Faculty: ☐   Staff: ☐   Other: ☐

Students and outside researchers must provide their current address:

c. Student / Outside Researcher Information

If you are a student, please provide the following as applicable:

Type of project: Thesis/Essay: ☒   Independent Study: ☐   Class Project: ☐   Other: ☐

Course # & Name: **EDL 731**

Faculty Sponsor: **Dr. Gary Peevely**   Dept: **4238696676**

Faculty Email: Phone:

NOTE: A application by a student researcher must have the following statement signed by a

   university sponsor:

I have examined this completed form and I am satisfied with the adequacy of the proposed research design and the measures proposed for the protection of human subjects. For student projects, I will take responsibility for informing the student of the need for the safekeeping of all raw data (e.g., test protocols, tapes, questionnaires, interview notes, etc.) in a University or computer file.

Electronically Submitted	2-13-10
Signature of University/Faculty Sponsor	Date

If you are an outside researcher, please provide the following as applicable:

Investigator Name:

Name of Home Institution:

Investigator email: Phone:

Home Institution IRB Contact:		Dept:	
Date of IRB Approval:		FWA	
(Please include copy of approval)		Number	

NOTE: A application by outside researcher must have the following statement signed by a university sponsor:

I have examined this completed form and I am satisfied with the adequacy of the proposed research design and the measures proposed for the protection of human subjects. I will take responsibility for informing the above mentioned investigator of the need for the safekeeping of all raw data (e.g., test protocols, tapes, questionnaires, interview notes, etc.) in a University or computer file.

_____   _____
Signature of University/Faculty Sponsor   Date

5. FUNDING

Is this project being funded?   ☐ Yes   ☒ No

If yes, list the funding source:

6. RESEARCH STATEMENT: In 100 words or less indicate the reason for the research and a short justification:

> The purpose of this study is to obtain qualitative research on decision making in a crisis environment. Participants of the study will be crisis managers who are responsible for decision making in all types of disaster events such as natural disasters, man-made disasters or biological disasters. The methodology used for the research is the Delphi Method. This methodology includes a review of the literature, use of a panel of experts in the field of crisis management, and surveys and analyses of survey data to gain information on desired leadership traits and practices for crisis decision makers. A sample of crisis managers will be surveyed to determine their perception of the preferred traits needed to be an effective crisis manager. This analysis will identify crisis leadership traits and practices that have been effective in the past and will provide implications for future research.

7. PARTICIPANTS

a. Indicate which, if any, of the following groups will be research subjects (check all that apply):

☐	Minors (under 18)	☐	Senior Citizens (over 65)	☐	Terminally Ill
☐	Students	☐	Prisoners	☐	Cognitively Impaired
☐	Non-English Speakers	☐	Mentally/Physically Disabled	☐	Pregnant Women
☐	Institutional Residents	☐	Employees	☒	No Special Groups
☐	Single Subject Populations (by Race, Ethnicity, Sex, or Religion)				
☒	Other (specify):	*Adult Subject Matter Experts*			

b. If any of the above groups are selected, state the rationale for using special groups.

c. What is the approximate number of subjects to be recruited?

20

d. How will the subjects be solicited (check all that apply)?

	Advertisements		Letters		Random Calls
	Telephone Lists		Notices		Direct Solicitation
		X	Other (specify):	Blind survey	

8. INFORMED CONSENT. See http://www.lmunet.edu/curstudents/ORGSP/IRB.htm for detailed information on consent and assent forms, the required consent elements, and to view sample consent forms. If the materials do not meet the requirements for informed consent, a revision may be requested.

a. Type of Consent/Minor Assent Requested (check all that apply):

(i)		Adult Consent

(ii)	Use of Minors (under 18 years of age)
	Parent/Guardian Consent
	Child/Minor Assent (Non-readers: Not able to read or not-proficient at reading)
	Child/Minor Assent (Proficient readers: Can read & understand a simple assent form)

(iii)	In certain circumstances, a waiver of informed consent/minor assent may be requested. In this case, subjects are not informed or only partially informed about a study. To request that informed consent or assent be waived, indicate category below (check all that apply).
	Informed consent will not be obtained
	Parental consent will not be obtained
	Child/minor assent will not be obtained
	Partial Consent/Assent: This study involves deception

Justify why informed consent will not be obtained or why deception is necessary for this study. For studies that involve deception please include plans for how and when subjects will be debriefed. If a debriefing statement will not be used, explain why.

b. Method to obtain consent/minor assent.

(i) [X] Written Consent/Assent (written signature will be obtained from subjects)

(ii) [ ] No Written Consent/Assent Obtained (a written signature will not be obtained from subjects. Documentation of a signature is waived.)

If a waiver of a signature is requested, indicate below how subjects will be informed:

[ ] An Information Sheet will be used. Explain rationale below.

[   ]

[ ] Oral Consent will be obtained. Explain rationale below.

[   ]

[ ] Electronic Consent

9. DATA & CONSENT COLLECTION

a. Data collection methods (check all that apply):

X	Questionnaire or Survey		Archival Data
	Web or Internet		Intervention
	Interview	X	Focus Groups
	Observation		Testing/Evaluation
	Video or Audio Taping		Instruction/Curriculum
X	Computer Collected Task Data		Physical Tasks
	Other:		

b. Will the data be collected with identifiers? [X] Yes [ ] No

If yes, will the data be rendered anonymous for analysis? [X] Yes [ ] No

Will the data be rendered anonymous for reporting? [X] Yes [ ] No

c. Describe how the consent forms and other study material (e.g., data instruments, computer task data, interview questions) will be distributed and collected to protect the privacy of the subjects and how confidentiality/anonymity will be maintained throughout the consent and data collection process.

> *Consent forms will be provided through email, in person or focus groups. Personal information that could be used to identify survey respondents will be kept in a separate location and coded to prevent linkage to the respondent's personal information/responses.*

d. Describe security of the data, including where the consent forms and other study material will be stored, who will have access, and how and when the material will be destroyed. Note that signed consent forms must be retained for **three years** after the end of the study. State who will maintain the consent forms for the specified three years. (Note: faculty/staff sponsors may retain the original or a copy of signed consent forms including those collected from student projects.)

> *Data will be secured in a locked metal file cabinet or on a secure net. Only the PI will have access to the information.*

10. METHODOLOGY: Describe in detail how the research will be conducted making sure to address (1) how subjects will be identified and the process of contacting, selecting and excluding subjects; (2) how consent will be obtained, and if children will be used, describe how parental consent and child assent will be obtained; and (3) how data will be collected, including how data instruments, if used, will be distributed and collected, and the location where the study will take place. Essentially, describe how the study will be practically implemented step by step.

> The methodology to be used is the Delphi Method. The Delphi technique is a research method that uses a panel of experts (known in their field/practice) and solicits their input through a phased approach. Using this approach, the Delphi technique begins with an open-ended questionnaire from panel of selected experts to solicit specific information about a subject or content area. Then in subsequent rounds of the procedure, participants rate the relative importance of individual items and also make changes to the phrasing or substance of the items. Through a series of rounds (typically three) the process is designed to yield consensus.
>
> A modified Delphi technique may be used and is similar to the full Delphi in terms of procedure (i.e., a series of rounds with selected experts) and intent (i.e., to arrive at consensus). The major modification consists of beginning the process with a set of carefully selected items.

These pre-selected items may be drawn from various sources including related competency profiles, synthesized reviews of the literature, and interviews with selected content experts. The primary advantages of this modification to the Delphi is that it (a) typically improves the initial round response rate, and (b) provides a solid grounding in previously developed work.

Additional advantages related to the use of the modified Delphi technique include reducing the effects of bias due to group interaction, assuring anonymity, and providing controlled feedback to participants. For this study, a modified approach will be used.

11. **RISK FACTORS:** A research participant is considered to be at risk if he or she may be exposed through the procedures of the planned experiment to the possibility of physical or mental harm, coercion, deceit or loss of privacy. The most obvious examples of placing participants at risk of harm include administration of unusual physical exertion, deceit and public embarrassment or humiliation. Coercion may be present when the potential participants are not able to exercise their right to decline participation, particularly when the researcher is in a relationship of greater power over the participants.

a.	Risk Criteria	**CHECK ONE**		
	Deceit, coercion or possible embarrassment/humiliation	Yes	X	No
	Experimental drugs will be used.	Yes	X	No
	Potential for medical problems exist.	Yes	X	No
	Participants may experience physical discomfort.	Yes	X	No
	Participants may experience mental discomfort.	Yes	X	No
	Electrical equipment will be used.	Yes	X	No
	Participants will be tape recorded, photographed, or videotaped.	Yes	X	No

b. Does any part of this activity have the potential for coercion of the subject? If yes, explain and describe the proposed safeguards.   Yes | X | No

No negative consequences will occur as a result of this study.

c. Assess the likelihood and seriousness of risks (physical, mental, or other) to the subjects. Describe alternative methods that would not entail comparable risks and why these were not used.

> *Minimal risk*

d. Description of the anticipated benefits to subjects and contributions to general knowledge in the field of inquiry:

> *Copy and paste from dissertation. Significance of study.*

e. If the research subjects will be compensated or rewarded, indicate the type and amount of compensation and the milestone for each payment. If subjects are being recruited from LMU classes, indicate whether students are receiving course credit (regular or extra credit) and, if so, what alternatives are offered to those students who do not wish to participate in the research.

> *No compensation will be provided.*

12. SUBMISSION MATERIAL

The IRB must review copies of all final material presented to subjects. The IRB cannot approve a project without a complete and accurate application and final copies of all supporting materials. Please indicate below what materials have been attached to this application (check all that apply):

X

- [X] Recruitment material (flyer, announcement, oral script, email, letter, etc.)

- [X] Data instruments (surveys, interview questions, tests, web-survey, etc.)

- [X] Informed consent

- [X] Debriefing statement

- [ ] Video clips, music CDs, photos, etc.

- [ ] Other: (specify)

13. CERTIFICATION STATEMENT

In making this application, I certify that I have read and understood Lincoln Memorial University's policies and procedures governing research with human participants (specifically, those as described in Lincoln Memorial University's Institutional Review Board Policy*). I shall comply with the letter and spirit of those policies and will not undertake the research without IRB approval. Furthermore, I am aware that certain departments may have their own standards for conducting research, and it is up to me to familiarize myself with them. I further acknowledge my obligation to: (1) obtain written approval of significant deviations from the originally approved protocol BEFORE making those deviations; and (2) report immediately all adverse effects of the study on the participants to the Chairperson of the Institutional Review Board and the Chairperson or Supervisor of my Department.*

Linda M. Murawski (electronically submitted)	2-13-10
Principal Investigator signature	Date
Chair signature	Date

CO-INVESTIGATORS:

a. Name: _____ Title: _____

Signature: _____ Affiliation: _____

b. Name: _____ Title: _____

Signature: _____ Affiliation: _____

14. SUBMISSION INFORMATION

Send one original and one copy of this packet (the application and all pertinent supporting materials) to:

> **ORGSP**
> **Lincoln Memorial University, Duke 304**
> **6965 Cumberland Gap Parkway**
> **Harrogate, TN 37752**

The submission of handwritten and/or incomplete packets may significantly delay the review process. Forms and policy guidelines are available at:
http://www.lmunet.edu/curstudents/ORGSP/IRB.htm

For questions, comments, or assistance in completing the form, contact the IRB Coordinator at 423-869-6214 or 869-6291 or pauline.lipscomb@lmunet.edu.

Appendix B: Definitions of comprehensive emergency management and the four phase approach by Mileti, 1999.

	National Governor's Association	FEMA IS-1 Emergency Program Manager Course	Waugh	Haddow and Bullock
Comprehensive Emergency Management	"Comprehensive Emergency Management (CEM) is a new term. It refers to a state's responsibility and capability for managing all types of emergencies and disasters by coordinating the actions of numerous agencies. The "comprehensive" aspect of CEM includes all four phases of disaster or emergency activity: mitigation, preparedness, response, and recovery. It applies to all risks: attack, man-made, and natural. (p.11).	"was institutionalized with the creation of FEMA in 1979…reflects a switch in orientation from preparation for a single hazard or narrowly defined categories of hazards toward an all-hazards approach…implies partnership…and an occurrence cycle" (p. 8).	References National Governor's Association.	Not found. A series of chapters on the phases are referred to as "The Disciplines of Emergency Management" and include mitigation, response, recovery, preparedness, and communications.
Mitigation	"Includes any activities that actually eliminate or reduce the probability of occurrence of a disaster..arms build-up, land-use management, establishing CEM programs, building safety codes" (p. 13).	"any activities which actually eliminate or reduce the occurrence of a disaster. It also includes long-term activities which reduce the effects of unavoidable disasters" (Toolkit)	"those activities designed to prevent or reduce losses from disaster" (p. 49).	"a sustained action to reduce or eliminate risk to people and property from hazards and their effects" (p. 37).
Preparedness	Activities are necessary to the extent that mitigation measures have not, or cannot, prevent disasters…develop plans, mounting training exercises, installing warning systems, stockpiling food and medical supplies, mobilizing emergency personnel" (p. 13).	"preparedness activities are necessary to the extent that mitigation measures have not, or cannot, prevent disasters….develop plans to save lives and minimize disaster damage…seek to enhance disaster response operations" (Toolkit).	"Planning how to respond in an emergency or a disaster and developing capabilities for a more effective response" (p. 49).	"Can best be defined as a state of readiness to respond to a disaster, crisis, or any type of emergency situation" (p. 115).
Response	"Activities follow an emergency or disaster. Generally, they are designed to provide emergency assistance for casualties…seek to reduce the probability of secondary damage…and to speed recovery operations" (pp. 13-14).	"activities follow any emergency or disaster…designed to provide emergency assistance for casualties. They also seek to reduce the probability of secondary damage and to speed recovery operations" (Toolkit).	"is the immediate reaction to disaster…examples including mass evacuation, sandbagging…food and water…emergency medical services, etc." (p. 49).	Implicitly defined through examples, which include activities ranging from first responders through the Federal Response Plan as well as job descriptions of emergency management coordinators. In the chapter on recovery, "the response function is classified as the immediate actions to save lives, protect property and meet basic human needs" (p. 95).

Recovery	"activities continue until all systems return to normal or better..short-term recovery activities return vital life-support systems to minimum operating standards. Long-term recovery activities….return life to normal or improved levels."	"continues until all systems return to normal or better. Short term recovery returns vital life support systems to minimum operating standards. Long term recovery may continue for a years after a disaster.	"those activities that continue beyond the emergency period to restore lifelines" (p. 49)	"is not so easily classified" (p. 95)…includes time frame issues, typical decisions, return to normalcy, and reducing future vulnerability.

Appendix C: Round One Survey

Leadership/Crisis Decision Making Survey   **Your Identification No. _____**

Doctoral Candidate: Linda M. Murawski
2004 Thompson Road, Knoxville, TN 37932
murawskiL@aol.com (865-607-8032)
Lincoln Memorial University

Background to the Survey:
This following survey will be used to gather information for research involving decision making in a crisis/emergency event. Effective decision making during a crisis is a key trait of crisis leadership and is developed over time and with practice. This survey asks your opinion as it relates to your background in **leadership** as well as your position as a **decision maker** in a crisis/emergency situation.

CONFIDENTIALITY
All identifiable information that will be collected about you will be removed and replaced with a code. A list linking the code and your identifiable information will be kept separate from the research data.
Data Storage: All research data will be stored either in a locked desk or on a laptop computer that is password protected.

PLEASE SIGN THE CONSENT FORM ON THE LAST PAGE.
Name:
Email:
Phone number:
Site/facility:
Current position in emergency management?
Years in this position?
Education:
- High School
- B.S Degree
- M.S. degree
- PhD
- Other_____

Thank you for your participation!

Day-To-Day Leadership/Decision Making:
1. Have you received training/education in **leadership** through any of the following? Check all that apply.
   - o   Company training
   - o   Academic training
   - o   Military training
   - o   Other?

2. If you answered "yes" then was it:
   - o   Extensive (multiple courses or more than one year)
   - o   Limited (a single course or less than a year)

3. Do you think there is a difference between **day-to-day** leadership and **crisis leadership**?
   - o   Yes, definitely
   - o   Sometimes
   - o   Seldom
   - o   Not at all

4. Which of the following do you consider traits of an effective leader? Check all that apply.
   - o   Articulate
   - o   Intelligent
   - o   Competent
   - o   Self-confident
   - o   Goal-oriented
   - o   Flexible
   - o   Trustworthy
   - o   Dependable
   - o   Compassionate
   - o   Inspiring
   - o   What traits would you add to the list?

Crisis/Emergency Leadership/ Decision Making:
5. Have you received training/education in **crisis leadership or crisis decision making** through any of the following? Check all that apply.
   - o   Company training
   - o   Academic training
   - o   Military training
   - o   Other?
   - o   Not applicable

6. If you answered "yes" then was it:
   - Extensive (multiple courses or more than one year)
   - Limited (a single course or less than a year)

7. Was the training/education useful to you in crisis decision making? (Useful meaning: Were you able to implement the training/education?)
   - Very useful
   - Somewhat useful
   - Not useful
   - Don't know
   - Not applicable

8. Which if any of the following do you consider as traits of an effective **crisis leader**? Check all that apply.

   - Calm
   - Decisive
   - Focused
   - Experienced
   - Goal-oriented
   - Communicative
   - Collaborative
   - Solution oriented
   - Adaptive
   - What traits would you add to the list?

9. Have **you** experienced a difference in your decision making from your day-to-day position to your position in a crisis? (Based on stress, uncertainty, etc.)
   - Yes, definitely
   - Sometimes
   - Seldom
   - Not at all

10. In what ways have you experienced these differences?

11. Do you rely on specific tools/practices (such as checklists, procedures, specific techniques, training) to make decisions in a crisis event?
    - Yes, definitely
    - Sometimes
    - Seldom
    - Not at all

12. Please provide examples of these tools/practices.

Appendix D: Round Two Survey

Murawski Dissertation Round Two Questions   Your Name:
Please respond to the following.

1. Based on Round One data, these are of **most** often cited differences in decision making from day to day versus during a crisis. Please mark your agreement or disagreement.				
	Strongly Disagree	***Disagree***	***Agree***	***Strongly Agree***
Time compression (less time)				
Stress				
Unknown (lack of) information				
List any others that you believe should be agree or strongly agree:				

2. Based on Round One data, these are of **most** often cited tools/practices used during a crisis. Please mark your agreement or disagreement.				
	Strongly Disagree	***Disagree***	***Agree***	***Strongly Agree***
Checklists/procedures				
Previous Training				
Collaboration & communication				
List any others that you believe should be agree or strongly agree:				

3.Based on your experience in emergencies/crisis management, which of the following do you think a crisis leader uses **most** often in decision making **during a crisis?**

- ☐   Make decisions alone most often
- ☐   Make decisions with a group (team) most often
- ☐   Make decisions using both equally

4. Based on Round One data, the following were the most often cited traits of an effective crisis leader:
  o Calm – 87%
  o Decisive – 87%
  o Adaptive – 84%
  o Communicative – 81%
  o Focused – 77%
  o Experienced – 71%
  o Solution oriented – 71%
  o Collaborative – 61%
  o Goal-oriented – 55%

Looking at the top three terms **ONLY, p**lease mark your agreement or disagreement.

	Strongly Disagree	*Disagree*	*Agree*	*Strongly Agree*
*Calm				
*Decisive				
*Adaptive				

Suggested meanings:
*Calm means not easily excited, quiet, composed, unruffled.
*Decisive means strong- minded, clear thinking, determined.
*Adaptive means changeable, flexible, able to adjust.

Appendix E: Round One Question Four Responses

What traits would you add?

- Common sense

- Willingness to assume responsibility commensurate with authority

- Decisive during crisis, consensus builder during "peace" times

- Empathic

- Tactical, strategic, passionate

- Honest

- Good listener, analytical, ethical, approachable, self -aware of personal

  strengths and weaknesses, emotional intelligence.

- Persuasive

- Decisive

- Experienced

- Assertive

- Has integrity

- Intrinsic capability

- Active listener

- High fidelity communicator

Appendix F: Round One Question Ten Responses

- Having more time, allows for better decision making
- Knowing and understanding that a situation needs to be responded to in phases and only to an extent that the situation calls for and not to response beyond that need.
- Not as much time to consider alternatives
- Less diplomatic, more direct in communication during a crisis
- Time is always of the essence in a crisis i.e., a strong consideration or factor in next step (to take) –even if it means letting a fire burn because there isn't time or resources to value to putting it out.
- Timeframe-less time is available in a crisis
- Uncertainty – must make decisions in a crisis with more unknowns.
- Stress levels are higher during a crisis.
- Crisis management, particularly in the early stages needs to be more directive/authoritative; there is little time for questions direction when lives are involved.
- In day to day work it is mostly steady state and you have time to implement and make decisions. During crisis mode, you must be able to determine a path forward with limited information and maybe (perhaps) resources.
- Change in the amount of time available to make decisions
- Time decisions are required
- Rapidly changing environment
- I react differently during a crisis. Although nervous, I seem to become more focus and solutions oriented. I seek counsel from others and spend less time analyzing the situation…usually going with gut instinct.
- Requirement for continuity of governance and operations
- Day-to-day: have more time to think and research potential solutions; less time available impact of wrong decision may be greater
- Day to day does not require the snap decisions that are required in a crisis. Crisis management requires the 'big picture" day to day is more event/incident driven.
- In a crisis you need to be able to make a decision and stand by and enforce it. In day to day a decision can be reviewed and debated.
- Need quicker decision making in crisis; usually involves larger population and wider reaching
- In a crisis, I am significantly more focused more perceptive, and more assertive. Additionally, intuition is important as to knowing when to be active (vs. passive).
- Stress, speed of decisions, the ability to "herd cats"
- Stress level based on the potential for a decision made during a crisis is much higher.
- The expectations during a crisis are often not realistic and this impacts the decision maker

- Memory/recall limitations
- Time compression
- Incomplete, sometimes conflicting information
- Day to day leadership does not always need to be "directive" in nature. Crisis leaders often [need] to be.
- Must be able to make decisions with limited information.
- More stress to make correct(informed decisions); pushed to make quick decisions; often asked to base [decisions] on potential [of what could happen]
- Speed of decision making
- Making decisions without all facts, information
- Higher level of expectations and consequences
- Time compression
- Make decisions based on knowns and unknowns in a limited time frame
- Be willing to accept the risk of taking action
- Able to rank priorities
- Timeliness needed in crisis (often) requires more decisiveness; sense need to be heightened.
- During a crisis, the outcome of a bad decision is usually more critical.
- Knew I would be more accountable in a crisis—both personally and professionally.
- Too much analysis may worsen the situation
- In a crisis there is a need to focus on the overall mission and not on individual goals
- In a crisis right and wrong is not always clear cut—simple solutions do not always apply.

Appendix G: Round One Question Eleven Responses

- Emergency Management Checklists
- More of a mental checklist than a physical checklist. The knowledge and understanding of what to do and how to do it. Respond in phases as the situation escalates.
- Position checklists, response procedures
- Training
- Scans of the environment
- Experiences: both good and bad
- Thoughtful selection/identification of appropriate, knowledgeable talent
- Resources lists
- Triangulation of data to ensure accuracy &reliability
- Information technology
- Natural Hazards Center – U. of Colorado, - as national resource
- Position checklists can be efficient to eliminate mistakes under stress. EALs, DOT ERGs, etc are also good tools for the same reason so that crisis decision-makers make more consistent decisions in similar circumstances under pressure.
- Tools: Status boards, checklists, media tools (camera, mobile information tools)
- Plans (EP), checklists
- ICS work sheets
- What IF hazards analysis
- Checklists of tasks to perform; job aids such as information exchange matrix; pre-approved templates for news releases; fill-in-the-blank forms; training, drills/exercises to gain experience and self-confidence
- Check sheets, meteorology boards, communication training.
- In my practice, we are big believers in checklists.
- Standard Operating procedures(SOPs) and checklists. These are items that can be developed prior to crisis to guide in decision making. While SOPs and checklists cannot cover all they do help. A leader must be able to understand emergency situations and have the education and experience to make decisions that do not fit the SOPs and checklists.
- Crisis communication plan that is a cooperative effort between organizations
- Event dynamic reports, checklists, modeling tools for hazardous materials.
- Checklists which include how each position "interacts" with others (inter-relational)
- Simple checklist
- *Fast and Frugal Heuristics* (Goldstein & Gigerenzer, 2004)
- Timelines/deadlines
- "know/don't know/think" model"
- Brain box tools (Where have I encountered this before?)

- Follow-up as a practice: just because you ask something to be done, doesn't mean it was. Trust but verify critical tasks were completed.
- Information sources are different than those in day to day leadership. Tools to tap into communication systems and sources may be different. Skills to use and filter these are necessary. Organizational skills are different in some ways.
- Remembering similar scenarios in training and applying them in a crisis
- Collaboration and communication
- I reply on previous training
- In a crisis the situation may be "fluid" and administrative tools may not work.
- Checklists are fine and should be used as a starting point. However, a good leader has to remain flexible. The best technique is the "scientific method."
- Similar situations
- Rely on experts or trusted colleagues to evaluate/comment on decisions if time allows.

Appendix H: Round Two Question One Responses

Round 2/Q1/Responses:

- I have a major concern regarding failure of communications in times of crisis. We can never know the exact disaster or crisis scenario with which we will be dealing; and, communications is a major element relative to preparedness, response and recovery. To assure the continued availably of communications and to enhance same, we must look to all possible redundancies. Landline, fax, and internet communications may fail when large numbers of individuals are trying to communicate at the same time. This would almost always happen in times of disaster (i.e., there are calls to workplaces, love ones, 911, other emergency dispatchers, etc.). It is possible for phone companies to establish mechanisms whereby certain phones (e.g. police, fire services, EMTs, etc.) have a system or priority calling for their lines. This blocks non-emergency service calls when they begin to interfere with calls between emergency responders. Cell phone towers may be misaligned due to sabotage, earthquakes, tornadoes, etc. Satellite based cell phone communications may not be able to penetrate the roofs of emergency operations centers and other bunker like facilities and antennas and disks may be damaged or demolished as a result of the crisis. High and low frequency (two-way) radios are often unavailable, cost of maintaining such services are high, and under the best of circumstances they are only as good as their battery life. An outage of electricity could affect the recharging of base and mobile units. Fortunately there are alternate means of recharging such systems such as automobile batteries, solar chargers, and the storage of extra batteries for such situations. Couriers (also known as runners) could carry crisis communications between two or more points, but probably not in a timely

manner. Such a system would work best if it were established and tested (on a regular basis) prior to a disaster. Another suggestion would be to use a third party website (accessible to all decision makers) to provide timely information in times of crisis. History has also shown that long distance lines are available, even when local lines are tied up, some a third party at some distance from a crisis could gather and forward critical information. In conclusion, every possible means of communication should be established in advance of the need. There is redemption in redundancy.

- Crisis decision making requires a different framework/approach than does routine or even emergency decision making

- Function and or capability of communication systems

- Significance of decision (it matters!)

- Direct impacts on safety and health: The decisions the crisis manager or equivalent makes will have immediate, short and long term impacts on people, the infrastructure and the environment. These decisions directly affect the safety and health of responders and citizens at or near an event location.

- Direct impact on personnel safety at the location of the event (event scene): The situational decisions made by emergency management managers must determine and implement immediate protective actions. For example, during a release of hazardous materials event, all citizens at the direct location must be sheltered or moved. Also with the release of hazardous materials, there are direct impacts on safety and health considerations to the environment. For example, an immediate consideration is the safety of drinking water.

- The protective actions during a malevolent act (terrorism and disgruntled employee) will have immediate and short term direct impacts on the live-safety of the citizens in the immediate area.

- Once initial immediate safety actions are taken, short and long term protective decisions must be made and implemented. For example, people residing or located downwind of a hazardous material event may also have to be sheltered or moved (Short Term). Long term considerations include environmental (contaminated soil or water) impacts that may cause long term issues with the health and safety of personnel who reside in the area or receive drinking water from the impacted watershed.

- In day to day operations, these decisions are made in a thoughtful, analyzed process with significant peer review. During emergency conditions, the decisions that affect safety and health may require immediate determination and implementation.

- These first two questions are a bit difficult to conclusively answer given how many of us have the crisis decision-making process set up. The [sic] makes the decisions alone most often, but the Crisis Manager makes them with the team. I have my EOC hat on while answering most of these, but the very early crisis decision-making would be skewed differently. Might be worth exploring that kind of difference—early versus continuing crisis decision-making (probably another thesis?!!!). The [sic] has more time compression, more stress, less info and technical help.

- A note on "Stress." I only "agreed" with this, instead of "strongly agreeing" because any emergency manager is going to experience stress on a daily basis if they are doing their job right. After all, we are professional worriers. So, we

learn to manage stress on a regular basis, which should mean that it is not a new

experience for us when the "big one" hits and therefore not as big a factor when

we make decisions or recommend courses of action during a crisis.

Appendix I: Round Two Question Two

Round 2/Q2/Responses:

- A decision making model which shifts between theory and fact.

- After I used [sic] (software modeling program), I think it would be a wonderful tool for responding to events (it handles incomplete info, has artificial intelligence, and can be tailored to the user – e.g., fire departments, hazmat, police response, etc.)

- Competence, experience with other disasters (Strongly agree)

- Pre-established professional relationships with other response organizations (Red Cross; Volunteer Organizations Active in Disasters; local utility companies: electric, gas, phone; hospitals and ambulance service providers; school districts, etc.) (Strongly agree)

- Knowing how to bring in subject matter experts to address specific challenges (seismic engineers, IT tools and networks, urban planners, GIS mapping, hazardous materials response, urban search & rescue, aerial reconnaissance, etc.) (Strongly agree)

- Positive, pre-established relationships with local media (Strongly agree)

- Thoughtful staffing of the Emergency Operations Center/development of the EOC cadre; you need the right people, with the right experience, skills, and attitude, at the right time (Strongly agree)

- Maps; the first thing anyone asks for (in the field or in the Emergency Operations Center) is a map; whether this is a paper map or an electronic file doesn't matter (Strongly agree)

- Reliable communication systems; do cell phones have coverage, did anyone remember to bring fresh batteries or battery chargers, is there static on the radio, can we use landlines, do we need to send a runner, is anyone looking at their email, is the Internet up, have we overloaded the data capture system which means we cannot transmit status or resource requests up the chain of command, does the fax we bought in 1992 still work, is there USPS mail service, where is the FedEx guy, is this phone list up to date? (Strongly agree)

- From a paramedic: May have to go with "gut feeling." Could be instinct and/or prior training.

Appendix J: Round Two Question Three

Round 2/Q3/Responses:

- There are times when a leader must make a decision alone because involving others would lead to analysis by paralysis, time is of the essence (and lives are at stake), or that leader is solely responsible for the outcome. In other cases, a leader truly wants key managers and subject matter experts to collaborate and come to a consensus. There are also times when a leader must consult a small core of trusted advisors; consensus may not always be reached but several opinions and options will have been explored. In all of these instances, back-up plans, redundant systems, identifying the elephant in the room, asking the tough "what ifs" are crucial – regardless of how the final decision is made. Each disaster has its own distinct "personality" which will influence how much of the decision-making process is collaborative, how much is unilateral, and so on.

- Further complicating the challenge of decision making during a crisis is the fact that a crisis manager who refuses to delegate decisions to others is making a huge mistake. If a leader refuses to give up some decision making capability, then resolution of key issues is often bottlenecked, and others become demoralized, sensing that their judgment and/or expertise is not trusted. Worse, in today's complicated environment, no one person can possibly have all of the knowledge necessary to do the right thing, each and every time. Therefore, it is critical to involve others and to avoid the perception that the crisis manager and the crisis manager alone can make a decision. From a practical perspective, what happens to the unilateral manager when he or she gets too tired to continue and needs a break? Is disaster response supposed to stop because no one else can make a decision and move the process forward? The fact of the matter is that disasters

don't stop and wait; circumstances demand attention and action. So, others must

be brought into the decision making process. In the end, we're all in this together.

- I marked "both" however I do believe it depends on the situation. At [sic], the

  crisis manager has a team he/she can use to help make a decision. An IC with a

  team of people may use his/her team in the decision making process. A

  paramedic responding to a wreck may have to make a decision alone. A parent

  alone with a sick or injured child will have to make the decision to get

  professional medical care for the child.

- This question is somewhat limiting in understanding the decision-making process

  during a crisis because the right answer is "it depends."

Appendix K: Vita

Linda M. Murawski   February, 2011
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2004 Thompson Road   Phone: (865) 607-8032
Knoxville, TN 37932   Email: murawskil@aol.com

Education
2011: Ed.D in Executive Leadership, Lincoln Memorial University, Harrogate, TN
2004: Ed.S in Administration and Supervision, Lincoln Memorial University, Harrogate, TN
1988: M.S. in Adult Education, University of Tennessee, Knoxville, TN
1972: B.S. in Secondary Education, University of Tennessee, Knoxville, TN

Dissertation
Decision Making in a Crisis Environment: A Delphi Study Examining a Leader's Traits, Tools, and Practices, Committee: Dr. Betty Standifer (Chair), Dr. Gary Peevely, Dr. Reginald High, Dr. Cynthia Norris

Employment History

2001-Present: Owner & Chief Operations Officer, Murawski Enterprises, Inc., Knoxville, TN
2000-2001:   Senior Training Analyst, Intelligent Decision Systems Inc., Fairfax, VA
1988-2000:   Senior Project Manager, Oak Ridge Institute for Science & Education, Oak Ridge, TN
1989-1990   Pellissippi State Community College, Knoxville, TN

Employment Related Experience:
Murawski Enterprises, Inc. **Owner, Chief Operations Officer,** Knoxville, TN. (2001 to present)

Current Contracts:
- BWXT Y-12 National Nuclear Security Complex, Oak Ridge, TN
- B&W Pantex Site, Amarillo, TX
- Emergency Operations Training Academy (EOTA), Albuquerque, NM
- Isotek Systems, LLC, Oak Ridge, TN
- Nevada National Security Site, Las Vegas, NV
- Oak Ridge National Laboratory (UT-Batelle, LLC), Oak Ridge, TN
- Oak Ridge Institute for Science & Education, Oak Ridge, TN

Tasks for contracts include:
- Design, development, conduct, and evaluation of emergency management

exercises for the Emergency Response Organization (ERO) to include annual full-scale emergency exercise (DOE required).

- Develop courseware content for *Exercise Builder™* software program for use in emergency drills and exercises.
- Provide technical assistance with emergency exercise program development activities.
- Conduct emergency exercise planning activities, develop emergency plans, and procedures, and provide technical training for emergency response personnel

Completed Contracts:
- BWXT Y-12 National Nuclear Security Complex, Oak Ridge, TN
  - Completed contract for the BWXT Y-12 National Security Complex to design, develop and implement emergency exercises/drills for the Emergency Response Organization (2001-2010). Scenarios included: radiological, chemical and biological events such as Weapons of Mass Destruction (WMD), "dirty bombs," IEDs, and other terrorists' events.
  - Designed, developed and implemented three full-scale emergency exercises for the Office of Secure Transportation, Albuquerque, NM, to test the response to a radioactive shipment from the Office of Safe Transport and a National Security Site (2006).
  - Developed and conducted a Training Needs Matrix based on Job & Task Analysis (Performance Gap Analysis) Analyses and updated existing training for the Emergency Response Cadre for the BWXT Y-12 National Security Complex, Oak Ridge, TN (2003).
  - Designed, developed and conducted Job and Task Analyses for the BWXT Y-12 National Security Complex Emergency Response Organization (2002).
- Department of Energy, NNSA/NA43, Washington, DC
  - Completed contract for Systematic Management Services, Inc., Germantown, MD to
    Conduct Job and Task Analyses (Performance Gap Analysis) for the Office of Secure Transportation Division in Albuquerque, NM. Project will involve analysis of selected positions that staff the Emergency Operations Center (2009).
- Isotek Systems, LLC, Oak Ridge, TN
  - Contracted to update emergency plan and procedures for 3019 Complex located at Oak Ridge National Laboratory (2008).
- Lawrence Livermore National Laboratory, Livermore, CA
  - Contracted to review and update emergency plans, procedures and to design, develop and conduct Emergency Management Exercises in preparation for an audit by Department of Emergency (HS-63) HQ team (2008-2010).
- Knoxville Utilities Board, Knoxville, TN
  - Developed and taught the *Exercise Design Course* - a 3 day instructor-lead course designed to teach participants the basic elements of designing, developing, implementing and evaluating a full-field scale or tabletop format emergency

preparedness exercise for (2007)

- Intelligent Decision Systems Incorporated, (IDSI) Centreville, VA
  - o Contracted to provide technical assistance tin support of project for the US Coast Guard in emergency exercise program development. (2007)
- Sandia National Laboratories, Albuquerque, NM
  - o Assisted with emergency management program activities to include exercise/drill design, development and implementation (2006).
- Emergency Operations Training Academy (EOTA), Albuquerque, NM
  - o Developed courseware content for *Exercise Builder™* software program for use in emergency drills and exercises (2006).
- Los Alamos National Laboratory, Los Alamos, NM
  - o Served as Controller/Evaluator for the Annual Full-Scale Emergency Exercise to include writing the After-Action Report submitted to DOE HQ. (2005)
- Oak Ridge National Laboratory, Oak Ridge, TN
  - o Designed, developed, conducted, and evaluated UT-Batelle at Oak Ridge National Laboratory emergency drills/exercises including the Annual Full-Scale Emergency Exercise (DOE required) (2001-09)
  - o Developed a training course for the Oak Ridge Reservation for DOE as the Lead Federal Agency in response to a radiological event under the Federal Radiological Emergency Response Plan (2000).
- Tennessee Emergency Management Agency (TEMA)
  - o Designed, developed and delivered training for the *Exercise Design Course* to TEMA personnel (2005).
- Oak Ridge Institute for Science and Education (ORAU), Oak Ridge, TN
  - o Developed courseware content for *Exercise Builder™* software program for use in emergency drills and exercises at various DOE sites.
  - o Designed, developed, conducted, and evaluated a smallpox exercise (under contract with ORISE) for the Department of Health and Human Services/Centers for Disease Control and Prevention with an emphasis on Emergency Public Affairs (2004).
  - o Assisted in evaluation of the Centers for Disease Control emergency response plan for a Small Pox outbreak (2001).
  - o Co-instructor for *DOE's Exercise Design Course* and DOE's *Exercise Evaluator and Controller Course* (2004-2005).
- Tennessee Valley Authority, Knoxville, TN
  - o Assisted with the development of/enhancement of existing emergency plans and procedures for the Tennessee Valley Authority (TVA) for various sites (2003).
- East Tennessee Technology Park
  - o Assisted Emergency Response Program to develop emergency plans and procedures (2003)
- Methodist Medical Center of Oak Ridge (a primary care facility) in Oak Ridge, Tennessee
  - o Assisted with the development of the hospital's Emergency plan and Implementing Procedures (2003).

Related Experience:
Intelligent Decision Systems, Inc., **Sr. Training Analyst**, Centreville, VA. (2000-2001)

- Conducted training needs assessments/analyses for multi-disciplinary projects including Aircrew Survival Equipmentman (Parachute Riggers), Aviation Structural Mechanic (Safety Equipment), Air Traffic Controller, and Naval Leadership Training Instructors.
- Developed test bank and computer-managed instruction for Navy Mess Specialists.
- Developed data collection (surveys) instruments and protocols for "A" School participants as well as fleet personnel.
- Developed progress updates, briefings, and final reports.
- Conducted research and analysis protocols for curriculum analyses.
- Developed strategies for transfer of training (classroom to workplace), retention factors for adult learners, and self-directed learning.

Oak Ridge Institute for Science &Education, **Research Associate** (1988-1992) **Senior Project Leader**, Oak Ridge, TN. (1992 – 2000)

- Lead multi-disciplinary projects in emergency management and curriculum design for Department of Energy, Department of Defense, Federal Emergency Management Agency (FEMA), state and local governments and private industry clients.
- Served as Lead Developer and Instructor for *Emergency Public Information* courses for various DOE sites, FEMA, TEMA, and the US Enrichment Corporation across the US.
- Developed and conducted a *School Safety and Emergency Prepared Course* for Arkansas State University and Roane State Community College (Harriman, TN).
- Served as Project Leader for Transportation Emergency Preparedness Program (TEPP) project for DOE HQ Office of Transportation Emergency Preparedness. Assisted with the design and implementation of Exercise *POPEYE* for multi-state agencies, conducted in Hammond, Indiana. Participated in the emergency exercise/drill as controller/evaluator.
- Developed and conducted the *DOE Job and Task Analysis Tabletop* designed to identify roles and responsibilities for DOE-HQ managers in their roles during an emergency.
- Assisted with the design and development of numerous emergency management courses for DOE, State and local governments.
- Responsible for the procurement, development, and scripting of various for multi-media projects.
- Served as Project manager for work with the Hazardous Devices School in Huntsville, AL, to develop lesson plans and videos for dissemination to Hazardous Materials Technicians nation-wide through a contract with DOE/Office of Domestic Preparedness.
- Lead Project and co-authored *Report for Job and Task Analyses for Emergency Response Organization (ERO) members at Allied Signal, Inc.* site in Kansas City,

MO. 1993
- Lead Project and co-authored *Report for Job and Task Analyses for Emergency Response Organization* (ERO) members at Westinghouse Hanford site in Richland, WA. 1992
- Lead Project and authored *Report for Job and Task Analyses for the Emergency Response Organization Plant Shift Superintendent and Control Center Assistant Positions* at Martin Marietta Energy Systems in Oak Ridge, TN. 1991
- Co-authored the revised *Oak Ridge Joint Information Center Procedures* and conducted a series of emergency drills and exercises for the Joint Information Center personnel. 1991-1993
- Developed Firefighter Certification Training (Levels I, II, and III) under DOD contract (through Tyndell Air Force Base) using National Fire Protection Association (NFPA) and International Fire Service Training Association (IFSTA) Standards. Implemented performance testing at various DOD sites.
- Author, *Occupational Literacy in the Department of Energy* for the Training Resources and Data Exchange (TRADE) organization, 1990.

Pellissippi State Technical Community College, Knoxville, TN. (1989-1990)
- Served as supervisor in the Learning Support Center.
- Taught GED preparation classes.

Publications and Papers
- Doctoral Dissertation, Lincoln Memorial University, Knoxville, TN. (May, 2011)

  Title: Decision Making in a Crisis Environment: A Delphi Study that Examining Leadership Traits, Tools and Practices.

  Effective decision making during a crisis is a key trait of crisis leaders and is developed over time and with practice. The proposed outcome of this study is to obtain qualitative data concerning 1) the difference between non-crisis and crisis decision making, 2) the traits of a crisis leader, and 3) evidence of effective crisis leadership practices. Further, the study looks at the traits of leadership in general and examines how a crisis leader transfers their day-to-day knowledge, skills and abilities to decision making in a crisis environment. Additionally, the study considers what practices and tools these leaders use in a crisis situation. A starting point for crisis leaders to develop their decision making skills is in their daily work environment. These skills are tested when a crisis intervenes and they are required to make decisions in a high stress, time sensitive environment. As the nature and magnitude of crises change, so do the traits of leaders and decision makers in crisis situations.

- *Job and Task Analyses* (*Performance Gap Analysis)* for the Office of Secure Transportation Division in Albuquerque, NM (2009). This report contained analyses of selected positions that staff the Emergency Operations Center.

- *School Emergency Preparedness: Readiness, Recall and Response* (2004*).* Research Project for completion of Ed.S at Lincoln Memorial University.

- *Training Needs Analysis for Selected Emergency Response Personnel* at the BWXTY-12 LLC facility, Oak Ridge, TN (2003). The results of this report were used to validate current training programs for Emergency Response Personnel at this facility and to provide recommendations to update/revise existing training.

- *Job & Task Analysis (Performance Gap Analysis) for Selected Emergency Response Personnel* at the BWXTY-12 LLC facility, Oak Ridge, TN (2002). This report contains analyses of management positions with the emergency response organization at this facility. Results of the report will be used to design and develop training for the positions within the study. Survey data gathered from job incumbents were included for statistical reporting and analysis.

- *School Comprehensive Emergency Management Needs Assessment Report* for the Tennessee Department of Education, Office of School Safety, (1999). This report was written for the TN Dept of Education to assess the level of preparedness in Tennessee schools and the emergency preparedness knowledge levels among staff within those schools.

- *Northeast Utilities Public Opinion Poll Survey* (1997)*.* This report gathered information from people living in the Northeast Utilities (NU) service areas regarding decommissioning and decontamination activities at the Connecticut Yankee Atomic Power Plant, Millstone Nuclear Power Station and other NU sites.

- Job & Task Analysis (*Performance Gap Analysis*) *for Selected Emergency Response Organization Personnel* at the Westinghouse Hanford Facility in Richland, WA (1994-1995). This report contains analyses of management positions with the emergency response organization at this facility. Results of the report will be used to design and develop training for the positions within the study. Survey data gathered from job incumbents were included for statistical reporting and analysis.

- *Job & Task Analysis (Performance Gap Analysis) for Selected Emergency Response Organization Personnel* at the Allied Signal Plant in Kansas City, MO (1992-1993). This report contains analyses of management positions with the emergency response organization at this facility. Results of the report will be used to design and develop training for the positions within the study. Survey data gathered from job incumbents were included for statistical reporting and analysis.

- *Job & Task Analysis (Performance Gap Analysis) for Selected Emergency Response Personnel* at the Martin Marietta Energy Systems Y-12 Plant, Oak Ridge, TN (1992). This report contains analyses of management positions with the emergency response organization at this facility. Results of the report will be used to design and develop

training for the positions within the study. Survey data gathered from job incumbents were included for statistical reporting and analysis.

- *Job & Task Analysis (Performance Gap Analysis) for Plant Shift Superintendent and Control Center Assistant* at the Martin Marietta Energy Systems Y-12 Plant, Oak Ridge, TN (1991). This report contains analyses of management positions with the emergency response organization at this facility.

- *Occupational Literacy in the Department of Energy* for the Training Resources and Data Exchange (TRADE) organization (1990). This report was a review of the status of occupational literacy among DOE contractor personnel commissioned by DOE HQ Office of Human Resources Management, Washington, DC.

Courses Developed/Taught
- *Controller/Evaluator Training* for emergency management personnel (ongoing)
- *Emergency Exercise Design Course* Classroom and web-based using *Exercise Builder™* software program for emergency management personnel (ongoing)
- *Emergency Public Information for Corporate Spokespersons/Public Information Officers, JIC Staff and Emergency Operations Center (EOC) staff.* (ongoing)
- *Crisis Management for Key Decision Makers,* 2006.
- *Exercise Design Course* for the Tennessee Emergency Management Agency (TEMA) (2005)
- *Emergency Operations Center Overview* for TEMA personnel (2004)
- *Concepts of Operations Under the Federal Radiological Emergency Response Plan*, for selected Oak Ridge National Laboratory personnel, 2002
- *Co-Facilitation in the Classroom* (Leadership in the Navy Curriculum) (2000)
- *Emergency Public Information* (Classroom & CBT- various clients) 1991-1999
- *Crisis Communications* (various clients -ongoing)
- *Emergency Operations Planning* for Tennessee Emergency Management Agency (TEMA) 1999
- *Emergency Management in the DOE System* (1991-1999)
- *Emergency Management Courses Design and Development* (1990-2000)
- Various courses in: Emergency Management Overview (for DOE), Emergency Public Information, Transportation Emergency Preparedness, Hazards Materials Overview, Chemical Stockpile Emergency Preparedness Program (CSEPP) Overview, Domestic Preparedness for Nuclear, Biological and Chemical Responses.

Tabletop Drills/Exercises (Special topics)
- Served as Lead Controller/Evaluator for Emergency Operations Center at BWXT Y-12 for numerous exercises from 2001-2010.
- Served as Lead Controller/ Evaluator for Emergency Operations Center at Oak Ridge National Laboratory for numerous exercises from 2000-2006.

- Served as emergency exercise controller/evaluator for Anderson Co. TN, Smallpox Outbreak exercise, August, 2004
- Developed and delivered tabletop for City of Oak Ridge, Tennessee Emergency Operations Center personnel, June, 2004
- Assisted with the development of "You are the Terrorist" Tabletop Exercise for the University of Tennessee at Knoxville, Agriculture Department, May 2003
- Assisted with the development of "Animal Disease Outbreak: Foot and Mouth Disease" Tabletop Exercise, August, 2003

Courses Completed/Professional Development
- Safe and Prepared Schools Training, TN Depart. Of Homeland Security, 2010
- Early Response Training, Holston United Methodist Conference, 2009
- Incident Management/Unified Command for Terrorism/CBRNE Incidents (40 hours) through Texas A&M, 2007
- Incident Command System (ICS) 100, ICS 200, ICS 700, ICS 800 (2005)
- Knox County, Tennessee Smallpox Training for Clinic Volunteers, Knox County Health Department, November, 2004. Active volunteer on-call.
- Mass Casualty/Bioterrorism Planning for Healthcare Responders, National Center for Emergency Preparedness, Vanderbilt University Medical Center, June, 2004
- Certified Grief Recovery Specialist, Institute for Grief Recovery, July, 2004
- Animals in Disasters Modules A&B (FEMA), Pet First Aid (American Red Cross), 2003
- Disaster Animal Response Team Training, Knoxville, Tennessee, 2003
- Emergency Management Courses from 1989-2000:
  Emergency Management Overview (for DOE), Emergency Public Information, Transportation Emergency Preparedness, Hazards Materials Overview, Chemical Stockpile Emergency Preparedness Program (CSEPP) Overview, Domestic Preparedness for Nuclear, Biological and Chemical Responses, Radiological Training for First Responders

Professional Memberships
- International Association of Emergency Managers (IAEM), Member
  - IAEM Standards and Policy Sub-Committee, Member
- 911 Emergency Communications Center, Knoxville, TN, Board of Directors
- American Association for Adult and Continuing Education (AAACE), Member
- Local Emergency Planning Committee, Knox County, Member
- American National Standards Institute, Member
- Technical Society of Knoxville, Member and Past President
- State of TN, Dept. of Education, Professional License 1972-1997 (areas of endorsement: Spanish, and Psychology) Reference no. 000477838
- Tennessee Literacy Coalition, Member and Past Vice-President
- Board Member, Oak Ridge Site Specific Advisory Board, 2003 -2004

Volunteer Activities

- Tennessee Volunteer Mobilizer (emergency response), Member
- Disaster Animal Response Team of East Tennessee, Member
- Honor Air-Knoxville, Guardian
- Middlebrook Pike United Methodist Church, Stephen Minister
- Carolina Poodle Rescue, Member
- Schnauzer Rescue of the Carolinas, Member
- American Fox Terrier Rescue, Member