

FACTORS ASSOCIATED WITH COLLABORATION
IN DISASTER RESPONSE

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RESPONSE

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ABSTRACT

This paper explores the factors the literature suggests help organizations collaborate during disaster response. The nature of disasters requires that people and organizations collaborate; yet, collaboration has been frequently identified as a problem by policymakers and researchers alike. It would be of value to policymakers and researchers if there was an understanding of the factors that contribute to collaboration. The paper attempted to address this issue. It identifies four categories of variables that the literature suggests lead to inter-organizational collaboration including leadership, relationships, culture, and inter-dependency. The paper also suggests how understanding of these factors might be applied in practice, policy, and future research.

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CHAPTER ONE: INTER-ORGANIZATIONAL DISASTER RESPONSE PROBLEMS

The history of disaster response in the United States is typified by inter-organizational challenges and frustrated attempts by government to address those challenges. This paper explores one of these challenges—collaboration—by reviewing the disaster case study literature and gleaning from it the conditions the literature implicitly or explicitly suggests need to exist pre-disaster for organizations to collaborate, or “get along,” during disaster response. Theory and practice do not reflect an understanding of the factors that contribute to collaboration. This paper begins to address this issue.

Chapter One establishes that disasters require organizations to work together for an effective response even while “working together” has been frequently identified as a problem by policymakers and researchers alike. Chapter Two reviews how research has addressed the “working together” problem. Chapter Three delves into part of the “working together” problem; specifically, it explores the factors the literature suggests are related to organizations getting along, or collaborating, during disaster response. Chapter Four suggests how an understanding of these factors might be applied in practice, policy, and future research.

The Nature of Disasters and the Need for Inter-organizational Response

In small day-to-day emergencies (e.g., house fire, traffic accident, water main break), responding organizations must synchronize their efforts. The need for these groups to decide how they work together or alter what they do in response to an emergency is minimal. First responder organizations operate on the basis of significant expertise, experience, and training related to the hazards they face (Auf der Heide, 1989; Dynes, 1970). They are able to access the resources they need to respond promptly and through normal processes (Auf der Heide, 1989). They respond in the manner in which they are accustomed (e.g., routine procedures are sufficient), and, as

organizations, they are able to respond relatively independently of one another (Auf der Heide, 1989). When there is a need to interact with other first responder organizations, there is familiarity among the organizations regarding the roles and responsibilities of each by virtue of tradition, charters, ordinances, standard operating procedures and the like (Auf der Heide, 1989). There is not a great need for on-the-spot decision making among responding organizations as to priorities for response, organizational responsibilities, or who is in charge (Auf der Heide, 1989).

Disasters are inherently different from emergencies (Auf der Heide, 1989, p.49).

Disasters are characterized by the diversity of impacts associated with the interaction of a hazard with the physical, social, and/or built environments as well as the inability of communities to deal with those impacts on their own (Dynes, 1970; Yutzy, 1970). Thus, disasters require people and organizations to work together from both inside and outside an impacted community (Drabek & McEntire, 2002; Dynes, 1970; Warren, 1963). As the size of impacts and needs related to a hazard event increase to the point a community is overwhelmed (i.e., there is a disaster), the number and types of groups involved in responding increases as does the range of places from which the groups come (e.g., other jurisdictions, other levels of government) (Drabek & McEntire, 2002; Dynes, 1970; Smith, 2011; Stallings, 1978; Warren, 1963; Weller & Kreps, 1970). New organizations are created to deal with unmet needs (see for example: David, 2006; Green & Ireland, 1982; Kreps, 1978; Marjchszak, Jarvenpaa, & Hollingshead, 2007; Scanlon, 1999; Taylor, Zurcher, & Key, 1970; Voorhees, 2008); established organizations take on new roles (Auf der Heide, 1989). The likelihood that these groups vary substantially in the adequacy of their training, experience, and expertise related to the disaster situation increases (Auf der Heide, 1989; Dacy & Kunreuther, 1969, p. 94; Drabek, 1985, 1987; Dynes, 1970a, p. 179; Quarantelli, 1981; Quarantelli, 2000).

There is a demand and need for those involved to work together (Dynes & Quarantelli, 1975, p. 32, as cited in Drabek, 1986, p. 50). Disasters create a context in which the need to work together is heightened because there is an urgent need to address a host of impacts (Barton, 1963; Fritz, 1961, p. 655, as cited in Drabek, 1986, p. 7; Mileti, 1975 p.11, as cited in Drabek, 1987, p. 182). There is also a need for those involved to carry out their tasks without delay, without wasting resources or time, or duplicating efforts. Yet, just as the need to work together is greatest, it is the hardest for these groups to do so. The response effort requires organizations to work with each other in new ways—ways they would not and do not on a normal, routine basis (Dynes, 1970; Dynes & Quarantelli, 1977; Yutzy, 1970). And, the day-to-day management structures used for emergencies are no longer sufficient (Drabek, 1986, p. 163).

Inter-Organizational Response Problems

Disasters require a wide range of groups to work together under difficult and stressful circumstances (Drabek, 1986; Drabek & McEntire, 2002; Dynes, 1970; Waugh & Strieb, 2006). Historically, the efforts of organizations to work together in an efficient and effective way has been mired by inter-organizational problems including fragmented responses, poor information flow and quality of information between organizations, duplication of effort resulting in wasted resources and inefficiency, and disputes over priorities, how tasks should be addressed, organizational roles and responsibilities, and leadership (see for example: Drabek, 1989; National Research Council, 2006; Tierney, Lindell, & Perry, 2001). These issues have been repeatedly noted by entities tasked by the federal government to investigate perceived response failures following Hurricane Andrew (National Academy of Public Administration, 1993), the September 11, 2001 terrorist attacks (Government Accountability Office, 2002; National Commission on Terrorist Attacks upon the United States, 2004), and Hurricane Katrina

(Government Accountability Office, 2008; U. S. House of Representatives, 2006; U. S. Senate, 2006; White House, 2006).

The federal government has tried to address inter-organizational response problems in various ways over time and has met with mixed success (Drabek & McEntire, 2002; Government Accountability Office, 2005, 2009, 2012; Waugh & Streib, 2006). Presidents of the United States have been engaged in addressing the issue through various executive policy initiatives (e.g., executive orders, homeland security presidential directives, presidential policy directives) and creating and/or tasking a host of federal organizations with fostering coordination at all levels of government and coordinating federal efforts (Rubin, 2012; Sylves, 2008). Congress has authorized and appropriated funds to support a diverse array of federal pre-disaster grant programs designed to support state and local efforts to prepare to carry out an effective response (Rubin, 2012; Sylves, 2008). Federal agencies, namely the Federal Emergency Management Agency, have developed a number of plans articulating the roles and responsibilities of emergency management stakeholders at all levels in response and spelling out how the federal government will organize its efforts to support state and local response (e.g., Federal Response Plan, National Response Plan, and National Response Framework) (Rubin, 2012; Sylves, 2008). In addition, Presidents, Congress, and federal agencies have either recommended or mandated a number of organizing systems for use across emergency management relevant organizations at all levels (e.g., Integrated Emergency Management System, National Interagency Incident Management System, Incident Command System, National Incident Management System (Rubin, 2012; Sylves, 2008). These efforts have been made with varying success (see for example in the case of the National Incident Management System: Jensen, 2008, 2009, 2011; Jensen & Yoon, 2011; Jensen & Youngs, ed.; Neal & Webb, 2006).

The same inter-organizational response issues of concern to government have also been noted consistently by scholars (Auf der Heide, 1989; National Research Council, 2011; Tierney, Lindell, & Perry, 2001). Individual case studies have time and again identified inter-organizational response issues including the Halifax Explosion (Prince, 1920); the Great Chicago Snowstorm (Brouillette & Ross, 1967); Hurricane Betsy (Forrest, 1970); the Colorado Floods of 1965 (McLuckie & Whitman, 1971); Buffalo Creek Hollow Dam Break (Kearney, 1972); Jonesboro, Arkansas Tornado (Kueneman, Rodney, Smith, Martin, Taylor, Verta, Waxman, Jerry, 1973); St. Louis Flood of 1973 (Hershiser & Bobb, 1973); the St. John's River Flood (Kueneman, 1973); the 1974 Grand River Flood (Keuneman & Hannigan, 1974); a tornado case study in 1953 (Rosow, 1977); The Vaiont Dam Overflow (Quarantelli, 1978); Ft. Wayne Flood (Phillips, 1984); the Texas City Disaster (Stephens, 1993); Loma Prieta Earthquake (Tierney, 1994); the 1994 Northridge Earthquake (Nigg, 1997); Hurricane Georges (McEntire, 1999); Bitter Root Valley Fires of 2000 (Halvorson, 2002), the Ft. Worth Tornado (McEntire, 2001); the September 11th Terrorist Attacks (Dynes, 2003; Grant & Hoover, 2002); and Hurricane Katrina (Trainor, Donner, & Torres, 2006; Waugh & Streib, 2006), to name just a few.

The Need for Clarity Regarding Response Problems and How to Avoid Them

The labels applied to inter-organizational response problems include most commonly—coordination and—most recently—collaboration. It is thought that the problems most frequently manifested in disaster—a lack of coordination and collaboration—are also the solutions to those problems—more coordination and collaboration (Auf der Heide, 1989; Drabek & McEntire, 2002). For instance, there were two crests in the St. Louis Flood. The first crest led to severe damage with poor coordination cited as a cause; the second crest caused less damage with effective coordination cited as the explanation (Hershiser & Bobb, 1973).

Coordination has been seen as the ideal in disaster response (Drabek & McEntire, 2002, p. 206) and mocked as the philosopher's stone (Morris, Morris, & Stone, 2007). Scholars consistently hypothesize that if we could coordinate more effectively, disaster response would be... (fill in the successful outcome) (see for example: Auf der Heide, 1989; Drabek & McEntire, 2002; Quarantelli, 1997). As Kettl (2003) put it, "Coordination is, at once, the diagnosis of the...problem and the diagnosis of its failures" (p. 254). More recently, collaboration has been described as a necessary foundation for disaster response (see for example: Waugh & Streb, 2006).

Unfortunately, there exists considerable confusion regarding these terms and the specific problem, or set of problems, they are being used to describe. This confusion has prevented disaster scholars from clearly articulating the variables related to the different inter-organizational response problems that exist. Clear articulation of the problems involved in response and variables related to them would help facilitate research, practice, and policy design.

This paper ultimately focusses on one of these problems—collaboration—and identifying the factors that need to be in place pre-disaster to avoid the collaboration problem during response. First, however, Chapter Two discusses the confusion regarding these two terms and how this confusion has hindered theoretical development. The Chapter concludes by offering a simple definition for both coordination and collaboration—the latter of which was used to conduct an inductive review of the disaster case study literature for the factors it implicitly suggests are related to collaboration. The review is presented in Chapter Three and its significance discussed in Chapter Four.

CHAPTER TWO: RESPONSE PROBLEMS AND CONCEPTUAL CONFUSION

A consensus-backed definition for either coordination or collaboration does not exist despite the fact that the labels are commonly used to describe response problems as well as the solution to those problems. This lack of definition, or even basic shared conceptualizations of the terms, manifests in conceptual confusion among scholars and practitioners. Yet, as much as conceptualizations of the terms have varied, both scholarship and practice-related documents seem to be describing two distinct, although likely related, concepts. The Government Accountability Office (2005) defined the term as “any joint activity that is intended to provide more public value than could be produced when the organizations act alone” (p. 4). But other federal agencies, even those dedicated to preparedness and response, have different definitions. Take, for instance, the Department of Homeland Security (2005) who refers to collaboration as “achieving full integration and interconnectedness between the public and private sector, among different levels of government, among multiple jurisdictions, and among departments and agencies within a single jurisdiction” (p. 6).

Professional organizations have also added to the confusion of these terms. Federal Emergency Management Agency (2007), *Principles of Emergency Management*, uses the word coordination in the mission statement for the practice of emergency management as an emerging profession. Specifically, it states that the mission of emergency management is “to protect communities by coordinating and integrating all activities...” (p. 4). Included in the *Principles* document as two of eight core principles intended to guide the practice of emergency management are the terms collaborative and coordinated. Collaborative action means that emergency managers “create and sustain broad and sincere relationships among individuals and organizations to encourage trust, advocate a team atmosphere, build consensus, and facilitate

communication” (Federal Emergency Management Agency, 2007, p. 4). Coordinated action means that emergency managers “synchronize the activities of all relevant stakeholders to achieve a common purpose” (Federal Emergency Management Agency, 2007, p. 4). Meanwhile, the international standards for the practice of emergency management established by National Fire Protection Agency (2013) in *National Fire Protection Agency 1600: Standard on Disaster/Emergency Management and Business Continuity Programs*, and Emergency Management Accreditation Program (2010), *Emergency Management Standard*, stipulate that emergency management programs must facilitate jurisdiction-wide coordination and requires that the programs engage all stakeholders in collaboration related to the planning and management of program activities. Neither standard defines these terms in the definition section of the standard—it is assumed that all stakeholders have a common understanding of what these terms mean.

Scholars have also reported that some practitioners resort to describing collaboration through analogies since it is so hard to describe. Analogies include stepping into other people’s shoes; the combination of hydrogen and oxygen to create water; and yellow and green circles combined to create a blue circle (Thomson, 2001, as cited in Thomson & Perry, 2006, p. 23). Conceptual confusion such as that evidenced in these examples is rampant throughout government documents.

Unfortunately, conceptual confusion is also evident in scholarship. Coordination is often spoken of—even the entire focus of articles—and never defined or explained (see for example: Salmon, Stanton, Jenkins, & Walker, 2011). In other cases, the terms are ill-defined and/or often used interchangeably. Coordination is described by various scholars as the “synchronized actions of individual organizations to complete response or recovery tasks” (Auf der Heide, 1989, p. 80);

“the extent to which organizations attempt to ensure that their activities take into account those of other organizations” (Hall et al., 1977, p. 459); “the cooperation of independent units for the purpose of eliminating fragmentation, gaps in service delivery, and unnecessary (as opposed to strategic) duplication of service” (Gillespie, 1991, p. 56); “the integration of tasks reinforced by accepted behavioral norms” (Denis, 1995, p. 30); and “mutually agreed upon cooperation about how to carry out particular tasks” (Quarantelli, 1997, p. 48).

Drabek and McEntire (2002) presents an overview of disaster scholarship on the topic of coordination. Yet, the authors define coordination as “the collaborative process through which multiple organizations interact to achieve common objectives” (p. 199). Reddick (2008) provides another example of confusion of the terms coordination and collaboration in his review of the literature where he uses the terms interchangeably.

One of the most important lessons learned from the events of 9/11 is the importance of coordination among the governmental agencies and organizations that are responsible for disaster management (Caruson and MacManus, 2006). Homeland security preparedness requires numerous federal, state, local, and private entities to be prepared to operate in close coordination to meet the threat and to mitigate its consequences (Wise and Nader, 2002). Waugh (1988) explains that this tendency for a lack of collaboration among different levels of governments in emergency preparedness is attributed to three factors. (Reddick, 2008, p. 3, underlining added)

These examples show how scholars lack agreement on an accepted definition of coordination and use of the words cooperation and collaboration to define it.

Collaboration is the least well defined of the two terms and suffers from the greatest confusion. It is common for scholars to devote articles to the topic and never define the term (see for example: Reddick, 2008; Robinson, Berrett, & Stone, 2006; Scholtens, 2008; Waugh & Streib, 2006). Scholars have defined collaboration as “any joint activity by two or more agencies that is intended to increase public value by their working together rather than separately” (Bardach, 1998, p. 8); “collective action whereby independent actors adopt coordinated strategies

to obtain higher joint benefits or reduce their joint harm” (Ostrom, 1990, as cited in Thomson & Perry, 2006, p. 24); and the “process of facilitating and operating in multi organizational arrangements to solve problems that cannot be solved, or solved easily, by single organizations” (Agranoff & McGuire, 2003, p. 4). An extensive and precise definition was presented by Thomson (2001, as cited in Thomson & Perry, 2006) as “a process in which autonomous actors interact through formal and informal negotiation, jointly creating rules and structures governing their relationships and ways to act or decide on the issues that brought them together; it is a process involving shared norms and mutually beneficial interactions” (p. 23). Collaboration between government, business, non-profits, and communities has been called cross sector collaboration and defined as “the linking or sharing of information, resources, activities, and capabilities by organizations in two or more sectors to achieve jointly an outcome that could not be achieved by organizations in one sector separately” (Bryson, Crosby, & Stone, 2006, p. 44). Some scholars have compared collaboration to courtship, engagement, and marriage (Kanter, 1994).

The examples offered are just that—examples. There are countless descriptions of the coordination and collaboration problem and many different definitions offered. Yet, as the discussion to this point ought to have demonstrated, there are varying conceptualizations of coordination and collaboration despite the frequency with which they are used in reference to inter-organizational response. There is also confusion of terms. These issues are reflected in the way the words are used in practice and in scholarship. The confusion is so significant that Government Accountability (2005) was led to comment in a footnote,

For the purpose of this report we use the term “collaboration” broadly to include interagency activities that others have variously defined as “cooperation,” “coordination,” “integration,” or “networking.” We have done so since there are no commonly accepted

definitions for these terms and we are unable to make definitive distinctions between these different types of interagency activities (p. 1).

Yet, while significant confusion is evidenced in practice and scholarship, it is clear that scholars and practitioners believe that coordination and collaboration are fundamental aspects of effective response. The Federal Emergency Management Agency (2007) suggests that coordination and collaboration are part and parcel of effective emergency management pre- and post-disaster.

Indeed, the Federal Emergency Management Agency (2007), in referring to collaboration, has stated that it is “the one factor that is consistently credited with improving the performance of a community” (p. 7). It is understood that “collaborative networks are a fundamental component of any emergency response” and that “the critical tasks leading up to, during, and following a disaster involve coordinating multi-organizational, intergovernmental, and inter-sectoral response and recovery operations” (Waugh & Streib, 2006, p. 134).

Toward Definitions for Coordination and Collaboration

The literature hints that there are at least two distinct inter-organizational phenomena involved in the descriptions of response problems related to the conceptual labels of coordination and collaboration. Careful review of the literature suggests these terms are used to describe 1) how organizations carry out tasks in disasters and/or 2) the manner in which groups work together. Coordination and collaboration are also used to describe the ideal nature of inter-organizational response efforts: 1) tasks are carried out in synchrony, and/or 2) organizations get along while carrying out those tasks. Coordination seems to most often refer to the former and collaboration the latter inter-organizational response problem and/or idealized nature of their response. The presence of both coordination and collaboration (defined as such) seem to be important for an effective response. It has even been suggested that collaboration is a prerequisite for coordination (see for example: McEntire, 1998; Scholtens, 2008).

The lack of conceptual clarity and the absence of a consensus-backed definition for these terms is a problem in practice. If both coordination and collaboration are essential parts of emergency management practice as government reports, seminal documents, and professional standards suggest, then it would be helpful for there to be a basic, shared understanding of what these concepts mean. Moreover, it would also be helpful to know what brings about coordination and collaboration particularly as related to response efforts.

The lack of clarity and definition is also a problem for academia—perhaps more so than it is for practice. As important concepts in the discipline of emergency management (Jensen, 2010), coordination and collaboration are in need of a consensus definition. This paper will define both terms as described above; thus, collaboration, the focus of this paper, is understood very generally and simply as “organization’s getting along during response.” The researcher understands that there are a number of behaviors associated with collaboration that are relevant to effective response based on his review of the literature including, for example, decision making through consensus and groups leading and being led in turn.

Although simplistic, the above definition of collaboration can be quite helpful. Its use can help develop a shared understanding among researchers and practitioners as to what the concept means. A shared understanding among scholars would allow them to begin the important work of identifying the previously mentioned behaviors associated with collaboration and to begin, as this paper does next in Chapter Three, the process of identifying the factors associated with bringing collaboration about. Indeed, concepts are the building blocks of theory; and without basic definitions of essential ideas, the larger goal of theory development will remain out of reach.

The Need to Identify What Brings Collaboration About

Disaster studies as a stand-alone field is relatively young (Neal, 2005; Phillips, 2005). It is informed by a wide range of fields (Jensen, 2013; McEntire, 2004; McEntire & Marshall, 2003; Perry & Quarantelli, 2005) to include geography, the social sciences, organizational science, management studies, anthropology, environmental studies, political science, psychology, engineering, and epidemiology. Many theories have been borrowed from other fields to help explain disaster response to include systems theory, chaos theory, social constructionism, conflict and political/economy theory, political-ecological theory, vulnerability theory, attribution theory, satisficing theory, networking theory, and management theory (Jensen, 2010; McEntire, 2004; Phillips, 2005; Quarantelli, 2005). Emergency management has developed several of its own theories by the pioneers of the discipline such as convergence theory and emergent norm theory (Gillespie & Perry, 1976). However, there is a critical need for theoretical development in the field of study (Jensen, 2010; McEntire, 2004) including on the topic of collaboration. It was hoped that using the definition suggested above would facilitate analysis of the disaster case study literature for what makes it more likely that organizations “get along” when responding. Further, it was hoped that if the researcher were successful in identifying factors associated with “getting along” dissemination of these factors might instigate future research that results in the suggestion of a model of collaboration and that these findings might be useful in practice and policy.

The distinction between coordination and collaboration is the first step in enhancing our understanding of how to improve disaster response. The second step is to identify factors from past research that appear related to either or both variables. The final step will be a more sophisticated analysis of the extent to which some of the same factors may or may not affect both

variables and/or the relative importance of these explanatory factors to coordination versus collaboration.

The present study has made the distinction noted in step one. The remainder of this paper will identify factors that appear related to collaboration, but the conceptual confusion in the literature makes it virtually impossible to completely separate the two variables. Only future research can make such a separation. However, by establishing a framework of factors that arguably appear to be specifically relevant to collaboration, the present paper provides a framework for such future studies—a framework that is currently non-existent. Thus, the present paper sets the stage for the final step of determining the extent to which the identified factors similarly or dissimilarly impact both collaboration and coordination. Next, Chapter Three discusses the results of the researcher’s exploration of the disaster case study literature for what makes organizations “get along” during response.

CHAPTER THREE: LITERATURE-BASED FACTORS THAT MAY PREDICT ORGANIZATIONAL COLLABORATIVENESS IN DISASTER

The following chapter presents four pre-disaster factors the literature suggests are related to organizational collaboration during disasters. The primary sources for this literature review are the case studies compiled by the Disaster Research Center over the past 50 years and the National Science Foundation Quick Response Reports housed at the Natural Hazards Center. The case studies reviewed involved a wide range of hazards, geographic locations, different researchers, and span many decades. Although not reviewed here, government reports, hearings, and documents have also identified the importance of these key factors noted in the disaster literature.

This paper applied an inductive approach to the investigation of collaboration in the disaster case study literature. The researcher, interested in what relates to organizations getting along during disasters, carefully reviewed the case studies noting mention of getting along issues, why the author(s) suggested the getting along problem came about, and, how the author(s) suggested the problem could have, or should have, been avoided. Few, if any, of the Disaster Research Center or Natural Hazards Center reports actually use the word collaboration. The researcher's extensive notes were thematically coded—the result of the coding process was identification of four factors that seem to be involved in understanding the extent to which organizations get along, or collaborate, during disasters including leadership, relationships, culture, and interdependencies. The following four sections present these factors. Each section defines the concept, substantiates its significance in the case study literature *vis a vis* collaboration, and identifies the dimensions that support that element.

Leadership

The element of leadership has been identified in many of the disaster case studies as either a problem that led to collaboration issues or as a key element in the smooth interaction and teamwork of the response organizations. Leadership has been found to be an important element in all sizes and types of disasters. A variety of definitions for this concept exist (see for example: Blanchard, 2008; Gerras, 2010; Kotter, 1996; Marshall, 1998). For this paper, I understand leadership to mean the ability of people in key roles to influence organizational behavior towards collaborative actions. Leadership in the context of collaborative disaster response is a broad category that encompasses five key dimensions. These dimensions include the legitimacy of the leadership, the leadership style, the leader's communication ability, the instrumental actions of the leader, and the personal traits of the leaders.

Who is in Charge?

The first dimension of leadership pertains to who is in charge (Broz et al., 2009; Forrest, 1970; Haas, Dynes, & Quarantelli, 1964; Hershiser & Bobb, 1973; Kearney, 1972; Kennedy, 1966; Kueneman & Hannigan 1977; Moore, Bates, Layman, & Parenton, 1963; Ponting, 1970; Rosow, 1977; Scanlon, 1999; Stephens, 1993; Yutzy, 1964). Time and again it has been shown that a lack of a coordinating person/body leads to a lack of effective collaboration between responding agencies and organizations. Unclear or ambiguous leadership leads to an unsatisfactory disaster response—leadership must be explicit (Haas, Dynes, & Quarantelli, 1964). But having someone in charge does not necessarily mean that the leader will be perceived as a legitimate authority. Lack of legitimacy (Dynes, 1970; Denis, 1995), and political fighting can lead to adverse effects on disaster leadership (Quarantelli, 1978), underscoring the need for the support of local authorities (Kueneman & Hannigan, 1977). Legitimacy must be pre-existing

to the disaster (Kueneman & Hannigan, 1977), and must be recognized by the other response organizations (Ponting & Quarantelli, 1973). Pre-disaster political support is important to disaster preparation (Hershiser & Bobb, 1973, McEntire, 2001), and must include meeting with other authorities (Kueneman, 1973). It is important that the public accept the leadership (Forrest, 1970) and that the leaders get along with leaders from other responding organizations (Scanlon, 1999). Collaboration is more likely if all the organizations participating have a positive image of the organization facilitating the response (Ponting & Quarantelli, 1973).

Leader Style

Leadership style is the second dimension. Leaders of organizations that are domineering or controlling are detrimental to working as partners (Dynes, 1970; McEntire, 2001; Waugh & Streib, 2006). Although it is clear that someone or some group must be in charge, it is important that they have a broad community perspective (Forrest, 1970). The personality factors of leaders from various organizations, how they get along, are important to over-all collaboration (McLuckie & Whitman, 1971). Key traits found useful in the leadership style of collaborative leaders include flexibility, innovation, and the ability to balance structure versus freedom of action (Waugh & Streib, 2006). A leadership style that encourages a culture of innovation is especially important to be able to respond to unanticipated events (Cohen, Eimicke, & Horan, 2002). Change-oriented leadership cultures (Corbacioglu & Kapucu, 2006), and cultures that balance authority and structure with freedom of action are best in response to unforeseen events and creating collaboration to meet those challenges (Alvinus, Danielsson, & Larsson, 2010).

Leader Communication

The next two dimensions are communication and actions. These have been described as the symbolic participation of leaders that are either expressive (communication) or instrumental

(actions) (Rosow, 1977). This idea was echoed 30 years later as the need for leaders to express shared meaning and heedful inter-relating (Mills & Weatherbee, 2006). First, leaders must be able to express a unifying call to action, as communicating is one of the vital roles of leadership (McLuckie & Whitman, 1971). It is leaders who must frame the problems and the solutions (McGuire, 2006). Leaders must be able to voice a common vision to effectively create a collaborative environment in which organizations work jointly toward common goals (Scanlon, 1999; McGuire, 2006). There is a need for someone to explain the big picture (Kueneman, 1973), and to communicate a unified message in responding to large disasters with multiple levels of response (Schwartz, 2005). Leaders must not only communicate as public figures, but also must ensure strategic communication with other leaders and organizations (McGuire, 2006; McLuckie & Whitman, 1971). Conversely, a lack of communication can lead to what has been called poorly shared mental models (Smith & Dowell, 2000, p. 1154) that can lead to fragmented action by responding organizations. Poorly shared mental models mean that all parties involved do not have a common understanding of how things should work and what to expect in a fluid situation. The idea of leader as the principal spokesperson, was illustrated by Mayor Rudy Giuliani during the response to the 9/11 attacks in New York City (Cohen, Eimicke, & Horan, 2002).

Leader Actions

Leaders must go beyond expressing shared meaning and take specific actions (instrumental actions) in order to create collaborative environments. This instrumental element of leadership has been found to be important to all levels of collaboration to include the strategic, operational, and the tactical levels of disaster response. (Alvinus, Danielsson, & Larsson, 2010; Hicklin, O'Toole, Meier, & Robinson, 2009). Leaders must be personally involved in pre-disaster exercises (Kiefer & Montjoy, 2006), and they must be visible pre-disaster and during disaster

response (Kuenemen, 1973). It is difficult to lead from the Emergency Operations Center. Effective leaders have staffs and systems in place that are capable of facilitating collaboration (McEntire, 2001; Stephens, 1993), and they guide those staffs and systems by setting priorities (Kueneman, 1973). Leaders must have over-all knowledge of their organization and partner organizations' capabilities and operations (Quarantelli, 1978). This knowledge aids leaders to separate strategic and operational roles (Kuenemen & Hannigan, 1974) and makes them more effective when they delegate decision authority to tactical leaders on the ground with direct knowledge of the challenges facing the disaster responders. To be an effective collaborative leader, decisions should not be made in isolation from subordinate leaders (Kuenemen, 1973).

Leader Personal Traits

The fifth dimension of leadership is personal traits. The first personal trait is the leader's past positions and experience. Leaders who have held important leadership positions in the past tend to have greater personal prestige (Kueneman, 1974). Just as important is their experience level. More experience has been shown to lead to better decisions by leaders (Adams, 1969), while lack of experience (among government officials) has been observed to lead to poor outcomes in disaster response (McEntire, 1999). Important personal traits include remaining calm under stress and inspiring others to action (Cohen, Eimicke, & Horan, 2002), and exhibiting pro-active behaviors and personal initiative (Kueneman, 1973; Waugh & Streib, 2006; Alvinus, et.al., 2010). Conversely, a damaging personal trait is leader isolation or reluctance to lead (McLuckie & Whitman, 1971).

Leadership Summary

The disaster literature related to leadership suggests that to understand the degree to which response is likely to be collaborative in a disaster, the following issues would need to be assessed pre-disaster:

- a) To what extent is an organization's leadership perceived as legitimate?
- b) To what extent is an organization's leadership styles conducive to creating a collaborative environment within the organization and with other organizations?
- c) To what extent does the leadership communicate shared values and meaning within the organization and other organizations in a pre-disaster setting?
- d) To what extent does the organizational leadership exhibit instrumental actions?
- e) To what extent do leaders exhibit personal traits identified as being collaborative?

Relationships

Relationships have been identified in many disaster case studies as either a problem that led to collaboration issues or as a key element in effective response. The importance of relationships in collaboration has been widely observed (Anderson, 1965; Cook, 2009; Denis, 1995; Dynes, 1970; Forrest, 1970; Haas, Dynes, Quarantelli, 1964; Haque, 1999; Heffron, 1977; Kearney, 1972; Kueneman, 1973; Kiefer & Montjoy, 2006; McEntire, 1998; McEntire, 1999; McEntire, 2001; McGuire, 2006; McLuckie & Whitman, 1971; Mileti & Sorenson, 1987; Moore, et al., 1963; Patterson, 2003; Ponting & Quarantelli, 1973; Philips, 1984; Quarantelli, 1992; Rosow, 1977; Stallings & Schepart, 1987; Stephens, 1993; Sutton, 2002). A variety of definitions for this concept exist (see for example: Merriam-Webster's Collegiate Dictionary, 1993; Oxford English Dictionary, 2013). I understand relationships as both personal and organizational. Relationships are a mutual or reciprocal interest—how people and organizations are connected to

each other and how that connection is understood and valued by both parties. There are three dimensions to relationships that affect collaboration: type, quality, and trust.

Relationship Types: Formal and Informal

The two types of relationships are formal and informal. Formal relationships are established by organizational structures and documents, and include organizational liaisons and professional colleagues. Informal relationships exist outside the structure of an organization and include friends and acquaintances. The quality of relationships includes the frequency of occurrence along with continuity of the relationship, the length of the relationship, and the intensity of the relationship. Trust is a key dimension in relationships that develops over time and is instrumental to successful collaboration. It is nurtured by shared experiences and results in a belief in the ability of the other person or organization to conduct its tasks successfully.

Formal relationships between organizations are facilitated through relationships of boundary personnel (Dynes, 1970; Mileti & Sorenson, 1987), or boundary spanners (McGuire, 2006). Boundary people fall into three categories; those who hold official positions that interact with other organizations, those who belong to multiple organizations, and those who have developed friendships across organizational boundaries (McGuire, 2006, p. 184). Formal relationships begin with organizations defining the roles and responsibilities of individuals and their organization along with operating relationships and structure (Haque, 1999; Mileti & Sorenson, 1987), and defining task priorities, lines of authority, and division of labor (Adams, 1969; Mileti & Sorenson, 1987). It is important that relationships be pre-established before a disaster response (Mileti & Sorenson, 1987; Patterson, 2003), that they be clearly defined (Broz, et al., 2009; Mileti & Sorenson, 1987; Ponting, 1970), and that they are carried over into the disaster response phase (Dynes, 1970; Heffron, 1977; McLuckie & Whitman, 1971; Stallings &

Schepart, 1987). Previous experience shared among response individuals in simulations and exercises help build relationships.

Relationships established prior to a disaster event are the basis for beginning the disaster response and therefore key to collaboration during the response (Ponting, 1970; Mileti & Sorenson, 1987; McLuckie & Whitman, 1971; Scanlon, 1999; Harrald, Barbera, Renda-Tanali, Coppola, & Shaw, 2002; Katirai & Simpson, 2008). The most effective relationships are those that enjoy close working ties as a normal day to day routine and may be based upon personal familiarity or professional identity (Rosow, 1977; Mileti & Sorenson, 1987). If personal and organizational relationships are not created prior to disaster, the response is more likely to be characterized by loosely coupled organizational systems and improvisation (Quarantelli, 1992).

Formal organizational operating relationships are frequently laid out in multi-agency agreements with pre-established connections between organizations (Anderson, 1965; Broz, et al., 2009; Mileti & Sorenson, 1987; Ponting & Quarantelli, 1973). Successful collaboration is characterized by extensive networks of small groups (Kearney, 1972), integrated response networks (Mileti & Sorenson, 1987), networks of service providers (Sutton, 2002), umbrella organizations (McEntire, 1998), disaster mega-organizations (Denis, 1995), and task forces with a team management concept that have a high degree of staff integration (Phillips, 1984).

Inter-organizational relationships can also start informally; some through individual initiative; and some are started with friendships or acquaintances (Haas, Dynes, & Quarantelli, 1964). These relationships usually start out limited, often based upon prior relationships (Robinson, Berret, & Stone, 2006), and are not reflected in formal plans (Kueneman et al., 1973; Nigg, 1997; Rosow, 1977). In the absence of pre-existing relationships, it becomes imperative to create new relationships (Forrest, 1970). Informal relationships can be critical to conducting

Emergency Operations Center activities (Forrest, 1970), but the presence of only informal relationships between agencies leads to poor disaster response (Kearney, 1972).

Relationship Quality

Quality of relationships is comprised of three elements: frequency, longevity and intensity. Frequency of contact is important to developing relationships that are effective in personal and organizational collaboration (McEntire, 2001; Ponting, 1970). Relationships are nurtured by creating contact between organizations (McEntire, 1999), such as working together on a regular basis (Grant & Hoover, 2002; Rosow, 1977), holding regular meetings with other organizations (McEntire, 1998), fostering strong communication (Phillips, 1984), and conducting planning (Mileti & Sorenson, 1987). Longevity also affects the relationships of collaborating individuals and organizations (Cook, 2009). When individuals and organizations have worked together and developed connections over a long period of time, disaster response is enhanced (Grant & Hoover, 2002; Halvorson, 2002). The intensity of relationships is important as stronger relationships lead to better collaboration (Cook, 2009; Rosow, 1977). Close liaisons and working relationships have also been found to speed the identification and resolution of problems in disaster response (Forrest, 1970).

Relationship Trust

Trust is the third dimension of relationships that is vital for effective collaboration. It is a product of working together through previous disaster responses and exercises (Grant & Hoover, 2002). Trust is built over time (Cook, 2009), and is needed as a relationship lubricant because one of the main obstacles to collaboration is competing relationships (Ponting, 1970). Trust alleviates the fear of other organizations taking credit for another organizations' work and or actions (McEntire, 1998). Trust is a mutual respect (Rosow, 1977) that is characterized by a

belief in other organizations' professional competence and capabilities (Cook, 2009; Grant & Hoover, 2002; Harrald, et. al, 2002; McEntire, 2001), and leads to cooperation between individuals and organizations (Heffron, 1977). More points of contact between organizations lead to better communication and greater trust (McGuire, 2005). Conversely, the inability of another organization to fulfill needs in a timely manner or the incapacity to deliver what is promised or infrequent communication all erode trust and are major inhibitors of collaboration (Nigg, 1997).

For collaboration to work well, trust must be established between communities and emergency management organizations (McEntire, 1999), between government and relief organizations (McEntire, 1999), and among political leaders (Kiefer & Montjoy, 2006). A lack of trust can lead to conflict and disputes over functions during the response and a resentment of outsiders who arrive to assist (Heffron, 1977). Trusted relationships are created when organizations work together for mutual gain and are the critical social capital upon which collaboration depends (Denis, 1995).

Relationship Summary

The disaster literature related to relationships suggests that to understand the degree to which response is likely to be collaborative in a disaster, the following issues would need to be assessed pre-disaster:

- a) To what degree are formal and informal relationships established with other disaster response organizations?
- b) To what degree is the quality of the relationships in terms of frequency, length, and intensity, established with other disaster response organizations?
- c) To what degree has trust been established with other disaster response organizations?

Culture

Culture is a key factor associated with collaborative disaster response. A variety of definitions for this concept exist (see for example: Blanchard, 2008; Merriam-Webster's Collegiate Dictionary, 1993; Wilson, 1989). I understand culture as the set of shared attitudes, values, goals, and practices that characterizes an organization. Thus, cultural dimensions affecting collaboration include a common language, shared norms and values, attitudes, and shared understandings of how things should work. Cultural dimensions that are specific to disaster response and have been shown to increase the likelihood of collaborative action include preparedness, flexibility, learning and un-learning, improvisation, and autonomous, independent, decentralized execution.

The importance of culture in disaster response has been widely noted (Anderson, 1965; Brouillette, 1966; Broz et al., 2009; Cohen, Eimicke, & Horan, 2002; Day, Junglas, & Silva, 2009; Denis, 1995; Forrest, 1970; Grant & Hoover, 2002; Halvorson, 2002; Hannigan & Kueneman, 1974; Kueneman, et al., 1973; McEntire, 2001; McLuckie & Whitman, 1971; Moore, et al., 1963; Patterson, 2003; Ponting, 1970; Quarantelli, 1978; Rosow, 1977; Scanlon, 1999; Stephens, 1993). In addition, the utility of a disaster sub-culture in particular has also been widely acknowledged in disaster research (Anderson, 1965; Brouillette, 1966; Hannigan & Kueneman, 1974; Moore, et al., 1963; Perez-Lugo, 1999). Related to a disaster sub-culture is simply having disaster experience, which leads to an understanding of the need to work together in times of crisis (Kueneman, 1973; McEntire, 2001), and leads to less dysfunction during the disaster response (Scanlon, 1999).

Language

Language is a fundamental aspect of cultures, and this is also true of disaster response organizations working together (Ponting, 1970). Occupational cultures are often the bridge between organizations (Rosow, 1977)—in part because both speak the same language.

Shared Norms and Values

Occupational ties also ensure alignment of norms and values. Shared norms and values are important to collaboration in a disaster context (Dynes, 1970; McGuire, 2006; Moore, et al., 1963). Organizations need a norm of collaboration to be effective—they need to value working together (McEntire, 1998). There is a need to understand the cultures of other organizations (Patterson, 2003), as well as a need for the dominance of community interests over individual organizational interests (Rosow, 1977). Norms and values of individual organizations that conflict with communal norms can have the opposite effect and lead to barriers in collaborative action (Rosow, 1977). Collaborative action needs an institutionalized community service orientation to be effective (Ponting, 1970). This has been called a culture of public service, or an ethos of public service, or serving the public beyond serving oneself (Cohen, Eimicke, & Horan, 2002). Society's larger norms and values also play a role in creating the environment within which collaborative action can take place (Quarantelli, 1978). This social context has been referred to as a supportive social climate (Scanlon, 1999), a need for community priorities and values (Grant & Hoover, 2002), and a sense of belonging to a larger community (Halvorson, 2002). Without this over-riding community oriented value, organizational identities, reputations, experience, tradition, and disruptive rivalries can prove to be obstacles to collaborative action (Rosow, 1977).

Common Understanding

Closely associated with the need for shared norms and values is the need for a common understanding of how things work. Perception of roles can be limiting or enabling (McLuckie & Whitman, 1971), so a common understanding of how things should work in individual organizations can either aid or hinder effective collaboration (Mileti & Sorenson, 1987; Smith & Dowell, 2000). This common understanding has been called domain consensus (Mileti & Sorenson, 1987), and extends to the need to understand the policies and procedures of other organizations (Grant & Hoover, 2002; Patterson, 2003), and a shared understanding of each other's roles and responsibilities (Mileti & Sorenson, 1987; Kiefer & Montjoy, 2006). The goal of a common understanding is shared meanings and collective goal-oriented activities (Dyer, 1984; Mills & Weatherbee, 2006).

Attitude of Preparedness

Due to the uncertainty of the disaster context, there are five disaster culture specific dimensions. The first has been called an attitude of preparedness (Brouillette, 1966), or a culture of response (Halvorson, 2002). Preparedness is one of the key dimensions in multi-organizational disaster response (Grant & Hoover, 2002). Prior planning is a key component of preparedness for disaster response (Denis, 1995; Kueneman & Hannigan, 1974; Rosow, 1977).

Organizational Flexibility

The second disaster specific cultural dimension is organizational flexibility (Broz, et al. 2009; Corbacioglu & Kapucu, 2006; Forrest, 1970; Katirai & Simpson, 2008; Patterson, 2003). Flexibility is needed due to the nature of disasters which often create a mismatch between organizational missions and the requirements of the disaster response (Forrest, 1970). Too much formality and insistence on rules restrain organizational cooperation during disaster response

(Moore et al., 1963). Due to the fact that disasters can unfold in unexpected ways, a flexible, creative, and tailored response plan aids collaborate effort (Broz, et al., 2009). Organizations need the ability to work in chaotic environments with conflicting orders and changing decisions (Patterson, 2003). A feature of flexibility is the realization that things will go wrong or not as expected. Disasters require a culture that anticipates the breakdown of communication (Cohen, Eimicke, & Horan, 2002).

Learning and Unlearning

A learning culture is important for disaster response collaboration. Organizations need the ability to learn as they go through events (Comfort, 2002; Comfort & Kapucu, 2006; Corbacioglu & Kapucu, 2006; Grant and Hoover, 2002; Harrald et al., 2002; Kueneman, 1973). Collaborative organizations have change-oriented cultures (Corbacioglu & Kapucu, 2006), that have an attitude of improvement (Brouillette, 1966), an openness to new phenomena (Denis, 1995), and have the ability to learn as the disaster unfolds (Comfort, 2002). Since many organizations rely on standard operating procedures and other plans to direct their response efforts, they first need to go through a period of unlearning before they can incorporate new lessons learned into their processes (Broz, et al., 2009). An important part of this un-learning process is evaluation procedures to help organizations to look at themselves and their operational procedures during a disaster response and adjust accordingly to the circumstances (Broz, et al., 2009).

Improvisation

Improvisation is important to collaborative action in disaster response (Broz, et al., 2009; Day, Junglas, & Silva, 2009; Harrald, et al., 2002). Individual organizations need the ability to

improvise solutions to problems with their partners as the problems are identified during the disaster response.

Autonomous, Independent, Decentralized

The last disaster organizational cultural specific trait is autonomous, independent, and decentralized execution. Internally, organizations must empower lower echelons of management to act independently in a decentralized manner (Adams, 1969; Quarantelli, 1992). They must have a high level of flexibility to react to circumstances as the disaster unfolds (Hannigan & Kueneman, 1974). They must have the ability to operate independently, without direction, based upon their organizational missions (Stephens, 1993). This is aided if they have a dynamic and distributed decision-making organizational structure and culture (Brehmer, 1991; Cohen, Eimicke, & Horan, 2002).

Culture Summary

The disaster literature related to culture suggests that to understand the degree to which response is likely to be collaborative in a disaster, the following issues would need to be assessed pre-disaster:

- a) To what degree does the organization exhibit a culture with a common language, shared norms and values, and a common understanding of how things work with other disaster response organizations exist?
- b) To what degree does a disaster specific culture that is flexible, learning, improvising, and is autonomous and decentralized exist?

Interdependency

The fourth factor of effective collaboration in disaster response is interdependency. The interdependency of organizations has long been identified as the fundamental reality of disaster

management (Adams, 1965; Forrest, 1970; Grant & Hoover, 2002; McEntire, 2001; McLuckie & Whitman, 1971; Mills & Weatherbee, 2006; Smith & Dowell, 2000). A variety of definitions for this concept exist (see for example: Merriam-Webster's Collegiate Dictionary, 1993; Oxford English Dictionary, 2013). I understand interdependency to be the state of organizational mutual reliance.

Early on in the study of disaster response, it was observed that responding organizations were less independent units and more like inter-related parts of a system (Adams, 1965). In fact, working alone and not interacting with other organizations was found to be counter-productive to the response effort (Forrest, 1970; McLuckie & Whitman, 1971; Mileti & Sorenson, 1987). Disaster has been found to accentuate the interdependent nature of society (Forrest, 1970). Researchers began to realize that the problem of collaboration in disaster management was actually the resolution of interdependencies (Smith & Dowell, 2000). It is recognized that no organization has sufficient resources and personnel to handle disaster response by themselves (Mills & Weatherbee, 2006), and that effective coordination can only be achieved by understanding the interdependence of organizational response (Grant & Hoover, 2002; McEntire, 2001).

The literature identifies five dimensions of the interdependent nature of disaster response: the need for a central body to facilitate coordination; the central importance of communication; the need to clearly define roles, responsibilities, and functions between organizations; the importance of conducting joint planning and exercises; and inhibitors to coordination. It has been the evolution in the understanding of interdependency that has led researchers from seeing coordination as the key to effective response to an understanding that collaboration more effectively addresses the five factors identified above. Coordination is needed, but is by its nature

task-oriented, while collaboration is focused on how organizations work together. Collaboration is a way for organizations to interact and address the five factors identified below prior to the disaster response.

Central Body

Historically, it has been found that there is a need for a central body to coordinate activities of responding organizations—to create the conditions necessary for coordination (Forrest, 1970; Kiefer & Montjoy, 2006; Haas, Dynes, Quarantelli, 1964; Hannigan & Kueneman, 1974; Hershiser & Bobb, 1973; Mileti & Sorenson, 1987; Moore, et al., 1963; Robinson, Berrett, & Stone, 2006). Early on in disaster management, coordination was seen as a government task and fell to the Civil Defense Office to create the conditions necessary for coordination (Moore, et al., 1963; Hershiser & Bobb, 1973). While not necessarily pointing to Civil Defense as the coordinating body, other researchers understood that coordination needed a central focusing organization/location (Dynes, Haas, & Quarantelli, 1964), or an organizing network (Mileti & Sorenson, 1987). This central coordination body must have a full understanding of each organization's authority (McLuckie & Whitman, 1971; Mileti & Sorenson, 1987), jurisdictional boundaries (Yutzy, 1964), and be able to resolve boundary issues (Hannigan & Kueneman, 1974). Recent research into the use of networks to assist organizations to collaborate have come under criticism with the recognition that a central agency for coordination and support is still necessary for the network to be effective (Kiefer & Montjoy, 2006). Traditionally these coordinating bodies have been command and control oriented. Today's Incident Command System and Unified Command structures are the federal response to filling this need and were found to be both flexible and adaptive in regard to the 9/11 response at the Pentagon (Harrald, et al., (2002). Collaboration is now understood to be a necessary adjunct of,

and to some an effective alternative to, command and control or hierarchical models of response coordination (McGuire, 2006; Waugh & Streib, 2006).

Communication

Communication is the second dimension of interdependency (Brouillette, 1966; Buckland & Rahman, 1999; Cohen, Eimicke, & Horan, 2002; Corbacioglu & Kapucu, 2005; Comfort & Kapucu, 2006; Day, Junglas, Silva, 2009; Haas, Dynes, Quarantelli, 1964; Haque, 1999; Hershiser & Bobb, 1973; Katirai & Simpson, 2008; McEntire, 1998; McLuckie & Whitman, 1971; Mileti & Sorenson, 1987; Moore, et al., 1963; Ponting, 1970; Quarantelli, 1978; Smith & Dowell, 2000). Communication is the most widely acknowledged dimension of interdependency— it is a dimension of all four factors of collaboration (i.e., leadership, relationships, culture, and interdependency). It has been characterized as problematical during disasters (Quarantelli, 1992), putting a strain on the disaster response system (Smith & Dowell, 2000), and potentially increasing the disaster's severity (McEntire, 1999). Communication issues include not being able to get information, getting incorrect information, an inconsistent flow of information, a low priority for information, not knowing who to get information from, or where to put information, unreliable information, and an unwillingness to share information—all of which lead to a lack of collaboration (Day, Junglas, & Silva, 2009).

In disaster response, it has been observed that at times there is a lack of communication (Dynes, Haas, & Quarantelli, 1964; Haque, 1999) and at other times information over-load (McEntire, 1998). There is a need for communication channels or systems (Ponting, 1970; McLuckie & Whitman, 1971), protocols, and communication feed-back loops to ensure information is received and understood (Brouillette, 1966). Disaster response requires effective lines of communication to higher and to other responding organizations (Hershiser & Bobb,

1973; Quarantelli, 1978), that is inter-operable (Katirai & Simpson, 2008), redundant (Adams, 1965; McEntire, 1998; Moore, et al., 1963;), and is continuous, based upon procedures, sufficient in detail, and begun well in advance of disaster response (Brouillette, 1966). Extensive networking is needed, along with a wide distribution of information to all organizations (McEntire, 1999). Open, two way communication is especially important to effective local disaster response (Buckland & Rahman, 1999). Public organizations in particular have a need for the capability to search, exchange, and distribute information, with a feedback loop to ensure it is effective (Corbacioglu & Kapucu, 2005).

Roles and Responsibilities

The third dimension of interdependency is the problem of roles and responsibilities (Brouillette, 1966; Dynes, Haas, & Quarantelli, 1964; Kiefer & Montjoy, 2006; McLuckie & Whitman, 1971; Mileti & Sorenson, 1987; Ponting, 1970; Quarantelli, 1978; Yutzy, 1964). Some organizations may be reticent to coordinate because it obligates them to other organizations to conduct specified tasks or duties, or they may be fearful that it will redefine their organization's tasks and roles (Ponting, 1970). There can be a general lack of understanding between organizations over who does what tasks (Haque, 1999), or lack of agreements over the division of labor (Dynes, Haas, & Quarantelli, 1964). This lack of understanding can lead to divergent views of what other organizations do or can do (Quarantelli, 1978). Simple knowledge of other organizations' tasks is not sufficient. The conditions under which they will execute or not execute tasks are also important (Quarantelli, 1978). Forcing organizations to take on tasks is counter-productive and will break down collaboration, as can the inability to see partner organizations carrying out their commitments (Kiefer & Montjoy, 2006). Autonomy maintenance is important

since loss of some autonomy is a requisite for participation in a network (Denis, 1995; Mileti & Sorenson, 1987).

Solutions to the problem of roles and responsibilities include creating functional limits and allocating authority and responsibilities (Yutzy, 1964); preplanning for clear lines of authority between organizations and task roles and responsibilities (Dynes, Haas, & Quarantelli, 1964; Mileti & Sorenson, 1987); defining roles, responsibilities, and expectations of other organizations to include the perceived functions of each organization (Brouillette, 1966; Mileti & Sorenson, 1987); a full understanding of each organization's capabilities and services (McLuckie & Whitman, 1971; Mileti & Sorenson, 1987); a need to know what other organizations can do so that their capabilities can be used during the disaster response (Mileti & Sorenson, 1987; Rosow, 1977); the development of unique roles and responsibilities that build the capacity of organizations to collaborate (Patterson, 2003); a break-down of the functions and lines of authority in conjunction with a need to verify what you think other organizations will actually do in response to a disaster (Kiefer & Montjoy, 2006).

Planning and Exercises

The fourth dimension of interdependency is the need to conduct pre-disaster planning and exercises (Adams, 1969; Comfort, 1996; Denis, 1995; Dynes, Haas, & Quarantelli, 1964; Hannigan & Kueneman, 1974; Heffron, 1977; Katirai & Simpson, 2008; Kiefer & Montjoy, 2006; Mileti & Sorenson, 1987; Ponting & Quarantelli, 1973; Rosow, 1977; Stephens, 1993; Waugh & Streib, 2006;). Early on in disaster research, just having a plan was deemed important (Brouillette, 1966), and that it be practiced and disseminated (Adams, 1969; Dynes, Haas, & Quarantelli, 1964). The need for a plan and its rehearsal was further refined with the idea that yearly exercises with key agencies should be conducted (Ponting & Quarantelli, 1973); that it

should provide definitions of tasks and that there should be both vertical and horizontal planning (Hannigan & Kueneman, 1974); and that it should be routine and exercise key scenarios (Rosow, 1977). The plan as an end in itself was superseded when it was defined as a process that was more important to over-all coordination (Dynes, Quarantelli, & Wenger, 1988). The need for disaster planning was extended to include mutual aid agreements (Stephens, 1993). The development and widespread use of computers led to a call for computerized simulations to conduct education and training (Comfort, 1996). The fight against vague and non-specific planning continues today with a call for more imaginative exercise scenarios to identify problems ahead of disasters, and to widely share the results in order to promote inclusiveness of all stakeholders (Kiefer & Montjoy, 2006).

Inhibitors

The last dimension of interdependency is inhibitors. Inhibitors to collaboration generally fall into five categories: 1) perceptions, 2) laws, policies, and processes (rules), 3) organizational structure, 4) boundaries, and 5) cost. Perceptions are mental barriers that can block collaboration because other organizations can be seen as rivals, moving in on another organization's missions and tasks (Quarantelli, 1978). The issue of perceptions falls under the element of culture previously discussed. Laws have been found to obstruct collaboration (Kueneman & Hannigan, 1974), as have authority conflicts (Forrest, 1970). On the other side of the issue, collaboration actually increases the individual organization's access to government law makers and assists in shaping law and policy (McEntire, 1998). In addition, organizations can have policies and procedures that conflict with other organizations and thus decrease the ability to collaborate (Heffron, 1977). Organizational structure can obstruct collaboration (McLuckie & Whitman, 1971; Kueneman & Hannigan, 1974) as well as the slow, bureaucratic nature of some

government agencies (Heffron, 1977). Jurisdictional boundaries have been found to inhibit collaboration by causing conflicts that must be resolved before disaster effects can be addressed (Dynes, Haas, & Quarantelli, 1964; Hannigan & Kueneman, 1974; Yutzy, 1964). Early on in the study of disaster response, it was understood that in order to be effective, conflict resolution protocols were needed (Yutzy, 1964). The problem of boundaries includes jurisdictional overlap which has been a motivating factor for organizations to more closely coordinate in order to reduce redundancies (Dynes, Haas, & Quarantelli, 1964; McEntire, 1998; Ponting, 1970). In one instance, the solution was to organize non-governmental organizations along governmental geographic boundaries which led to less friction (Dynes, Haas, & Quarantelli, 1964).

The last inhibitor is cost—it is not free to collaborate. There is a cost for networking, and a need for in-depth negotiation and adjustments by all the organizations participating (Kiefer, & Montjoy, 2006). It takes time and effort to build and maintain relationships.

Interdependency Summary

The disaster literature related to interdependency suggests that to understand the degree to which response is likely to be collaborative in a disaster, the following issues would need to be assessed pre-disaster:

- a) To what degree does an organization belong and participate in a larger coordinating body?
- b) To what degree does an organization have vertical and horizontal communication with other disaster response organizations?
- c) To what degree has an organization clearly defined their roles, responsibilities, and functions relative to other organizations in the response effort?

d) To what degree does an organization conduct joint planning and exercises with other organizations?

e) To what degree has an organization addressed inhibitors to conducting collaboration with other organizations?

Conclusion

The disaster case studies reviewed span over six decades and a wide range of disasters across the United States. Despite the differences in the hazard events, vulnerabilities, or geographic locations involved, at least one universal theme in response has been the need for organizations to collaborate, or as defined in this paper, to get along. Out of this range of disaster case studies, four very clear factors and a number of related sub-dimensions emerged that seem to be related to the extent to which organizations get along. These factors showed up time and again in study after study. Chapter Four will address how this information can be of value to both practice, policy, and theory.

CHAPTER FOUR: CONCLUSION

The nature of disasters requires that people and organizations work together in a way that they do not normally. The disaster literature suggests that effective response involves the organizations involved “getting along with one another” while, ideally, also accomplishing response tasks in synchrony. Unfortunately, there is a long history of ineffective inter-organizational response efforts in the United States. Policymakers and scholars have repeatedly identified problems with organizations getting along and achieving synchronous task completion. The reaction to both sets of problems has been to say that the problem they have identified is also the solution—“you all do not get along, so, get along and things will be better next go ‘round.” Policymakers typically try to facilitate this solution by developing new policies intended to correct the problems that are similar to previous policies while scholars have been unhelpful by labeling the problems with different terms and not clearly articulating the conditions that must exist to avoid them.

This paper used the term collaboration as the conceptual label for one of the problem aspects of response—organizations getting along. Using this simple definition allowed the researcher to distinguish it from the other commonly referred to response problem (i.e., the conduct of response tasks in a synchronous fashion – or coordination). Adopting this simplistic definition of collaboration also facilitated an inductive review of the disaster literature to ascertain what factors need to exist pre-disaster for organizations to get along during disaster response. Using this definition, four major factors that lead to collaboration were identified including leadership, relationships, culture, and inter-dependency. In addition, the case studies and quick response reports identified a number of sub-dimensions associated with each factor. The disaster literature would suggest that organizations involved in response are likely to

collaborate so long as all of them evidence these four attributes and their associated elements pre-disaster.

Implications for Response Organizations

These findings have a very practical use to all types of response organizations. Pre-disaster, practitioners in all types of response organizations can use these findings to analyze their own operations through a collaborative lens. For small organizations or non-profit groups, this type of self-analysis is a cost-effective alternative compared with on-staff experts or expensive consultants. In addition, it is not especially time consuming or personnel intensive. Hiring consulting experts may be beyond the means of these organizations, so a do-it-yourself approach using a checklist composed of the questions included in Chapter Three is a practical solution. These questions could form the basis for a simple checklist to use while planning, conducting internal training, prior to exercises, and for after action reviews. It could be implemented by one person in the organization who has a good, overall understanding of the organization's operations and culture, and it could be conducted incrementally. Findings from a checklist review could be incrementally addressed over time, and changes made gradually.

Take, for example, a military unit identified to support civil authorities in disaster response. Typically, only a few key leaders could expect to attend a formal Army school designed to teach inter-organizational support in a disaster environment. Even for those attending, only a very superficial over-view of the importance of collaboration, as it has been defined here, would be touched upon—lacking would be a review of what brings about collaboration including the factors discussed in Chapter Three. A key leader at any level of command in the U.S. Army Reserves could take these elements and apply them to their own staff and command. One of the ways suggested to use this information is as a checklist for after action

review after participation in an exercise, which military units do on a routine basis. An after action review typically begins with an overview of the scenario, what was supposed to happen, and, then, what actually happened.

The leadership elements could be applied by examining the actions of the military commander. Did he/she have pre-existing contact with other exercise participants? Did they personally participate in the preparations for the exercise, or did they just show up for the execution? The literature suggests that collaboration is greater when leaders involve themselves earlier in a personal manner. In regard to legitimacy, it is apparent that military command has legitimacy through rank and position (as commander). Too often, military commanders may assume that civilian agency leaders will automatically recognize this authority as other military members do – this may be a wrong assumption. The military commander must establish his/her appropriate authority within the inter-organizational setting. As the military is a support organization in the National Response Framework, it is important that they acknowledge their support position and operate from a position of service and humility and not one of command and control over the larger group. Did the Commander meet with civilian authorities prior to the exercise? Did they meet with political authorities? Who did they meet with and when, how many times and what were the outcomes? Did they create a positive image of their military unit and what capabilities it could bring to the disaster response? How did the Commander create that positive image?

Next is the factor of style. Did the Commander act domineering or controlling? This might be the typical behavior and stereotype of a military commander, but it is inappropriate in an inter-organizational setting. What is the feedback from other organizations in the exercise? Was the military unit a good partner? How was the Commander flexible during the exercise?

Was he/she able to be innovative? Did they adhere strictly to the plan or did they allow for subordinates to adapt to changing conditions as the exercise changed? How well did the Commander balance his/her authority against the need for subordinates to exercise freedom of action?

The next elements of leadership are expressing shared meaning and heedful inter-relating. Did the Commander address his/her unit prior to the exercise and convey why it was important and explain his/her unit's role in the exercise? Did back briefs and spot checks with Soldiers confirm that everyone understood the mission and Commander's intent for the exercise? Did the Soldiers understand the end-state (goals of the exercise) and the key tasks for their unit and the exercise as a whole? Was a common operating picture created in conjunction with other exercise participants? Did everyone participating understand the priorities at each stage of the exercise? How did unit members aid or inhibit this common understanding? How did the Commander ensure that his/her Soldiers had this understanding? Were special or unique processes used or were standard operating procedures in place that ensured a common understanding: Did the Commander exhibit behaviors that instilled confidence? Did he/she get out and personally advocate for collaboration when inspecting operations? Did the Commander make personnel assessments and observations on progress or problems associated with working with inter-organizational partners? Did the Commander set priorities that were aligned with the larger mission and the inter-agency partners? Did the Commander have a good over-all knowledge of partner capabilities and attempt to integrate them with his/her own units operations or vice versa? Did the Commander effectively communicate to junior leaders the capabilities and authorities of partner organizations to aid in their ability to collaborate at all levels?

Lastly, how did the Commander embody the personal traits necessary to create collaboration? Did the Commander hold past positions that gave him/her credibility or have experience in an interagency or inter-organizational environment? Did the Commander inspire Soldiers to be good partners? How so? Was the Commander proactive in ensuring Soldiers were responsive to inter-organizational partners and not just their chain of command? Did the Commander remain calm and maintain a sense of confidence and assurance? Lastly, how did the Commander react to unexpected situations? How did the Commander respond to behaviors and processes that were counter to collaborative action? Were proactive actions taken? Did the Commander break down barriers to conducting collaborative operations?

These are the types of questions that can quickly and without much effort be incorporated into a standard military after action review. See a sample checklist with these questions related to leadership the Appendix. All four of the factors of collaboration could be incorporated into this process in a similar fashion as the leadership elements discussed above. This type of after action review could be conducted as a group within the military unit over the course of a couple hours, or these questions could be distributed among Soldiers who participated in a paper format and turned in with the answers tabulated and analyzed for lessons learned. This information could be carried over to a broader audience of all exercise participants or an inter-organizational key leader after action review to share with them the insights and to gather feedback from their points of view.

Results from this sort of exercise examination could be incorporated into organizational short-, medium-, and long-term goals to move the organization methodically towards greater collaborative actions and tendencies. Short-term goals might include updates to standard operating procedures, sharing results with unit members to increase learning from the exercise,

and more frequent planned inter-organizational contacts. Medium-term goals would include incorporating these lessons learned into future exercises and future unit training, establishing key relationships found to be lacking, and improving inter-organizational communication channels. Long-term goals would include identifying institutional training needed among leaders and unit members, recommendations for future doctrine changes, and updates to the Army Disaster Response Handbook, and the creation of future graphic training aids.

While the four factors can and should be applied broadly across organizations, their most potent value may be as a tool in examining the leadership. Leadership stands out in this study as a special category that touches on each of the other factors. It is leaders who provide a vision, who determine the mission and goals of the organization. Organizations cannot begin to attempt to be collaborative without the leadership explicitly or tacitly endorsing such a posture and attitude. In fact, the literature specifically cites leadership as an obstruction to collaboration when it seeks to protect the organizational boundaries that exist in steady state (non-disaster) operations. It is leaders who must foster key relationships with other organization's leaders. It is leaders who most effectively build trust with other organizations, creating the opportunities for interaction both on a formal and informal basis. Finally, it is leaders who recognize interdependencies with other organizations and guide the culture of the organization to accept and embrace these interdependencies as strengths and not weaknesses.

Policy Implications

The findings of this paper have clear emergency management policy implications. Several case studies clearly identified jurisdictional constraints to collaboration such as differences in statutory responsibilities. These types of constraints can be found at all levels – local, state, and federal. To the greatest extent possible, policy makers must understand the

collaborative necessity of disaster response and fashion ordinances, laws, and policy that will encourage collaborative action and not inhibit it. Policymakers at the state and federal level will be challenged to create flexible laws to use during emergency periods that allow for the dynamic relationships, and inter-organizational adaptation that is necessary for an effective response. This is no easy task as these problems have been termed ‘wicked’ in the research literature (Agranoff, 2006, p. 63) because their nature defies easy solutions. The findings of this paper could be used by local authorities much like other response organizations as a checklist for self-review. County Emergency Managers could use such a checklist to review local ordinances for inhibitors to collaboration and inform local city government officials and planners on specific recommendations as to how to improve the ordinance allow the collaboration of key stakeholders. Although the scope of this paper focuses on the collaboration of response organizations, the issue of collaboration applies to all phases of disaster—mitigation, preparedness, and recovery. In all four phases of disaster, collaboration of stakeholders is a key ingredient to effectiveness.

Theoretical Implications and Directions for Future Research

The present paper meaningfully integrates the vast backlog of descriptive studies generated over the years as Perry (2005) argues is important and, as Jensen (2013) has argued is necessary to synthesize part of the existing body of disaster research to support education and research in emergency management. This paper has offered a simple definition for the concept of collaboration and used it to identify four categories of variables the disaster case study literature suggests are relevant to bringing collaboration about during disasters. Disaster researchers must now utilize these factors in future studies. Quantitative studies are needed to further our understanding of collaboration. Studies using these methods are ideal for a study of

collaborativeness between organizations due to the large number of people and organizations involved in disaster response. While qualitative methods might yield important findings, it would be cost prohibitive to conduct this type of research on anything but a small sample of organizations. Even with quantitative methods, it might be cost prohibitive to study the range of people and organizations involved in disaster response. Perhaps it would be easiest and also useful to focus on studying the leadership of responding organizations as opposed to their managers and rank and file as an initial step.

The factors identified, and their various sub-dimensions, are well-suited for quantitative research; specifically, they might be operationalized and tested as indexes and rigorously in a survey tool and examined for validity and reliability. The definition offered for collaboration can also be explored and its associated sub-dimensions clearly articulated and tested in index fashion as a dependent variable. The relationship of the various independent factors to the dependent variable of collaboration should be tested as should their relative influence. It will be a challenge going forward to assess to what degree the various factors have on the collaborative response as well as the extent to which collaboration itself has on the overall disaster response (McGuire, 2006). The present paper has made the challenge facing researchers exploring collaboration easier through its identification of factors; and, it has set the stage for the development of a theory of collaboration.

Conclusion

The study of collaboration in the context of disaster response is just beginning. The history and study of inter-organizational action in disaster response has slowly and steadily informed our discipline's appreciation for the critical importance nature of collaboration. Today, the uses of on-line social networking tools are making collaboration easier and more effective

than ever before (White, Plotnick, Kushma, Hiltz, & Turoff, 2009). The concept of community response grids (Jaeger, et al., 2007) described an exciting convergence of mobile technology and the internet that in the future would allow for widespread collaboration in a disaster response environment through real-time sharing of information, communication, and the coordination of activities. An open source tool called Ushahidi, a mere five years ago relevant only in the realm of academia, was implemented during the Haiti Earthquake in 2010 by a group of unaffiliated volunteers to map tweets and other data. During the response, Federal Emergency Management Agency Administrator Craig Fugate called it the “the most comprehensive and up-to-date map available” (Greenberg, 2013, p. 1). Today crisis mapping is a hot topic among practitioners as these tools are being refined and designed for non-experts to use and employ. This technology may revolutionize the practice of emergency management as it moves mapping, information gathering, and analysis historically associated with Emergency Operations Centers, and their technical experts, and putting it in the hands of practitioners and emergency managers in the field.

Geographic information systems crisis-mapping software will certainly assist organizations as they collaborate, but it is still incumbent upon researchers to enumerate the factors involved in collaboration and their various influence and then the emergency management community of practice to seek to foster the key factors pre-disaster. Our understanding of the elements of effective disaster response and our ability to reduce death and damages may well be in direct proportion to our understanding of, and ability to bring about, the elements of collaboration.

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APPENDIX: CHECKLIST OF LEADERSHIP DIMENSIONS

Leadership dimensions	Comments/notes
Legitimacy	
Did the leader(s) have pre-existing contact with other exercise participants?	
Did the leader(s) personally participate in the preparations for the exercise?	
Did the leader(s) meet with civilian authorities prior to the exercise?	
Did the leader(s) meet with political authorities prior to the exercise?	
Did the leader(s) create a positive image of their military unit?	
Did the leader(s) brief other participants on their units' capabilities?	
Style	
Did the leader(s) act domineering or controlling?	
Was the military unit a good partner?	
Was the leader(s) flexible during the exercise?	
Was leader(s) innovative?	
Did leader(s) strictly adhere to the plan?	
Did the leader(s) balance their authority against the need for subordinates to exercise freedom of action?	
Shared meaning/common vision	
Did the leader(s) express the importance of the exercise to their unit?	
Did the leader(s) explain their unit's role in the exercise to the Soldiers?	

Leadership dimensions	Comments/notes
Did back briefs & spot checks confirm an understanding of the mission and commander's intent for the exercise?	
Did Soldiers understand the end-state (goals of the exercise)?	
Did Soldiers understand the key tasks for their unit and the exercise over-all?	
Was a common operating picture created in conjunction with other exercise participants?	
How did unit members aid or inhibit this common understanding?	
How did the leader(s) ensure that his/her Soldiers had this understanding?	
Were special or unique processes used or were standard operating procedures in place that ensured a common understanding	
Did Soldiers understand the priorities at each stage of the exercise?	

Instrumental actions

- Did the leader(s) exhibit behaviors that instilled confidence?
- Did leader(s) get out and personally advocate for collaboration when inspecting operations?
- Did the leader(s) make personnel assessments and observations on progress or problems associated with working with inter-organizational partners?
- Did the leader(s) set priorities that were aligned with the larger mission and the inter-agency partners?
- Did the leader(s) have a good over-all knowledge of partner capabilities and attempt to integrate them with his/her own units operations or vice versa?

Leadership dimensions	Comments/notes
Did the leader(s) effectively communicate to junior leaders the capabilities and authorities of partner organizations to aid in their ability to collaborate at all levels?	

Personal traits

Did the leader(s) hold past positions that gave credibility?

Did the leader(s) have formal training in disaster response?

Did the leader(s) have experience in an inter-organizational environment?

Was the leader(s) proactive in ensuring Soldiers were responsive to inter-organizational partners and not just their chain of command?

How did the leader(s) react to unexpected situations?

How did the leader(s) respond to behaviors and processes that were counter to collaborative action?

Did the leader(s) exhibit proactive behaviors in regard to partners?

Did the leader(s) break down barriers to conducting operations with partners?

What is the feedback from other organizations in the exercise?
