SOCIAL CAPITAL AND PREPAREDNESS: KEY CONCEPTS AND RECOMMENDATIONS

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ABSTRACT

This paper reviews and synthesizes the research surrounding social capital and its implications and applications for disaster preparedness and response. The purpose of this effort is to focus and synthesize the many ways social capital can be leveraged by emergency management practitioners to increase preparedness and response performance. The literature review provides contextual underpinnings for recommendations within five strategic domain areas. These recommendations are intended to deliver actionable steps that emergency management practitioners can use as they prepare for and respond to disasters.

Keywords: Social Capital, Preparedness, Policy Guidance, Emergency Management

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CHAPTER 1: INTRODUCTION

The emergency management body of knowledge can fairly be characterized as: dispersed across a multitude of disciplines; rife with methodological, theoretical, and conceptual challenges; and, replete with gaps. This is the case because the emerging discipline is young and dedicated emergency management scholars few. Much of the emergency management literature to date has come from disciplines such as geography, sociology, psychology, public administration, political science, and other similar well-established disciplines. This has challenged emergency scholars to assimilate research from many disciplines in an effort to synthesize existing research and to identify the gaps in research. While efforts to identify the literature rightly within emergency management's body of knowledge have been underway for a couple of decades, they have been slow to materialize (Mileti, 1999, p. 11-15).

Navigating the difficulties inherent to the emergency management body of knowledge requires substantial access to databases, libraries, and sources, as well as an appreciation of where to look to find this literature. Such navigation requires money and time to traverse which puts it outside the reach of many emergency management practitioners. This creates a knowledge gap between those who study emergency management and those who practice it. This gap includes literature relevant to the ways in which practitioners might leverage social capital to increase citizen preparedness and inform response efforts. Research in this area demonstrates the ways in which basic elements of human social behavior (like trust, social structures, and personal bonds) can be strategically leveraged to advance emergency management efforts focused on preparedness and response.

The primary objectives of this effort are to provide: 1) a foundation for understanding social capital and networks in emergency response; 2) clear strategic guidance in preparedness

that leverages social capital and networks; and, 3) ample and clear evidence in support of strategic guide.

This effort places relevant literature into five strategic domains with the intent of creating an easy to use strategy guide grounded in research for emergency management practitioner use (see Appendix A). The strategic domains focused on in the strategy guide are:

Distributed Disaster Messaging Pre-Event; Stakeholder Engagement; Planning for the Socially Integrated Response; Organizational and Individual Trust, and Network-deepening Activities; and, Warnings and Information Dissemination. This strategy guide contains specific recommendations and corresponding benefits for each strategic domain drawn from a review of the literature. The strategy guide contains the citations from which the recommendations are drawn. This allows the reader to refer to the specific literature that grounds the recommendations. By presenting the research findings in this way, the material is made more easily accessible and increases ease of use for emergency management practitioners.

The strategy guide was intentionally formatted to afford emergency management practitioners the knowledge needed to support the implementation of research-based activities intended to further their preparedness and response efforts. The strategy guide coupled with the literature review herein is intended to supply emergency management practitioners the ability to further communicate the application and value of these evidence-based actions to others.

A quick scan of the strategy guide (see Appendix A) before moving to the literature review will bring greater depth and understanding of the relevance and potency of the guide. The strategy guide has five columns under which each recommendation is identified and examined. The first column is the strategic sub-domain as identified by the literature. Second, column is the strategic rational driving the potential tactical approaches listed in the next column (3). Lastly,

benefits are presented in column four and sources are presented in column five. Much of the literature reviewed is not included in the strategy guide because only a small selection of articles featured actionable findings or suggestions. Notwithstanding, the information in the literature review provides valuable and necessary context to the strategy guide.

CHAPTER 2: LITERATURE REVIEW

This literature review explores the research relevant to preparedness and response in the domain areas laid out in the strategy guide. The importance of having a social network and social capital is explored first through the response literature and then through in the preparedness literature. Before these topics are addressed, it is necessary to discuss what is known about human behavior in disasters and to define social capital and social networks.

2.1. Assumptions in Human Behavior

Reviewing what is known about human behavior during disasters is a necessary step in exploring subsequent research. Too often, the strongly-grounded evidence on this topic is not used to ground planning efforts or decisions. The unfortunate reality is that many emergency management practitioners assume the individual has no role in response (Dynes, 1994; Helsloot & Ruitenberg, 2004; Scanlon, Helsloot & Groenendaal, 2014). This assumption could not be further from the truth. Individuals perform the overwhelming majority of the work in response (Dynes, 1994; Helsloot & Ruitenberg, 2004; Kruke, 2015). Moreover, they do so in an orderly, effective, and altruistic manner (Lowe & Fothergill, 2003; Helsloot & Ruitenberg, 2004; Scanlon, Helsloot & Groenendaal, 2014; Kruke, 2015).

2.1.1. The Myth of Idleness and Antisocial Behaviors

The myths of idleness and antisocial behaviors are perhaps the most essential misconceptions to debunk for the purposes of advancing emergency management practice in this area. Individuals' involvement in disasters has been well-documented across years of disaster research, from Samuel Prince's retelling of the Halifax explosion in 1917 (Prince, 1920), through the rise of Civil Defense, and the efforts of the Disaster Research Center (Wachtendorf & Kendra, 2004). Indeed, so pervasive is the research focus on individual participation in disasters

that to completely cover the topic would require examining almost the entirety of the response literature.

This section is limited to a review of the literature focused specifically on the myths of idleness or antisocial behavior. Many of the assumptions about human behavior stem from an underlying military mindset that has existed in emergency management since its inception (Dynes, 1994; Baker, 2016). They are the byproduct of the pervasiveness of military perspectives and "command and control attitudes" to social imagination and negative media coverage (Dynes, 1994). Planning with such assumptions places the emphasis on emergency management objectives on "regaining control" and "commanding." These objectives center around the idea that social order is disrupted during a disaster. While institutions and the physical environment may be disrupted, research shows that social order will remain and, in many cases, exist in a more altruistic state following disaster (Yutzy,1970; Dynes, Quarantelli & Kreps, 1972; Dynes, 1994; Wachtendorf & Kendra, 2004).

Planning with the assumption that the social order will be disrupted produces an emergency management planning process rooted in social control (Baker & Ludwig, 2016) rather than in facilitation. This results in less effective emergency management practice based on faulty paradigms. The extent to which the assumption of idleness and the paradigm of social control (i.e., curbing anti-social behavior) affects emergency management can be far reaching and result in resources being utilized ineffectively. Activities in preparedness are particularly likely to be affected by this paradigm as much of what is encouraged in regard to citizen preparedness is based upon the expectations associated with citizen behavior during response. Research suggests that there is a fundamental disconnect between how citizens view their actions and capacity in response versus how emergency managers view their actions and capacity

(Baker, 2016). The activities and objectives encouraged by emergency managers to increase

citizen preparedness often assumes that the public they seek to influence is "complacent" and

"potentially threatening" following a disaster (Dynes, 1994; Baker, 2016).

Preparedness actions based on false assumptions treat the populace as vulnerable,

inactive, and in need of formal assistance in order to function even at a basic level (Baker &

Ludwig, 2016). Activities, such as having a 72-hour kit, demonstrates this mindset by assuming

that most people will just sit and wait for formal assistance (assistance that could take 72 hours

to arrive) (Federal Emergency Management Agency). While public safety officials tend to

undersell the engagement of the civilian populace in a post-disaster context, civilians have been

shown to assume their own involvement (Dynes, 1994; Baker, 2016). This citizen-based

capacity can be threatening to those who operate under assumptions of social control (Baker,

2016):

> "The public capacity for emergence in disasters and in turn, unpreparedness, is viewed as
> threatening and implies a disintegration of social order that preparedness upholds. Some
> of the rationale for this is supported in the notion that preparedness has narrative
> structures that serve to reduce uncertainty that the acceptance of emergence and non-
> planning can't really accomplish within the current paradigm (p. 14)."

The assumption that citizens will be idle, and exhibit potentially anti-social behaviors has

been the source of much research. Exposing such disaster myths has been a foundational pursuit

of key researchers in emergency management (Dynes, 1994; Fischer, 1998). Understanding what

is fact and what is fiction can facilitate more effective planning and operations.

The literature addresses these myths and the underlying assumptions. The myth that

individuals are idle, useless, or do not participate stems from an assumption that the social order

will degrade following a disaster. According to Dynes (1994), the assumption that panic,

antisocial behavior, and irrational conduct will follow disasters is at the root of these myths.

Operating within the framework of these assumptions produces an emergency management planning process rooted in social control (Baker & Ludwig, 2016) rather than in facilitation. Each of these assumptions has been studied at length and each has been disproven.

The most pervasive assumptions that underlie behavioral myths in disaster are focused on widespread looting, panic, shock and inaction (Dynes & Quarantelli, 1972; Quarantelli, 1994; Fischer, 1998; Helsloot & Ruitenberg, 2004; Sun, 2012; Baker & Ludwig, 2016). Widespread looting has been observed as an extremely rare occurrence often catalyzed by pre-existing social factors (Dynes & Quarantelli, 1972; Quarantelli, 1994; Fischer, 1998; Sun, 2012). Panic, too, has been disproven and has been found to be nearly non-existent; rather, rational action is the documented norm during times of disaster (Dynes & Quarantelli, 1972; Quarantelli, 1994; Fischer, 1998; Helsloot & Ruitenberg, 2004; Sun, 2012; Baker & Ludwig, 2016;). Similarly, shock has been found to be a faulty assumption (Fischer, 1998; Helsloot & Ruitenberg, 2004; Sun, 2012). Finally, the notion of citizen inaction has likewise been disproven with robust documentation of citizen involvement in response evident across the emergency management literature (Dynes & Quarantelli, 1972; Quarantelli, 1994; Fischer, 1998; Helsloot & Ruitenberg, 2004; Sun, 2012; Baker & Ludwig, 2016;).

2.1.2. Situational Altruism: The Character of Collective Response

One of the research cornerstones exploring citizen behavior in disaster is *"Situational Altruism: Toward an Explanation of Pathologies in Disaster Assistance"* by Russell Dynes (1994). Dynes coined the term "situational altruism", to capture the phenomenon surrounding citizens' predictable and altruistic responses following a disaster. This phenomenon emerges as a result of several key catalysts. Understanding the catalysts of situational altruism can help

emergency management practitioners predict, assist, and plan more effectively for public responses.

The catalysts of situational altruism often revolve around shifting social norms. As situations change, norms or social expectations and behaviors adapt to suit new conditions (Quarantelli & Dynes, 1968; Weller & Quarantelli, 1973; Tierney, 1980). Hence, emergent norms give rise to situational altruism. Dynes explored the ways in which disasters affected the social landscape and gave rise to situational altruism (1994). Most simply put, Dynes described it as a shift in the definition of the situation – a recognition that "normal" has changed (Dynes, 1994). Disasters bring about a wide array of changes, from institutional to individual, and it is these changes that disrupt the "normal" and force a redefinition of the situation. A good example of this is how media shift gears, change their language, and focus on different things relative to pre-disaster conditions (Pantti, Wahl-Jorgensen & Cottle, 2012). This departure from normal attitudes and perceptions is a key characteristic of changing norms. Understanding the ways in which these new norms emerge in regard to disasters can help emergency management practitioners recognize and leverage these emergent norms.

Situational altruism typically follows patterns in duration, structure, and behavior (Dynes, 1994). These characteristics, if well understood, are key to the positive application of this social phenomena. Of note, emergent norms and situational altruism are typically short in duration (Dynes, 1994; Wachtendorf & Kendra, 2004). The response and short-term recovery periods will see the rise and decline of these new norms (Dynes, 1994). During this short period, collective behavior and decision making in the community undergo significant changes. Emergency consensus (Yutzy,1970; Dynes, Quarantelli & Kreps, 1972) is a collective decision-making process present during disasters. This collective alignment and adjustment of priorities drives

community efforts toward the safety and care of victims and very little else (Dynes, 1994; Wachtendorf & Kendra, 2004). In addition, changes in social structures take place. This results in a dynamic array of social and organizational adjustments designed to meet the needs present in a disaster. Further, emergent groups will rise to meet needs, kinship aid and networks will be heavily leveraged, existing organizations will expand and repurpose capacities, volunteerism will rise dramatically (Dynes, 1994; Scanlon, Helsloot & Groenendaal, 2014), and social networks will be created and expanded to cope with disaster conditions (Wachtendorf & Kendra, 2004; LaLone, 2012).

A firm understanding of social phenomena following disasters is essential to planning for, and responding to, them effectively. Emergency management practitioners cannot command or control the socially integrative response. Emergent behavior during disasters is a product of social evolution and one purposed toward the preservation of human life (Piliavin & Charng, 1990). Emergency management practitioners are best served by recognizing these pro-social behaviors as an asset that furthers their objectives to protect the citizenry and community.

2.2. Emergence: The Socially Integrated Response

With the recognition that citizens will in most situations participate positively in response (Tierney, Lindell, & Perry, 2001; Wachtendorf & Kendra, 2004), the opportunity and mechanisms by which to leverage said participation is relevant to successful emergency management practice. Encouraging citizen participation can help create a stronger and more robust response that benefits the community. This participation, often termed "emergence" in the literature, constitutes one of the most vital and pro-social elements of pubic behavior in a post-disaster context.

Researchers have long studied human behavior following disasters (Perry, Lindell, & Tierney, 2001). The emergence of "helping behaviors" in the civilian populace has been documented time and time again across various hazards, contexts and cultures (Tierney, Lindell, & Perry, 2001; Wachtendorf & Kendra, 2004). Emergence is a catch-all term describing behaviors such as: volunteering, spontaneous organization, and other helping behaviors that surface following a disaster. This citizen behavior in response, also called the "Socially Integrated Response" (Helsloot & Ruitenberg, 2004; Barnett & Flint, 2005; Scanlon, Helsloot, & Groenendaal, 2014; Kruke, 2015), has been shown to contribute in significant, essential, and unexpected ways, augmenting and even replacing formal response efforts. For example, a significant portion of all search and rescue operations are performed by people immediately on scene—the public (Helsloot & Ruitenberg, 2004; Barnett & Flint, 2005; Scanlon, Helsloot, & Groenendaal, 2014; Kruke, 2015). Several incidents, like the 1995 earthquake in Kobe, Japan, illustrated that citizens were not only the first to start response activities, but in the case of search and rescue, they handled things almost entirely on their own (Scanlon, Helsloot & Groenendaal, 2014). Citizens' engage in a variety of tasks bring specific advantages with their efforts. The significance of their engagement has been specifically noted and chronicled in large major events such as Hurricane Katrina and 9/11 (Lowe & Fothergill, 2003; Hawkins & Maurer, 2009).

Responding publics carry with them a series of irreplaceable and unteachable advantages as they pursue response actions. One study that examined community response after Hurricane Katrina inventoried the advantages that citizens bring to bear in a disaster: "local knowledge, action, participation, and control in determining the nature of disaster response" (Brennan, 2005, p. 2). These advantages can be vital in disaster responses, such as Hurricane Katrina, in which local knowledge was needed to aid non-local assistance (Brennan, 2005). Yet, as noted by

Brennan, many of the advantages were not used to their full advantage, and, in some cases, were in fact, hindered by the formal response (2005). Activities such as search and rescue, transportation, organization, volunteerism, and responding to unmet needs are forms of emergence (elements of the public's response) that will happen regardless of how the formal response system operates. The disadvantage to emergency management practitioners of letting emergence go unrecognized is missing the opportunity to plan and prepare to leverage and assist it (Brennan, 2005).

The post-9/11 response relied greatly on unsolicited and informal efforts by citizens and others outside the jurisdiction of the event (Lowe & Fothergill, 2003). One surprising characteristic of this public response was its apparent ability to adapt and utilize creative capacities to a greater degree than even the formal response could muster (Lowe & Fothergill, 2003). First responders have training, procedures and a command structure to draw upon in response; the public response typically has none of these and instead relies heavily on innovation to meet needs. During the 9/11 response, creativity was evident in the public's engagement. Even though the public lacked the knowledge and training of formal responders, they were able adapt a diverse set of capabilities to meet the challenges they faced (Kendra & Wachtendorf, 2003; Lowe & Fothergill, 2003).

Fundamental assumptions of human behavior, its characteristics and benefits during disaster are foundational to the discussion undertaken in this effort. The remainder of this literature review will focus on how social networks and social capital interact with response initiatives. The ways in which positive traits can be cultivated using various preparedness tactics are also examined.

2.3. Social Capital

Social capital has a long and diverse history. As early as 1916, sociologists began to realize the importance of community and those social phenomena that created it (Hanifan, 1916). Other "capitals" - such as human and financial capital - presented scholars with clear ways to conceptualize how resources in a community could be leveraged. Social capital evolved through the 1950s, 60s and 70s (Putnam, 2000) until finally in the 1980s, a sociologist named James Coleman popularized the concept through his work in education (Coleman, 2000). Since Coleman's popularization of the concept, social capital has been applied in fields such as community development and emergency management. Although this principle can apply to individuals as well as collectives, much of the research has focused on social capital in a community context. To better understand social capital, what it means, and why it is relevant to emergency management, the principle must first be clearly defined.

Choosing the most applicable definition of social capital is a challenge as many definitions exist. Earliest definitions of the concept center around the individual's interactions with social units like the family, exploring such issues as sympathy, trust and good will (Hanifan, 1916). Coleman's (2000) definition too focuses on issues of trust and networks but is far more concerned with how social capital acts as a driver of action for individuals and collectives. Robert Putnam, a political scientist from Harvard University, provides the definition most relevant to this discussion (2000). Putnam's definition encompasses both individual and community level analyses in defining social capital as "features of social organization, such as networks, norms, and trust, that facilitate coordination and cooperation for mutual benefit." (2000, p. 67). The applicability of this definition to both the individual and community level

affords the level of flexibility necessary to apply it effectively in the emergency management context used in this effort.

Social capital can be deconstructed into three major elements: bonding, bridging, and linkage, each element is essential to understanding the construct (Adler & Kwon, 2002). Although these three elements are essential in understanding social capital, they are rarely mentioned explicitly in emergency management literature. However, these elements are fundamental to understanding social capital and its relevance to findings within the emergency management literature.

Bonding is a type of social capital that exists among those who have close emotional attachments to each other. This concept can be extended to encompass those of similar demographic and background characteristics (Adler & Kwon, 2002). High bonding can provide individuals with direct material, emotional, or informational support (Hurlbert, Haines & Beggs, 2000). However, because bonding takes place among similar individuals or groups, assistance and information sharing tends to be somewhat limited in that this information is not distributed broadly beyond individuals or groups (McPherson, Smith-Lovin, & Cook, 2001; Mouw, 2006).

Bridging is the social capital among individuals or groups that are loosely tied. This type of social capital exists among people who do not typically associate with one another or who do not have strong ties to each other. Examples such as class or race are appropriate here. Bridging provides unique advantages, just as bonding does. Information, aid, and services will be more diverse in an environment with high bridging as community assets and information are more available among community members (Adler & Kwon, 2002).

Finally, linkage bridges the gap between citizens and those in power. Linkage is particularly important in emergency management as it describes the connections between the

formal (public safety organizations) and informal (civilian) responses. Typically, linkage encompasses a wide array of factors such as trust, political systems, and even power distribution. Although this term is broad, for the purpose of this discussion, the primary focus is the connection between the formal and informal responses. Understanding how the concept of social capital is discussed and dissected by sociologists is useful to applying knowledge in a practical setting and interpreting other literature (Hawkins & Maurer, 2009). Social capital has been addressed in the emergency management literature by prominent authors in emergency management (Dynes, 2005; Dynes, 2006; Aldrich & Meyer, 2015). Much of the social capital research in the emergency management literature is focused around the response phase. These elements of social capital were noted in response research to be sensitive to social structures and networks even before the structures and networks were expressly studied. Issues in information sharing, especially relative to warnings, have likewise provided emergency management scholars a comfortable a bridge via sociological theory. In research on "adaptive capacities" (Smit & Wandel, 2006), a collection of latent characteristics that were shown to improve overall effectiveness in response were identified. Although the range of characteristics identified were broad, discussion about the ways in which innate social capital influences individual effectiveness was undertaken in this research (Smit & Wandel, 2006). From these early forays into social capital through largely response-focused efforts, attention has turned to preparedness and the ways in which a focus on increased social capital in preparedness activities can ultimately benefit response efforts.   While not the focus of this effort, it must be noted that there is ample discussion of social capital in the recovery literature.

2.4. Social Capital in Response

Exploring social capital as it appears in response is a necessary step in understanding its implications in preparedness. Key areas of study in response regarding social capital are from the warning and information literature. In addition, there are studies that focused on social capital as a characteristic and positive trait during response. A review of this literature sheds light on how social capital has been demonstrated to improve response efforts.

Perhaps one of the most comprehensive pieces of literature available to illustrate social capital's impact in response is Dynes' *Social Capital: Dealing with Community Emergencies* (2006). Dynes uses more than 40 years of response research to explore the idea of social capital in response. Dynes' findings and observations over years of research prompted him to delve into analysis of the response research from a social capital perspective. Findings from Dynes' literature review are extensive and cover topics such as emergence. Dynes views emergence as the creation of new social capital (2006):

> In many instances it [emergence] emerges from existing social capital, but at other times it is 'new' in that it is created to meet new problems created by the disaster. This view is contrary to most media accounts of disaster, which portray community structure as fragile and unable to deal with disaster problems, often implicitly suggesting that 'survival' is dependent on external aid. (p. 4)

As established in earlier discussion, emergence is a positive force in response and one over which emergency management practitioners have very little control. According to Dynes (2006), this emergence of new or growing social capital manifests in a number of key ways during response. Shifts in social obligation, a facet of social capital, and individual priorities drive all other manifestations of emergence. Citizens become focused on immediate and pressing needs like search and rescue (Dynes, 2006). Additionally, citizens' perceptions of social obligation change from more individualistic to more community-focused with the "neighbor

helping neighbor" phenomena becoming a constant (Dynes, 2006). Dynes also notes that fundamental shifts in norms occur, creating communities where altruism becomes a norm (2006). This shift in obligations and norms tends to manifest in volunteerism and other prosocial and organized activities which afford formal organizations with a significant force multiplier. This phenomenon can also put isolated individuals in greater risk as their networks may be too small to accrue immediate (e.g., rescue or medical transport) and sustained (e.g., shelter) assistance (Dynes, 2006).

These pro-social phenomena can be manipulated pre-event through the cultivation of social capital in a community or neighborhood. Dynes (2006) found that the more informal relationships that existed pre-event, the more opportunities and pro-social behavior was present post event. While this finding may seem obvious, it is the extent to which it impacts response that is notable. Social organization is also a topic that Dynes (2006) covers heavily as many forms of emergence, such as volunteerism, are actualized through social organizations. Social organizations are a type, and consequence, of social capital.

There are social capital functions that can be leveraged by emergency management practitioners during response to increase community efficacy (Dynes, 2006). The foundational note for emergency management practitioners on this point is to plan to support, not restrict, civilian activities. A command and control model cannot be successfully applied to a civilian response. The types of actions that can be taken to support civilian response include planning for emergence by focusing on information sharing and the readiness and ability to share tools and equipment usage.

Other researchers have found similar advantages in leveraging social capital in response. In addition to creating surplus assistance for more standardized functions and services,

specialized functions and services that might be unavailable within the formal response can emerge. In response to the 9/11 terrorist attacks, unique needs such as emotional care, physical therapy, and mass feeding arose and were met by specialized civilian responders with the knowledge and capacity to meet those needs effectively, thereby filling gaps in the formal response (Watchtendorf & Kendra, 2004). Wachtendorf and Kendra (2004), found:

> Volunteer convergence may, for example, bring certain abilities that do not exist in sufficient quantities in the established response organizations; they may already be close enough to damaged areas to provide immediate assistance; and they may provide for the flexibility that is needed when organizations confront rapidly-changing conditions. (p.2)

Aldrich & Meyer reiterate the advantages of high social capital for individuals and communities saying, "individual and community social capital networks provide access to various resources in disaster situations, including information, aid, financial resources, and child care along with emotional and psychological support…" (2015, p.3). Hawkins and Maurer examined social capital in New Orleans following Hurricane Katrina by considering the ways in which bridging, bonding, and linkage interact in a post-disaster environment (2010). Hawkins and Maurer reinforced that individuals benefit and leverage all three forms of social capital (2010). In addition, they found that the networks formed in the post-disaster environment transcended race and class binding the community to common goals in unique ways. In contrast, individuals with weak social capital have reduced social and network capacity and suffer as a result of it (Hawkins and Maurer, 2010).

Very few topics in the emergency management literature share the level of consistency and consensus that social capital in response does. Studies focused on social capital have delivered similar and supportive findings throughout the years and validated the importance of social capital in emergency management response across a variety of topics. A key area within

response where social capital research adds specific value is regarding warnings and information. This literature is reviewed below with the intent of deepening emergency management practitioners understanding of the ways in which social capital affects the effectiveness of these mechanisms.

2.5. Warnings and Information

The topics of the delivery of warnings and information to the public have been studied since WWII and the Civil Defense era. Within this subset of the response literature, social capital and networks have become topics of great interest. In both of these topical areas, metrics and methodologies are similar (i.e., measuring warnings/evacuation rates and adherence).

Warning literature represents one of the largest topical bodies of the response literature. Within this topical focus, researchers have narrowed their efforts to specific issues that are vital to a discussion of social capital such as: social contact (Sorensen, 2000), process (Drabek, 1969), and networks (Sadri, Ukkusuri, & Gladwin, 2017). The warning literature notes that warning is a social process; this means that typically, individuals do not make warning-related decisions on their own but rather as a part of a social system (Drabek, 1969; Riad & Norris, 1998; Kirschenbaum & Rapaport, 2009; Lindell & Perry, 2012). The consequence of this finding is that warnings need to be crafted to facilitate, and operate in, that social process (Drabek, 1969).

In a study that examined the influence of social and demographic characteristics on hurricane evacuation rates, race and gender yielded interesting results stemming from differential attitudes and norms with regard to social network, capital and influence (Riad and Norris, 1998). In an earlier study, researchers found that women are more open to risk communication from their social networks than men, and blacks were more open to social influence based on the depth of black kinship networks as opposed to white kinship networks (Cazenave & Straus,

1979). In both of these studies, the findings were imbedded in the social networks and capitals of the individual. Often, a single phone call could prompt evacuation decisions (Cazenave & Straus, 1979). Network size, cohesion and composition have been a focal point of many studies attempting to understand the social processes involved in warnings and decision making (Riad & Norris, 1998; Riad, Norris & Ruback, 1999; Sadri, Ukkusuri & Gladwin, 2017). Findings have generally been consistent with network largess, composition, and cohesion positively influencing the process (Riad & Norris, 1998; Riad, Norris, & Ruback, 1999).

The process of confirmation, as addressed in the warning literature, explores the process by which warnings are confirmed by other sources (Drabek & Boggs, 1968; Drabek, 1969; Mileti & Sorensen, 1990; Bean, et al., 2015; Jin, Fraustino &, Liu, 2016; Wood, et al., 2017). This socially imbedded confirmation behavior, termed "milling" can have the effect of slowing warning adherence (Drabek & Boggs, 1968; Drabek, 1969; Mileti & Sorensen, 1990; Bean, et al., 2015; Wood, et al., 2017). In an early study of this process, 61% of the families studied displayed confirmation behaviors (Drabek & Boggs, 1968; Drabek, 1969; Mileti & Sorensen, 1990; Bean, et al., 2015; Jin, Fraustino &, Liu, 2016; Wood, et al., 2017).

The ways in which individuals respond to warnings and information has been shown to be a complex process with many variables to consider like audience demographics, time, hazard, experience, warning content and community context (Drabek & Boggs, 1968; Riad, Norris & Ruback, 1999; Liu, Fraustino &, Jin, 2015; Bean, et al., 2015; Jin, Fraustino &, Liu, 2016; Wood, et al., 2017). Warning and information dissemination operate in a social medium. One must consider how formal actions in warning and information dissemination during response, interacts within this medium. Knowing the level of disaster experience (Drabek & Boggs, 1968; Riad & Norris, 1998; Liu, Fraustino &, Jin, 2015; Bean, et al., 2015), frequency of warnings

(Mileti &, Sorensen, 1990; Kirschenbaum & Rapaport, 2009; Bean, et al., 2015), demographic characteristics (Drabek & Boggs, 1968; Sorensen, 2000; Bean, et al., 2015; Wood, et al., 2017), local hazard characteristics (Sorensen, 2000), community norms (Riad & Norris, 1998; Liu, Fraustino &, Jin, 2015; Bean, et al., 2015), and the social landscape (Drabek & Boggs, 1968; Drabek, 1969; Drabek &, McEntire, 2003; Jin, Fraustino &, Liu, 2016; Wood, et al., 2017) can provide vital information about how warnings and information will be received and processed by individuals.

2.6. Preparedness

Preparedness impacts all other phases of the emergency management cycle. It presents unique opportunities to leverage research in ways that can improve outcomes in the other phases. Social capital is a yet untapped wealth of activities in preparedness. Baker's illustration of the linkage between preparedness and recovery speaks to the ability to reach beyond pre-event phases to achieve post-event outcomes: "The notion of preparedness weaves together temporal gaps where pre-disaster action connects to post-disaster recovery, creating a vision seamless between these two contexts that feeds into the necessary creation of ontological security." (Baker, 2014, p.19). The preparedness phase and the research literature regarding preparedness has historically been focused, almost myopically, on response.

Historically, there have been differences in how preparedness is defined in the field of emergency management (Gillespie & Streeter, 1987; Tierney, Lindell, & Perry, 2001; Kirschenbaum, 2002; Sutton & Tierney, 2006; Staupe-Delgado & Kruke, 2017). This is indicative of a larger issue in the emergency management literature which was developed for decades in other disciplines. More recent efforts at synthesis have resulted in recognition of similar concepts across many definitions. For the purposes of this effort, (the definition used is

Jensen's (2016): "A state of readiness at any given time for both response and recovery that's dependent upon a process that individuals and households have to undertake and maintain and can only be understood within the wider context of those individuals and households."

2.6.1. Latent Characteristics in Preparedness

The most consistent and beguiling focus of preparedness literature remains focused on the question: What makes preparedness effective? Research shows that success in furthering the individual preparedness agenda has been challenging for a number of reasons (Baker, 2014):

> Traditional disaster preparedness, however, is not without its issues. A large body of research has shown that people have problems coordinating and managing preparedness efforts for disasters (see Quarantelli 1985; Kartez and Lindell 1987; Quarantelli 1988, for example). Most have difficulty preparing for unpredictable and rare events of unknown proportions due to a variety of reasons (Burby and French 1980; Mader et al. 1980; Drabek et al. 1983; Christianson et al. 2009). The incorporation of preparedness practices for rare and unusual events into everyday life is also a pervasive issue for organizations (Marcus and Nichols 1999; Harding et al. 2002; Lampel et al. 2009). (p.2)

A growing body of literature has shown that traditional activities (e.g., kits and plans) are only a fraction of the picture and moreover, are a poor metric for citizen preparedness. Researchers have turned their attention to "implicit" or "latent" preparedness. The difference between explicit and implicit activities are defined as (Baker, 2013):

> Explicit practices are the traditional preparedness actions people engage in accordance with official recommendations. In contrast, implicit practices are activities, tools, and resources people use in everyday life not consciously associated with disaster preparedness that could be drawn on and adapted in post disaster situations. (p.1)

While explicit activities in preparedness are easy to conceptualize and constitute more obvious preparedness actions like kits and plans, implicit practices can be more difficult to quantify and leverage. Implicit practices are elements of everyday life that make one more prepared. This category includes a multitude of activities, to include such things as: the amount of groceries in the home, the amount of gas in the car, monetary resources, and social networks.

Social networks and especially social capital, have received a notable degree of attention in the preparedness literature. While having strong social ties in the community is not something lay persons might consider as preparedness, several research efforts have demonstrated that social networks may be a key contributor in increasing implicit preparedness (Aldrich & Meyer, 2014). Research shows that social networks add value to not only individuals, but also to communities. Social networks improve information sharing abilities, build adaptive capacity, and create opportunities for information flow (Norris, et al., 2008; Hossain &, Kuti, 2010; Baker, 2013; Aldrich & Meyer, 2014; Akama, Chaplin, & Fairbrother, 2014). Despite a robust body of literature focused specifically on preparedness (both implicit and explicit), the question of preparedness effectiveness is not fully answered.

2.7. Conclusion

The literature reviewed has implications for the practice of emergency management. Through an examination of patterns in the literature regarding human behavior during disasters, response, social capital, and preparedness, key actions that can be leveraged by emergency management practitioners can be identified. As was established by the literature: in most situations citizens engage in response in a positive and effective manner (Dynes, 1994; Tierney, Lindell, & Perry, 2001; Wachtendorf & Kendra, 2004; Scanlon, Helsloot & Groenendaal, 2014); social capital affects and response (Watchtendorf & Kendra, 2004; Dynes, 2006; Hawkins & Maurer, 2010; Aldrich & Meyer, 2015;); and, tangible preparedness actions leverage social capital and human behavior to elevate both the formal and informal response (Drabek, 1969; Dynes, 2006; Murphy, 2007; LaLone, 2012; Aldrich & Meyer, 2015). This literature review served to prime the recommendations in the strategy guide (Appendix A).

CHAPTER 3: CREATING SOCIAL CAPITAL IN PREPAREDNESS FOR RESPONSE:

FIVE STRATEGIC DOMAINS

As a result of the literature review and subsequent analysis, five key strategic domains were identified. These domains are: I) Distributed Disaster Messaging Pre-Event; II) Stakeholder Engagement; III) Preparing for the Socially Integrated Response; IV) Organizational and Individual Trust, and Network-deepening Activities; and V) Warnings and Information Dissemination. Each domain contains recommendations for action and tasks that can be pursued by emergency management practitioners. Much of the research reviewed either did not contain recommendations or did not contain recommendations that could be reasonably distilled or adopted. The recommendations provided in the strategy guide may require partnerships, but do not require unique or specialized expertise on the part of emergency management practitioners as they are rooted in activities already routine to emergency management such as planning, messaging, outreach, facilitation and training (Phillips, Neal, & Webb, 2012).

Information in the literature drove the creation of the five strategic domains. To warrant the creation of a strategic domain, several criteria had to be met. First, specific recommendations regarding that area of action had to be present. For example, scholars commented that *sharing information with stakeholders* before and after an event (recommendation) (Dynes, 2006) was key in *preparing for a socially integrated response* (Strategic Domain III). Another condition for inclusion as a domain, is the domain had to exist in emergency management research rather than in outside disciplines in order to translate the literature into practice. However, research that did not have a direct link to emergency management literature could be included under a strategic area even if it did not warrant creating a separate strategic domain. The next condition required for inclusion was that each strategic area must have the potential to be operationalized in

preparedness and must have support from the literature to indicate that it could improve some element of response. For example, the literature demonstrates that hardening key strategic relationships among stakeholders could improve role clarity and communication in response (Norris, Stevens, Pfefferbaum, Wyche & Pfefferbaum, 2008). The final condition that must be met is the strategic domain has to have emergency management literature that covers topics in social capital. For example, Dynes (2006) indicates that emergency management practitioners should leverage existing social organizations to create a community disaster narrative (recommendation in Strategic Domain I). The five strategic domains proffered represent areas in the emergency management literature in which social capital is leveraged as a mode to attain greater preparedness for response.

3.1. Strategic Domain I: Distributed Disaster Messaging Pre-Event

This strategic domain centers around the findings and recommendations of Dynes (2006). This domain is unique in that it examines disaster issues at a community level (i.e., by changing attitudes of community ownership and disaster responsibility).

Changing these attitudes can be addressed through existing social institutions, structures, and social capital by creating a shared disaster narrative. Creating this shared narrative can be achieved through holding disaster memorials, community wide informational campaigns, and providing information to stakeholders (Dynes, 2006). This strategic domain focuses on issues of culture, responsibility, and interest rather than more concrete engagements with the community. Attitudes often dictate the level of community engagement with disaster topics. This strategic domain is listed first because it can act as a catalyst to the other domains and the activities within them, not just those leveraging social capital.

Table 1: Strategic Domain I

Strategic Domain I: Distributed Disaster Messaging Pre-Event				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
I. A. **Leverage existing social constructs/organizations to integrate disaster narrative**	Use existing socially integrated organizations (religious, civil or public) to incorporate disaster responsibility into their respective narratives. Ensure this narrative is uniform across the community and reinforces that disasters are a local responsibility.	• Develop and distribute a community-wide informational campaign that incorporates community responsibility. • Hold disaster memorials. • Provide churches, schools, and other civic organizations with informational materials that encourages them to incorporate these messages into routine dialogues.	• Build a communitywide culture of disaster-community ownership, and shared responsibility.	Dynes, 2006

3.2. Strategic Domain II: Stakeholder Engagement

Stakeholder engagement presents itself as one of the key focus areas in the emergency management literature. The activities suggested often mirror whole community approaches suggested by FEMA. Community participation in several key areas, like planning, commonly appeared in the literature (Wachtendorf & Kendra, 2004; Dynes, 2006; Murphy, 2007; Norris et al., 2008; LaLone, 2012). Suggestions found in this strategic domain move well beyond planning and provide an eclectic mix of activities and avenues of preparedness for emergency management practitioners.

Planning is often conducted with an array of stakeholders; however, they are typically limited to a core cadre of community organizations (Dynes, 2006). One of the most

recommended avenues to enhance preparedness efforts is the promotion of non-traditional stakeholder involvement in planning, disaster discussions, and other efforts (Wachtendorf & Kendra, 2004; Dynes, 2006; Murphy, 2007; Norris et al., 2008; LaLone, 2012). These stakeholders can be solicited to attend planning and informational meetings or to participate in whole-community based preparedness planning groups (Wachtendorf & Kendra, 2004; Dynes, 2006; Murphy, 2007; Norris et al., 2008; LaLone, 2012). The benefits of these activities include a more informed public and greater access to, and for, the local emergency management practitioner. Additionally, participation in these efforts may lead to greater investment in the community and in local public safety/emergency management (Wachtendorf & Kendra, 2004; Dynes, 2006; Murphy, 2007; Norris et al., 2008; LaLone, 2012).

Hand-in-hand with stakeholder involvement comes skill development. This entails working with stakeholder partners to discuss disaster roles and provide training or learning opportunities in those specific roles. Specific actions revolve around creating and promoting educational opportunities specific to groups that may play specialized roles in response such as, CERT, first aid, shelter and mass care training (Dynes, 2006). Not only does this type of engagement increase the efficacy of the socially distributed response, it allows the emergency management practitioner to better understand stakeholder capacity, capability, and potential involvement pre-event leading to the ability to better leverage the informal response.

Lastly, and perhaps the most unorthodox, is creating a "sense of place". Much like Dynes (2006) suggestion to foster a culture of community responsibility and disaster awareness, this recommendation aims at the very heart of preparedness - attitudes and investment. Creating a sense of place increases preparedness as citizens are more invested in the community (Bihari & Ryan, 2012). Specific actions in this realm include tailored messaging, community social events

and gatherings, and opportunities for community input and decision-making (Bihari & Ryan, 2012).

Table 2: Strategic Domain II

Strategic Domain II: Stakeholder Engagement				
Strategic domain/ sub-domain identified in the literature	Strategic activity	Potential tactical approaches	Benefits	Source(s)
II. A. Promote traditional and non-traditional stakeholder engagement	Encourage a wide array of traditional and non-traditional stakeholder involvement in disaster planning, mitigation, and preparedness topics.	• Solicit public and private participation in disaster-related meetings. • Establish a community-based preparedness planning group.	• More informed stakeholders. • Stakeholder investment/engagement in disaster activities and potential roles in response.	Wachtendorf & Kendra, 2004 Dynes, 2006 Murphy, 2007 Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008 LaLone, 2012
II. B. Promote skill development	Promote stakeholder skill development in probable disaster role areas.	• CERT training. • First aid efforts. • Sheltering training. • Mass care training.	• A community with both integrated and trained skills for optimal civilian response actions.	Dynes, 2006
II. C. Foster "sense of place"	"Sense of Place" is correlated with social capital, and, in turn with increased preparedness.	• Community social and recreational events. • Efforts in community shared decision-making. • Community PSA/messaging.	• Promotes preparedness through strong sense of place.	Bihari, & Ryan, 2012

3.3. Strategic Domain III: Preparing for the Socially Integrated Response

This strategic domain includes a variety of suggestions. This is due to the historically poor understanding of the socially integrated response (Dynes, 1994) which has generated a great

deal of academic interest. Much of the emergency management literature found in this area is constructed with the intent that it can and will be used by emergency management practitioners. This strategic domain can be divided into two general categories; planning and outreach.

Some sources (Wachtendorf & Kendra, 2004; Dynes, 2006) suggest that planning for the socially integrated response is necessary to fully leverage the benefits that it can provide. Additionally, it is noted that failing to plan for the socially integrated response will cause problems in the community and possible conflict between formal and informal response efforts (LaLone, 2012). The key planning areas of focus in socially integrated response are volunteer management (Wachtendorf & Kendra, 2004; LaLone, 2012), donations management planning (LaLone, 2012), and information sharing planning (Dynes, 2006). Specific actions that can be taken here include solicitation for stakeholder involvement in planning, communications plans for whole-community partners, and volunteer and donations planning (Wachtendorf & Kendra, 2004; Dynes, 2006; LaLone, 2012). All of these activities should be undertaken through relationships with stakeholders who will likely play a lead role in response activities.

Strategic outreach toward a more functional response is another key area of preparedness found in the emergency management literature. Purposefully engaging a wide range of stakeholders and a-typical stakeholders for the roles they might play in response is a means by which community preparedness can be enhanced (Wachtendorf & Kendra, 2004). Although this area may seem daunting and time consuming to emergency management practitioners, applying a strategic lens to identify and solicit key stakeholders in the community will allow for a more manageable scale of outreach (Wachtendorf & Kendra, 2004). Stakeholders with high strategic value might include those with specialized facilities, staff, or resources.

Table 3: Strategic Domain III

Strategic Domain III. Preparing for the Socially Integrated Response				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
III. A. Purposefully engage existing social units	Target existing social units for disaster and preparedness related activities.	• Contact local clubs and service organizations and encourage them to train and discuss disaster related topics. • Train shelter staff to focus on sheltering families together (as a social unit) instead of individuals.	• Leverage high-bonding and pre-established social capital for improved efforts in preparedness.	Dynes, 2006
III. B. Plan for integrated response	Plan for the socially-integrated response.	• Incorporate annex and contact information for key community players based on relationships and past response patterns. • Choose donations and volunteer collection centers pre-event.	• Prepares informational basis and directed planning effort in optimizing the socially-integrated response.	LaLone, 2012
III. C. Share information with stakeholders	Share information with stakeholders by employing a wide array of communication modalities.	• Share warnings and information on existing modes of communication (social media, cell phones, etc.). • Discover and plan for special communication modalities for special populations (disabled, non-English speaking, elderly, etc.).	• Promotes preparedness through linkage facilitation and leveraging through preplanning and proper identification of communication channels.	Dynes, 2006

Table 3: Strategic Domain III (continued)

Strategic Domain III. Preparing for the Socially Integrated Response				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
III. C. Share information with stakeholders (continued)		• Have plans and methods to communicate unmet needs in the community (ask for help).		
III. D. Establish strategic partnerships with atypical collaborators	Establish strategic partnerships with community organizations not typically involved in disasters.	• Partner with higher education institutions in the local area for disaster-related curriculum applications. • Establish partnerships with organizations who hold potentially key assets (facilities, expertise, communications equipment, etc.) during disaster times.	• Prepares access and mobilization to variety of community assets. • Increase linkage and partner buy-in to disaster activities.	Wachtendorf, & Kendra, 2004
III. E. Engage in pre-disaster volunteer management	Strategic pre-disaster volunteer management protocols, partnerships, education, and planning.	• Assist community partners and organizations that may utilize or attract volunteers in: ○ developing clear plans that include setting boundaries, so volunteers know exactly what they will be doing.	• Effective and fully utilized volunteer operations.	Wachtendorf, & Kendra, 2004 LaLone, 2012

Table 3: Strategic Domain III (continued)

Strategic Domain III. Preparing for the Socially Integrated Response				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
III. E. Engage in pre-disaster volunteer management (continued)		o developing clear plans that include credentialing protocols to ensure all volunteers are trained, accounted for and sorted by skills and experience levels. o educating volunteers about community response systems. • Establish lines of communication pre-disaster to communicate with key volunteer organizations during disaster.		
III. F. Prepare and disseminate donations guidelines	Prepare a volunteer and donations guideline for public release to better direct incoming aid.	• Create a template pre-event that can be easily completed when needs arise during disaster times. This list can be released on social and conventional media to help direct incoming aid.	• More precise donations and volunteer efforts.	LaLone, 2012

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3.4. Strategic Domain IV: Organizational and Individual Trust, and Network-deepening Activities

This domain is drawn from an eclectic mix of literature and encompasses an array of activities that most directly leverage social capital when compared to other strategic domains. The emergency management literature provides two major areas of focus within this domain, relationship building and promoting community cohesion.

Social networks can be pictured like any other physical network/infrastructure, as such, this infrastructure can be hardened (Wachtendorf & Kendra, 2004; Norris, 2008). Strengthening relationships between stakeholders can better prepare them to communicate and coordinate in future response roles (Wachtendorf & Kendra, 2004). The direct and conscious creation of a disaster-focused social infrastructure is the objective of these suggestions. Facilitating introductions between key stakeholders, sensitizing community partners to roles and relationships they might develop during response, and social events are a few ways community networks can be deepened (Wachtendorf, & Kendra, 2004; Norris et. al, 2008; Reininger, 2013; Aldrich & Meyer; 2015).

Activities to promote community cohesion focus on how individuals' social capital can be expanded to increase overall preparedness. Recommendations focus primarily on social engineering activities that help with the promotion of trust and networking in the community (Geis, 2000; Aldrich & Meyer, 2015). Specific examples could include, holding meet-a-neighbor events, social activities, and promoting the creation of shared public spaces (Geis, 2000; Reininger, 2013; Aldrich & Meyer, 2015). Partnerships with outside stakeholders are critical to implementation of activities in this domain.

Table 4: Strategic Domain IV

Strategic Domain IV. Organizational and Individual Trust, and Network-deepening Activities				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
IV. A. **Knit community organizations together, further establishing response/disaster framework**	Weave various community organizations together with the goal of establishing a resilient response/disaster framework.	• Facilitate introductions between and among key community organizations/organizers who may play similar or supporting roles in response.	• Increased response effectiveness through high organizational bonding within the community.	Wachtendorf, & Kendra, 2004 Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008
IV. B. **Harden established key relationships**	Identify and harden established strategic relationships with key social nodes (e.g., churches, community centers, etc.) in the community.	• Establish regular meetings with key area stakeholders to cover disaster topics.	• Sensitize community social nodes to disaster topics, local emergency management and potential implications and roles in response.	Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008
IV. C. **Sponsor and facilitate events in an effort to build trust**	Promote trust-building among community members and residents within close proximity.	• Hold community events focused on getting to know those around you. • Disaster-themed, localized, community social and educational events.	• Enhance citizen preparedness through high bonding and trust building in their community.	Reininger, et al., 2013
IV. D. **Employ community currency model**	Promote community involvement through a time banking/community currency model.	• Create a community reward system for time spent volunteering or taking certain courses.	• Promote preparedness through high bonding and bridging in the community.	Aldrich, & Meyer, 2015
IV. E. **Promote community cohesion**	Promote trust and cohesion through community social events.	• Host or encourage community wide events like runs, walks, meetings, socials etc.	• Promotes preparedness through trust and social cohesion.	Aldrich, & Meyer, 2015
IV. F. **Create shared social spaces**	Work with community partners to create social spaces in the community.	• Working with community partners to create a public park or community center.	• Promotes preparedness through trust and social cohesion.	Geis, 2000 Aldrich, & Meyer, 2015

3.5. Strategic Domain V: Warnings and Information Dissemination

The final strategic domain contains the greatest variety of recommendations from the emergency management literature. This is because warnings and information dissemination have been well-studied throughout the course of emergency management research. This domain is broken down into two key areas, warnings and information.

Recommendations for warnings typically seek to manipulate either the content of the warnings or individual characteristics pre-event. Warning messages should be constructed to better facilitate the social process they are a part of, this means changing message content to encourage information spread and expedite confirmation behaviors and milling (Drabek & Boggs, 1968; Drabek, 1969; Mileti & Sorensen, 1990; Kirschenbaum and Rapaport, 2009; Bean, et al., 2015; Wood, et al., 2017). Key demographic and social factors shown to influence warning reception are isolation (Raid, Norris & Ruback, 1999) and social influence (Drabek & Boggs, 1968; Raid & Norris, 1998; Sorensen, 2000; Bean, et al., 2015; Wood, et al., 2017).

Information flow and sharing have similar characteristics in the literature as relationship building in that recommendations for improvement typically assume a social infrastructure approach. Improving network depth and scope (Drabek, 1969; Raid, Norris & Ruback, 1999 Norris, et al., 2008; Hossain &, Kuti, 2010; Baker, 2013; Aldrich & Meyer, 2014; Akama, Chaplin, & Fairbrother, 2014) are the key areas of focus in enhancing social infrastructure. A better social network has been shown to allow information to flow more effectively and aid processes such as warnings and confirmation. Specific activities can include pre-disaster messaging that encourages planning with family and sharing warning messages (Drabek & Boggs, 1968; Raid & Norris, 1998; Kirschenbaum & Rapaport, 2009).

Table 5: Strategic Domain V

Strategic Domain V. Warnings and Information Dissemination				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
V. A. Leverage social networks for maximum information dissemination	Facilitate and strengthen social networks as they are key in information transfer and warning adherence.	• Hold community events focused on getting to know people around you. • Tailor messaging to increase emphasis on social networks, i.e., "Share this message with friends and family".	• Increased information sharing and warning adherence through increased individual network usage and capacity. • Facilitated peer-confirmation.	Drabek, 1969 Kirschenbaum & Rapaport, 2009
V. B. Social confirmation by trusted personal "influentials"	Facilitate social confirmation of evacuation/warning as it is sought by individuals and plays a major role in decision making.	• Tailor messaging to increase emphasis on social networks i.e. "Share this message with friends and family".	• Facilitated social confirmation through tailored messaging.	Drabek, 1969
V. C. Employ efforts to challenge "social embeddedness"	Special messaging related to embeddedness as evacuation decisions can be hampered by strong social embeddedness.	• Include messaging reinforcing that people are not losing their community if they evacuate; evacuations are simply protecting the people that make up the community.	• Reduce the negative impact of social embeddedness on evacuation warnings.	Riad, & Norris, 1998
V. D. Emphasize "sharing this message"	(Actual) Social influence is positively correlated with evacuation/warning adherence.	• Tailor messaging to increase emphasis on social networks, i.e., "Share this message with friends and family". • Recommend planning evacuations with friends and family.	• Promote warning adherence through actual social influence.	Riad, & Norris, 1998

Strategic Domain V. Warnings and Information Dissemination				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
V. E. **Emphasize "sharing this message"** *in case of emergency*	(Hypothetical) Social influence is positively correlated with evacuation/warning adherence.	• Hold pre-event campaigns to promote sharing information and planning considerations with each other *before* and *during* disaster.	• Increase openness to social influence to enhance social confirmation effects.	Riad, & Norris, 1998
V. F. **Work to improve and broaden social/informational networks**	More established and larger social networks create enhanced capacity for information flow and sharing.	• Encourage social network improvements through community events. • Connect with local community organizations and encourage them to run networking deepening activities like meetings and social events.	• Greater warning and information flow and sharing.	Riad, Norris, & Ruback, 1999
V. G. **Work to improve perceived and actual levels of social support**	Perceived social support (level of isolation) is negatively correlated with evacuation rates, i.e., lack of perceived social support results in lower evacuation rates.	• Encourage social network development and support networks with friends and neighbors.	• Increased evacuation rates.	R Riad, Norris, & Ruback, 1999
V. H. **Reduce milling behaviors with high information messages.**	If a large amount of information is provided in warnings, the less severe milling behaviors will be.	• Provide as much information as possible in warnings.	• Expedite or eliminate milling behaviors.	Wood, et al, 2017.

3.6. Strategic Domains: Translation into Action

Though the literature guided the development of these five strategic domains, it sometimes failed to provide specific examples of how the findings might be operationalized. As part of the analysis, it was necessary to extrapolate some potential tactical approaches from the recommendations in order to illustrate how they could be implemented. Every recommendation is delineated into principles, benefits, and associated actions in order to move from theory to practice. These five domains present emergency management practitioners with new areas to innovate and prepare their communities. Through the pragmatic application of research, evidence-based systems of preparedness and response can be more easily implemented.

CHAPTER 4: CONCLUSION

The goal of this effort was to provide clear guidance to emergency management practitioners underpinned by research findings. The literature review herein provides a sound basis for the strategy guide (Appendix A). Through the exploration of foundational understandings of human behavior during disaster and the exploration of social capital (from an emergency management perspective) a solid foundation by which research findings can be brought to practice was developed.

It is worth noting that a limited number of the sources are included in the strategy guide. This highlights a deficit in the emergency management literature relative to the extrapolation of findings to practice and challenges future researchers to more intently focus on what the takeaways are from their research for emergency management practitioners. Translating findings to practice should be a purposeful effort to advance the overall emergency management mission. The need to communicate, consolidate, and develop the emergency management literature base has never been more urgent. As the discipline continues to evolve, those in academia must strive to translate theory to practice. Utilizing social capital as a means to greater success in preparedness and response activities is perhaps the lowest hanging fruit; many other areas deserve a like focus and extrapolation of recommendations for practice. The collective benefits of integration between findings and practice are far-reaching and necessary to secure the safety and security of our nation as we move into periods of ever-growing threat.

4.1. Limitations

There are limitations within this effort. First, the literature reviewed herein is certainly not all that could have been considered. Even within the disciplinary bounds of emergency management, more research could be found of these topics. Second, focusing solely on

emergency management literature is another shortcoming. A deeper understanding of interdisciplinary crossovers with fields like psychology, community development, and sociology could likely yield additional relevant literature pertinent to these topics. Finally, relevant research conducted and published outside of the United States could have also been included. With further review in these areas, it is possible that additional strategic domains could be identified.

4.2. Areas for Future Research

Future research should be directed toward studying communities in which social capital is actively cultivated as a means to further preparedness and response success. The various modes and strategies to do so are numerous and case studies on their effectiveness could benefit preparedness and response research greatly. Rethinking and studying preparedness and response from the lens of a social process could yield advancements in both research and practice.

Another key area of investment for future researchers is the translation of research to practice. More effort should be directed toward the ways in which implementation and knowledge gaps can be closed. Indeed, studies testing the effectiveness of the modality for translation used in this report would provide insight into the ways in which translation is best accomplished and delivered. As research and practice efforts continue to inform and challenge each other, it is imperative to discover the modes most effective in sharing the information relevant to enhancing successful practice.

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APPENDIX. STRATEGY

This strategy guide is not meant to be comprehensive; rather, it presents those recommendations from the literature that are deemed the most actionable.

Strategic Domain I: Distributed Disaster Messaging Pre-Event				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
I. A. Leverage existing social constructs/organizations to integrate disaster narrative	Use existing socially integrated organizations (religious, civil or public) to incorporate disaster responsibility into their respective narratives. Ensure this narrative is uniform across the community and reinforces that disasters are a local responsibility.	• Develop and distribute a community-wide informational campaign that incorporates community responsibility. • Hold disaster memorials. • Provide churches, schools, and other civic organizations with informational materials that encourages them to incorporate these messages into routine dialogues.	• Build a communitywide culture of disaster-community ownership, and shared responsibility.	Dynes, 2006

Strategic Domain II: Stakeholder Engagement				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
II. A. **Promote traditional and non-traditional stakeholder engagement**	Encourage a wide array of traditional and non-traditional stakeholder involvement in disaster planning, mitigation, and preparedness topics.	• Solicit public and private participation in disaster-related meetings. • Establish a community-based preparedness planning group.	• More informed stakeholders. • Stakeholder investment/engagement in disaster activities and potential roles in response.	Wachtendorf & Kendra, 2004 Dynes, 2006 Murphy, 2007 Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008 LaLone, 2012
II. B. **Promote skill development**	Promote stakeholder skill development in probable disaster role areas.	• CERT training. • First aid efforts. • Sheltering training. • Mass care training.	• A community with both integrated and trained skills for optimal civilian response actions.	Dynes, 2006
II. C. **Foster "sense of place"**	"Sense of Place" is correlated with social capital, and, in turn with increased preparedness.	• Community social and recreational events. • Efforts in community shared decision-making. • Community PSA/messaging.	• Promotes preparedness through strong sense of place.	Bihari, & Ryan, 2012

Strategic Domain III. Preparing for the Socially Integrated Response				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
III. A. Purposefully engage existing social units	Target existing social units for disaster and preparedness related activities.	• Contact local clubs and service organizations and encourage them to train and discuss disaster related topics. • Train shelter staff to focus on sheltering families together (as a social unit) instead of individuals.	• Leverage high-bonding and pre-established social capital for improved efforts in preparedness.	Dynes, 2006
III. B. Plan for integrated response	Plan for the socially-integrated response.	• Incorporate annex and contact information for key community players based on relationships and past response patterns. • Choose donations and volunteer collection centers pre-event.	• Prepares informational basis and directed planning effort in optimizing the socially-integrated response.	LaLone, 2012

Strategic Domain III. Preparing for the Socially Integrated Response (continued)				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
III. C. Share information with stakeholders	Share information with stakeholders by employing a wide array of communication modalities.	• Share warnings and information on existing modes of communication (social media, cell phones, etc.). • Discover and plan for special communication modalities for special populations (disabled, non-English speaking, elderly, etc.). • Have plans and methods to communicate unmet needs in the community (ask for help).	• Promotes preparedness through linkage facilitation and leveraging through preplanning and proper identification of communication channels.	Dynes, 2006

	Strategic Domain III. Preparing for the Socially Integrated Response (continued)			
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
III. D. Establish strategic partnerships with atypical collaborators	Establish strategic partnerships with community organizations not typically involved in disasters.	• Partner with higher education institutions in the local area for disaster-related curriculum applications. • Establish partnerships with organizations who hold potentially key assets (facilities, expertise, communications equipment, etc.) during disaster times.	• Prepares access and mobilization to variety of community assets. • Increase linkage and partner buy-in to disaster activities.	Wachtendorf, & Kendra, 2004

Strategic Domain III. Preparing for the Socially Integrated Response (continued)				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
III. E. Engage in pre-disaster volunteer management	Strategic pre-disaster volunteer management protocols, partnerships, education, and planning.	• Assist community partners and organizations that may utilize or attract volunteers in: o developing clear plans that include setting boundaries so volunteers know exactly what they will be doing. o developing clear plans that include credentialing protocols to ensure all volunteers are trained, accounted for and sorted by skills and experience levels. o educating volunteers about community response systems. • Establish lines of communication pre-disaster to communicate with key volunteer organizations during disaster.	• Effective and fully utilized volunteer operations.	Wachtendorf, & Kendra, 2004 LaLone, 2012

Strategic Domain III. Preparing for the Socially Integrated Response (continued)				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
III. F. **Prepare and disseminate donations guidelines**	Prepare a volunteer and donations guideline for public release to better direct incoming aid.	• Create a template pre-event that can be easily completed when needs arise during disaster times. This list can be released on social and conventional media to help direct incoming aid.	• More precise donations and volunteer efforts.	LaLone, 2012

Strategic Domain IV. Organizational and Individual Trust, and Network-deepening Activities				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
IV. A. **Knit community organizations together, further establishing response/disaster framework**	Weave various community organizations together with the goal of establishing a resilient response/disaster framework.	• Facilitate introductions between and among key community organizations/organizers who may play similar or supporting roles in response.	• Increased response effectiveness through high organizational bonding within the community.	Wachtendorf, & Kendra, 2004 Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008
IV. B. **Harden established key relationships**	Identify and harden established strategic relationships with key social nodes (e.g., churches, community centers, etc.) in the community.	• Establish regular meetings with key area stakeholders to cover disaster topics.	• Sensitize community social nodes to disaster topics, local emergency management and potential implications and roles in response.	Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008
IV. C. **Sponsor and facilitate events in an effort to build trust**	Promote trust-building among community members and residents within close proximity.	• Hold community events focused on getting to know those around you. • Disaster-themed, localized, community social and educational events.	• Enhance citizen preparedness through high bonding and trust building in their community.	Reininger, et al., 2013

Strategic Domain IV. Organizational and Individual Trust, and Network-deepening Activities (continued)				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
IV. D. Employ community currency model	Promote community involvement through a time banking/community currency model.	• Create a community reward system for time spent volunteering or taking certain courses.	• Promote preparedness through high bonding and bridging in the community.	Aldrich, & Meyer, 2015
IV. E. Promote community cohesion	Promote trust and cohesion through community social events.	• Host or encourage community wide events like runs, walks, meetings, socials etc.	• Promotes preparedness through trust and social cohesion.	Aldrich, & Meyer, 2015
IV. F. Create shared social spaces	Work with community partners to create social spaces in the community.	• Working with community partners to create a public park or community center.	• Promotes preparedness through trust and social cohesion.	Geis, 2000 Aldrich, & Meyer, 2015

Strategic Domain V. Warnings and Information Dissemination				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
V. A. **Leverage social networks for maximum information dissemination**	Facilitate and strengthen social networks as they are key in information transfer and warning adherence.	• Hold community events focused on getting to know people around you. • Tailor messaging to increase emphasis on social networks, i.e., "Share this message with friends and family".	• Increased information sharing and warning adherence through increased individual network usage and capacity. • Facilitated peer-confirmation.	Drabek, 1969 Kirschenbaum & Rapaport, 2009
V. B. **Social confirmation by trusted personal "influentials"**	Facilitate social confirmation of evacuation/warning as it is sought by individuals and plays a major role in decision making.	• Tailor messaging to increase emphasis on social networks i.e. "Share this message with friends and family".	• Facilitated social confirmation through tailored messaging.	Drabek, 1969
V. C. **Employ efforts to challenge "social embeddedness"**	Special messaging related to embeddedness as evacuation decisions can be hampered by strong social embeddedness.	• Include messaging reinforcing that people are not losing their community if they evacuate; evacuations are simply protecting the people that make up the community.	• Reduce the negative impact of social embeddedness on evacuation warnings.	Riad, & Norris, 1998

Strategic Domain V. Warnings and Information Dissemination (continued)				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
V. D. Emphasize "sharing this message"	(Actual) Social influence is positively correlated with evacuation/warning adherence.	• Tailor messaging to increase emphasis on social networks, i.e., "Share this message with friends and family". • Recommend planning evacuations with friends and family.	• Promote warning adherence through actual social influence.	Riad, & Norris, 1998
V. E. Emphasize "sharing this message" *in case* **of emergency**	(Hypothetical) Social influence is positively correlated with evacuation/warning adherence.	• Hold pre-event campaigns to promote sharing information and planning considerations with each other *before* and *during* disaster.	• Increase openness to social influence to enhance social confirmation effects.	Riad, & Norris, 1998

Strategic Domain V. Warnings and Information Dissemination (continued)				
Strategic domain/ sub-domain identified in the literature	**Strategic activity**	**Potential tactical approaches**	**Benefits**	**Source(s)**
V. F. Work to improve and broaden social/informational networks	More established and larger social networks create enhanced capacity for information flow and sharing.	• Encourage social network improvements through community events. • Connect with local community organizations and encourage them to run networking deepening activities like meetings and social events.	• Greater warning and information flow and sharing.	Riad, Norris, & Ruback, 1999
V. G. Work to improve perceived and actual levels of social support	Perceived social support (level of isolation) is negatively correlated with evacuation rates, i.e., lack of perceived social support results in lower evacuation rates.	• Encourage social network development and support networks with friends and neighbors.	• Increased evacuation rates.	R Riad, Norris, & Ruback, 1999
V. H. Reduce milling behaviors with high information messages.	If a large amount of information is provided in warnings, the less severe milling behaviors will be.	• Provide as much information as possible in warnings.	• Expedite or eliminate milling behaviors.	Wood, et al, 2017.