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The Use of Crisis Communication Strategies to Build Community Resilience: Evidence from Emergency Managers

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THE USE OF CRISIS COMMUNICATION STRATEGIES TO BUILD COMMUNITY RESILIENCE: EVIDENCE FROM EMERGENCY MANAGERS

by

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ABSTRACT

As public administration evolved to encompass a strong focus on supporting safe growth and development for communities, the role and responsibilities of government became increasingly complex with aspects of emergency management becoming quintessential. The ability to assess resilience plays a strong role in understanding the capability of a community to face a range of threats. Additionally, issues with communication uncovered the need to understand how administrators collect, disseminate, and adapt critical information through understanding crisis type and local community needs. This dissertation discusses the connection between public administration and emergency management, the evolution of crisis communication and strategies, resilience and its measurement, along with Situational Crisis Communication Theory. This study conducted an online-survey of county, and county-equivalent, emergency managers across the United States. Results of Structural Equation Modeling included statistically significant relationships between Crisis Type and Local Community Needs on Crisis Communication Strategies as well as between strategies onto Community Resilience. Comparative analysis with the Baseline Resilience Indicators for Communities showed stark contrast in perceived resilience capacity. Follow-up, semi-structured interviews were conducted with voluntary respondents and analyzed via axial, deductive coding. Comparing quantitative and qualitative analysis highlighted the importance of county characteristics, critical relationships, overcoming obstacles, need for learning and adaptation, and importance of communication.

Keywords: emergency and crisis management, crisis communications strategies, community resilience, situational crisis communication theory

This dissertation is dedicated to the resilience of the human spirit. To those who have lost their homes, jobs, loved ones, and sense of stability, yet they endured.

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LIST OF ACRONYMS

BRIC	Baseline Resilience Indicators for Communities
DHS	Department of Homeland Security
FCC	Federal Communication Commission
FEMA	Federal Emergency Management Agency
GFI	Goodness of Fit Index
ICS	Incident Command System
NECP	National Emergency Communications Plan
NIMS	National Incident Management System
SCCT	Situational Crisis Communication Theory
SEM	Structural Equation Modeling

CHAPTER 1: INTRODUCTION

As public administration and emergency management continues to integrate roles and responsibilities focused on supporting safe growth and development for communities, the complexity leads to aspects of emergency management being quintessential (Comfort, 1985; Kapucu, 2018; McGuire, Brudney, & Gazley, 2010; Petak, 1985). Communities rely on their local, state, and federal leaders to effectively communicate before, during, and after a crisis while coordinating resources to prevent or reduce negative impact (Birkland, 2006; Sylves, 2014). Issues with preparation, mitigation, response, and recovery activities uncover capacity building needs for communities and leads researchers to examine how crises influencedd aspects such as capacity and communication strategies (Boin & O'Connell, 2007; Comfort, 2007; Coombs, 2012; Cutter et al., 2008; Cutter, Burton, & Emrich, 2010; Cutter et al., 2013; Kapucu, 2006; McEntire, 2007; Rubin, 2007; Syles, 2014; Waugh & Streib, 2006).

The difficulty continues, however, due to the increasing complexity of emergency management practices and processes of professionalizing the field. Local communities rely heavily on their local leaders due to their proximity to crises and their critical involvement in emergency management activities along with their unique position in state and local governance (Baker & Cormier, 2015; Cutter et al., 2008; Drabek, 1985; McGuire & Silva, 2010; Morrow, 1999; Okechukwu Okoli, Weller, & Watt, 2014; Ross, 2016; Waugh & Streib, 2006; Waugh, 1994). In terms of a community's capacity, resilience is affected by a plethora of factors (i.e., social, economic, institutional, infrastructure, and community competence) and all areas rely on effective communication (Boin & O'Connell, 2007; Clifford & Bourne, 2013; Comfort, 2007; Cutter et al., 2008; Cutter, Burton, & Emrich, 2010; Hu, Knox, & Kapucu, 2014; Kapucu, 2006; Kapucu & Van Wart, 2006; Liu, Guo, & Nault, 2014; McEntire, 2007; Waugh & Streib, 2006).

Effective communication hinges on the ability to learn and assess a community's needs followed by practically applying these lessons.

This reliance showcases trust and belief in the administrators' knowledge, skills, and abilities to support a safe and resilient community. In terms of local leaders, these administrators are inherently assumed to be emergency management experts who bring about positive or negative impacts with each decision they make, and their perspectives arguably affect preparation, mitigation, response, and recovery outcomes (Baker & Cormier, 2015; Cutter et al., 2008; Drabek, 1985; Mayunga, 2007; Norris et al., 2008; Paton & Johnston, 2001; Ross, 2016; Sherrieb, Norris, & Galea, 2010). This perspective needs more attention if the nation expects to fully safeguard life and property.

In addition to the integration of emergency management activities into the government, local leaders are sought after for crisis-related communication when an event occurs. Emergency management communication strategies incorporate a timeline focus of before, during and after a disaster or hazard (Chandler, 2010), as well as incorporate best practices to aid in timely and comprehensible messages for its diverse audiences (Drabek, 1985; Ulmer, Sellnow, & Seeger, 2017; Waugh & Streib, 2006; Walker, 2012). The main recommendations and considerations generated by researchers and practitioners revolve around message transference, time to disseminate, necessary components to include, comprehensibility, and potential response. The linear format, although widely used, is superficially detailed and leaves the majority of decision making to those initiating the communication. Crisis communication strategies build upon these general strategies and provide more details to the need of adaptation for local community needs, type of event, and stakeholders involved. Crisis communication strategies also provides more details regarding contrasting a linear format for a cyclical timeline where communication is

constantly undergoing adaptation, instruction, and sharing (Benoit, 1997; Coombs, 2012; Coombs & Holladay, 1996; Holladay, 2009; Liu, Austin, & Jin, 2011; Massey, 2001; Seeger, 2006).

The theoretical foundation for this study uses Situational Crisis Communication Theory (SCCT) as a foundation. This specific theory broadens communication strategies found in general emergency management and risk communication practice. It does so by providing a prescriptive system to connect response strategies to the crisis situation integrated with adaptations for local community needs and crisis typology (Coombs & Holladay, 2002). The emphasis on adaptation comes from the psychological nature of relating preparation, mitigation, response, and recovery activities for crises such as natural disasters, health epidemics, or community violence to previous events and the automatic anticipation for future action. Therefore, it is critical for emergency management practitioners to adapt information based on the type of crisis and their knowledge of the local community's needs to assist their communities in more effectively preparing, mitigating, responding, and recovering from crises. Moreover, integrating crisis communication strategies and knowledge of SCCT into a manager's repertoire leads to an enhancement of their knowledge, skills, abilities, and confidence in managing crises.

1.1 Statement of the Problem

Emergency Managers are called to continuously evaluate critiques regarding inattentiveness to aspects of community, and the connection to resilience and community capacity (Cutter et al., 2013). In terms of impact, Birkland (2006) estimated disasters and crises are responsible for cumulatively affecting approximately three billion people, killing over 750,000 people, and costing more than $600 billion for the United States. As of 2017, the Federal Emergency

Management Agency (FEMA) reported a total of 3,585 disaster declarations since 1953, with natural disasters accounting for 99%, totaling 3,536. In terms of disaster assistance and preparedness grants since 2005, FEMA reported having $56,498 million for public assistance, $26,119 million for preparedness, $14,465 million for mitigation, and $15,657 million for individual assistance. The difficulty in comparing FEMA's reported numbers with Birkland's (2006) estimation is that not every disaster receives a disaster declaration. To accumulate the economic and human impact of disasters means taking into account hardships to individual states, counties, and towns as well as noting the reported lives lost and estimating those that are unreported. Regardless, estimates of the knowable impacts are astronomical. For instance, the National Oceanic and Atmospheric Association (2018) generated a number for 230 weather and climate related disasters from the starting point of 1980 and the estimated cost exceeds $1.5 trillion.

Unfortunately, it is assumed that the estimation of damages, losses, and challenges in response and recovery has greatly increased. This critically highlights a lack of resilience within our communities and the difficult challenge of recovering when a crisis strikes. The ability to assess resilience plays a strong role in understanding the capability of a community to face a range of threats (Collins, Carlson, & Petit, 2011). A strategy to generate a culture of resilience has been proposed through the involvement of informed leaders who promote resilience, routine assessments of community resilience through standardized indicators, planning and preparation efforts, robust research, and buy-in from emergency management practitioners on all levels (Cutter et al., 2013; Cutter, Ash, & Emrich, 2014, 2015; Cutter, Burton, & Emrich, 2010).

Within the current study, the county and county-equivalent (i.e., parishes, boroughs, special districts) level emergency manager's perspective was emphasized and examined in terms

of their understanding of crisis communication strategies and local communities' needs. The county level was chosen as it is the lowest, most formalized level in the United States emergency management organizational structure (Cutter et al., 2008; FEMA, 2015d, 2016d; Kapucu, Garayev, & Wang, 2013). More specifically, this study examined the relationship between crisis communication strategies, local community needs, and the impact on community resilience. Understanding this dynamic leads to a more effective emergency management system between local, state and federal actors while highlighting the capabilities of diverse communities and their citizens (Collins, Carlson, & Petit, 2011). This study was also founded on the Situational Crisis Communication Theory (SCCT), which emphasizes adaptability and places importance on the individuals within a community (Coombs & Holladay, 2002; Coombs, 2012; Sellnow & Seeger, 2013).

1.2 Research Questions

This study sought to answer the overarching question regarding the interaction between crisis communication strategies and community disaster resilience. More specifically, the following questions guided this research: 1) How do crisis communication strategies impact community resilience? 2) How are crisis communication strategies shaped by the crisis type? 3) How are crisis communication strategies shaped by local community needs, such as vulnerable populations?

1.3 Significance of the Study

It is critical for the field of public administration to achieve a full acceptance and integration of emergency management related responsibilities and recognize the practical implications these

activities bring (McGuire, Brudney, & Gazley, 2010; Petak, 1985). As stated by McGuire, Brudney, and Gazley (2010):

> [I]n the present era of the emergency manager as manager, this official is equally a public manager. As we anticipate the considerable challenges that emergency management will face in the new century, we look forward to building our knowledge of effective planning and preparation to inform not only emergency management but also collaborative public management (p. 126).

The question has surfaced of whether this full acceptance of emergency management activities has occurred by public administrators (Agranoff, 1991; Comfort, Waugh, & Cigler, 2012; Petak, 1985; Preble, 1997). By focusing on the role of crisis communication strategies, this dissertation sought to examine the intersection of emergency management and communication strategies. Furthermore, the crisis communication strategies take into account crisis typology (i.e., natural disasters, community violence, health epidemic, etc.) and promote adaptations for local community needs. This intentional process of crisis communication is essential for building community resilience.

The survey of emergency managers on the level encompassing county and equivalents is pivotal, as this level is the beginning of preparation, mitigation, response, and recovery activities (Cutter et al., 2008; McGuire & Silva, 2010; Morrow, 1999; Okechukwu Okoli, Weller, & Watt, 2014; Ross, 2016; Waugh & Streib, 2006; Waugh, 1994). Additionally, county and equivalents level emergency management practitioners are considered the experts of their communities. This means their knowledge base is critical to understanding relationships between crisis communication strategies, knowledge of vulnerable populations, and community resilience.

During a crisis, there is an expectation for effective communication between an organization and its constituents. This communication must be presented to a diverse range of audiences and must recognize any potential communication challenges, audience needs, and an awareness of how future plans and procedures must be adapted (Chandler, 2010; Seeger, 2006). Yet, it must also be noted that knowledge of crisis communication strategies alone does not equate to effective implementation (Paton & Johnston, 2001). When measuring impact, researchers must be cautious in focusing solely on the messages rather than the perception of its impact on the community. Likewise, administrators and researchers must support the concept of a whole community approach:

> The core value proposition of this whole community approach is that by strengthening the assets, capacities, relationships and institutions within a community…the community will prepare more effectively, better withstand the initial impacts of an emergency, recover more quickly, and adapt to become better off than before the disaster hit. In short, a whole community approach is the pathway to resilience (Kaufman, Bach, & Riquelme, 2015, p. 158).

Although research has uncovered critical needs for local communities, it has become imperative to not only identify these needs but to understand how effective crisis communication and coordination influences the resilience capacity of these communities. For example, Hurricane Katrina shed light on the inexcusable inabilities of emergency management personnel to assist vulnerable populations classified by socioeconomic status, race, political connections, infrastructure and more (Comfort & Haase, 2006; Garnett & Kouzmin, 2007; Phillips & Morrow, 2007). The critical relationship between community characteristics and vulnerability is not a

linear relationship, so practitioners must understand how communities receive, react to, and comprehend information (Lazrus, Morrow, Morss, & Lazo, 2012).

By strengthening resilience, a community increases their response and recovery capabilities and more effectively copes with specific vulnerabilities (Kapucu & Özerdem, 2011). Thus, these communities enhance their independence, which is imperative due to the possibility of being completely isolated during a crisis (Waugh & Liu, 2014). This idea is significant within the field of emergency management, and it is highlighted within the national planning frameworks (FEMA, 2016). The focus on building resilience capacity is essential and an administrator's knowledge of crisis communication strategies and their community demographics are integral towards supporting growth. More specifically, the indicators of disaster and its scale, social, institutional, and community competence are directly affected by crisis communication strategies, knowledge of vulnerabilities, and the unique typology, or situation, of the event.

Through previous research (Boin & O'Connell, 2007; Comfort, 2007; Coombs, 2012; Cutter et al., 2008; Cutter, Burton, & Emrich, 2010; Cutter et al., 2013; Kapucu, 2006; McEntire, 2007; Rubin, 2007; Syles, 2014; Waugh & Streib, 2006), resilience has been significantly connected to communities, along with how to analyze needs to integrate in preparation, mitigation, response, and recovery efforts. The results support the need for practitioners and administrators to manage crises and vulnerabilities through a variety of strategies for effective communication and resilience development. However, future research is needed to understand the connections between these concepts, which was addressed in this study. "Community resilience should be conceptualized and managed in a contingent rather than a prescriptive manner. Understanding the nature of these contingent relationships has implications for

managing the allocation of finite resources and for designing risk reduction and communication strategies" (Paton & Johnston, 2001, p. 277).

Essentially, building a community's resilience capacity hinges on effective crisis communication and the ability to send and receive vital information in a way that is comprehensible for diverse audiences and inclusive of vulnerable populations, without adding undue stress and anxiety or leading to negative consequences (Perry & Lindell, 2007). By integrating crisis typology (i.e., natural disaster, community violence, health epidemic) and communication strategies, emergency managers are theorized to more effectively respond to a crisis and prepare for a future event; however, a level of adaptability is needed as perception and reality typically differ due to the social psychological premise of self-concept (Bandura, 1989; Markus & Kitayama, 1991; Markus & Wurf, 1987; Mead, 1934). Self-concept is the phenomenon regarding how one conceptualizes their capabilities and the impact of this knowledge on their actions. The perception of oneself generally differs from how another individual or group views them. Situational Crisis Communication Theory provides practitioners with more resources for informed decision-making to prepare their communities for crisis response and recovery.

1.4 Context of this Study

This study builds upon and contributes to earlier studies on crisis communication in building community resilience for vulnerable populations. The initiating field of public health focused their crisis communication studies on the importance and role of communication, ways to identify vulnerable populations, and impact on community resilience (Burkle et al., 2011; Hanfling, Altevogt, Viswanathan, & Gostin, 2012; Schoch-Spana et al., 2016). Despite this, there

has been a growing interest in research focusing on a similar relationship between these concepts within the field of emergency management (Doyle, 2016; Graham, Avery, & Park, 2015; Kar, 2015; Lindell, 2013; Malet & Korbitz, 2015; Pays, 2007; Rivera & Kapucu, 2015; Rodriguez & Marks, 2006; Ross, 2016; Vaughan, Tinker, Truman, Edelson, & Morse, 2012). In addition, there is little to no research on the relationship between Situational Crisis Communication Theory and the perception of public administrators or emergency management practitioners, which is what made this study unique (Sellnow & Seeger, 2013; Sisco, Collins, & Zoch, 2009).

Therefore, this study was conducted using a nationwide survey of county and equivalents level emergency management practitioners within the United States. This survey encompassed the concepts of crisis communication, local community needs, and community resilience in order to understand their perception and connections of these concepts and determine the impact. The responses were analyzed in conjunction with the Baseline Resilience Indicators for Communities (BRIC), which provides data based on 49 indicators of community disaster resilience (Cutter, Ash, & Emrich, 2014, 2016; Cutter, Burton, & Emrich, 2010). With deeper examination, the goal was to generate recommendations for emergency management practitioners, future research, and training. As such, this study provided insight to assist local, state and federal actors. This study also provided insight for the academicians and involved practitioners, in building community resilience through crisis communication strategies that adapt to vulnerable populations and the crisis situation. Chapter two examined the concepts of emergency management as quintessential to public administration, resilience and relevant measurement techniques, crisis communication and management along with specific strategies, as well as the theoretical foundation of Situational Crisis Communication Theory before presenting this study's conceptual framework and hypotheses.

CHAPTER 2: LITERATURE REVIEW

This chapter reviews the central concepts of crisis communication, local community needs, and community resilience. The information provided in this section comprises a systematic literature review encompassing published articles from peer-reviewed journals, reports by area experts, and specific document databases refined by publication date of 1980 to present along with targeted keywords. In addition, recommended readings from strategically identified researchers who specialize in the areas of crisis communication, vulnerable populations, and resilience are incorporated. These means of gathering information allows for a sound methodological review since the inclusion of only published literature yields more disadvantages than advantages (Cooper, 2010; Light & Pillemer, 1984). Therefore, the solicitation of expert knowledge from leaders in the field reveals other sources not identified in scholarly journals (Cooper, 2010; Light & Pillemer, 1984). This section begins by discussing the connections between public administration and emergency management and crisis communication strategies. It then discusses local community needs with an emphasis on vulnerable populations and community resilience, followed by Situational Crisis Communication Theory.

2.1 Emergency and Crisis Management

This section discusses the development of public administration with a focus on how emergency management became an integrated component of an administrator's role and responsibility. Further, this segment discusses the intersection of the county and equivalents level and its connection to the National Planning Frameworks developed by the Federal Emergency Management Agency (FEMA).

2.1.1 Emergency Management as a Quintessential Role of Public Administration

Historically, public administrators were reluctant to incorporate emergency management related responsibilities into their public service roles (Petak, 1985). Their early connections to emergency management related tasks were mostly in response to a crisis. The incorporation of emergency management into the public administrator role brought about challenges which included a lack of policy related understanding, increasing complexity of intergovernmental and intra-organizational relationships and differences in technical and administrative capacities. The challenges also included discord among traditional ideals and new public management, and lack of support for proactive measures due to the inability to determine the return on investment. However, integrating emergency management into public administration became a promoted ideal.

> The public administrator, as emergency management, must have the conceptual skill to understand (1) the total system, (2) the uses to which the products of the efforts of various professionals will be put, (3) the potential linkages between the activities of various professional specialists, and (4) the specifications for output formats and language which are compatible with the needs and understanding of others within the total system (Petak, 1985, p. 6).

The question surfaced of whether this full acceptance occurred by public administrators (Agranoff, 1991; Comfort, Waugh, & Cigler, 2012; Petak, 1985; Preble, 1997). The field of emergency management has made great strides since its beginnings in the 1800s and is defined as "the discipline and profession of applying science, technology, planning and management to deal with extreme events that can injure or kill large numbers of people, do extensive damage to property, and disrupt community life" (Hoetmer, 1991, p. xvii).

Moving from a reactionary management style to a unified command and control to professionalization and legitimacy building, the emergency manager has become an essential individual for each community (McGuire, Brudney, & Gazley, 2010). However, not every community has an identified individual, so it may look to its public administrators for assistance (Kreps, 1991). As stated by Drabek (2016), "What American communities need today are not more bureaucrats who can endure; rather, we need managers with a vision and commitment to it: managers who have the capacity to lead, who do grasp the forest, who understand the behavioral reality of organized-disorganization and are willing to tackle the managerial challenge it represents" (p. 165-6).

Regarding the integration of emergency management related tasks and responsibilities, crises frequently uncovered issues related to preparation, mitigation, response, and recovery between local, state, and federal actors (Birkland, 2006; Rubin, 2007). These crises (i.e., natural disasters, community violence, or health epidemics) uncovered significant needs to enhance public safety and influence aspects such as policymaker's agendas, capacity for organizational learning and change, issues regarding communication, and the presentation of vulnerable populations (Birkland, 2006; Rubin, 2007; Waugh & Streib, 2006). The increasingly complex environment of emergency management led to a push for strategic change and growth. "Creating effective organizational response under the complex, uncertain operating conditions of a major disaster [or crisis] poses a sobering challenge to public service agencies which bear the primary responsibility for emergency management" (Comfort, 1985, p. 155). When determining where to start with the change in emergency management approaches, the main objective was to plan and prepare. However, emergency management has not fully acknowledged the implications and proactive measures (Cutter et al., 2013; Drabek, 2016; Petak, 1985). This makes it even more

critical for public administrators to fully understand all emergency management related activities. They are the inevitable decision-makers whose policies have the potential for negatively impacting their communities if they are without this critical knowledge.

2.1.2 Emergency Management, Local Level, and the National Planning Frameworks

Traditionally, the federal government was tasked with development of safe communities, yet the county level was, and still is, the first to react to a crisis and deploy agencies related to the phases of emergency management (i.e., preparation, mitigation, response, and recovery) with overarching support from federal (McLoughlin, 1985; McEntire, 2007). Recognition of the importance of county level emergency managers or public administrators is highlighted in FEMA's (2016) whole community approach integrated within the National Planning Frameworks. These frameworks expanded the role and responsibilities of local government and are critical for assisting communities in increasing their resilience capacity (FEMA, 2016).

According to the National Protection Framework (2016b), local governments are uniquely responsible for the safety and security of their citizens. They must promote coordination and implementation of protection plan and engage in sharing of information with key stakeholders. Local governments must acknowledge geographic issues, such as transborder concerns, and establish agreements for coordination between cross-sector and cross-jurisdictional agencies. They are also responsible for the coordination and dissemination of critical information within a variety of accessible domains (FEMA, 2016b).

Within the National Prevention Framework (FEMA, 2016a), local leaders provide guidance for law enforcement, public safety, public health, fire, environmental response, public works, and emergency medical services. They are responsible for coordination, security, and

safety their citizenry. The agencies designated for prevention activities respond to incidents, collect intelligence, conduct investigations, and work with additional agencies for resolution. Regarding the National Mitigation Framework (2016c), local governments enact core capabilities related to health and social services, housing, economy, natural and cultural resources, and infrastructure. Within this area, a regional, or county level, approach is critical to understanding a community's potential risks and aspects of vulnerability that may impact the ability to effectively and strategically mitigate crises. Within this arena, long-term risk and vulnerability reduction is a possibility as community resilience prioritizes pre- and post-disaster assessments and development opportunities.

The National Mitigation Framework specifically promotes a focus on fostering preparedness and resilience among communities causing it to be a cornerstone for all areas of national preparedness. This specific framework places significance on the role of local leadership. Emergency management practitioners on the local level are critical to ensuring and developing capabilities and collaboration among diverse entities within the whole community. Also, this framework discusses a Risk-conscious Culture where information is disseminated with the audience in mind. Strategies must be adapted based on the population who is receiving the information.

The mitigation protocols only strengthen local governments' role within the National Response Framework. This framework specifically details responsibilities of specific crisis types, such as manmade or natural events or hazards (Coombs, 2012; FEMA, 2016c). When a local area is affected, responsibility falls to the elected or appointed official for emergency management to guide response capabilities across all mission areas. This administrator must have a thorough understanding of their role and responsibility along with geographic risks and

vulnerabilities of their community. Their overarching mission is to protect the welfare of the citizens and they are assumed to be more knowledgeable as to the capacity of their community in terms of the ability to respond and recover (Baker & Cormier, 2015; Cutter et al., 2008; Drabek, 1985; Lazrus, Morrow, Morss, & Lazo, 2012; Mayunga, 2007; Norris et al., 2008; Paton & Johnston, 2001; Ross, 2016; Sherrieb, Norris, & Galea, 2010).

Duties of an emergency manager often include:

- Advising elected chiefs and appointed officials;
- Conducting National Incident Management System (NIMS) structured response operations;
- Coordinating local agencies by functions;
- Facilitating plan development and cooperation with private sector entities, community organizations, local agencies, and non-governmental organizations;
- Creating and maintaining mutual aid and assistance agreements;
- Coordinating requests for resources via managing the emergency operations center; overseeing damage assessments;
- Informing and advising the public and local officials on emergency management activities; executing public awareness programs among accessible domains;
- Conducting training exercises related to plans and systems and adjusting based on lessons learned; and, integrating rights of all individuals (i.e., race, gender, ethnicity, disability, etc.) within emergency planning and response (FEMA, 2016d).

For the National Disaster Recovery Framework, local government is again emphasized as the primary entity for preparing and managing response and recovery for its community (FEMA, 2016e). Their leadership is critical and sought out by businesses, families, and individuals.

Specifically, within this framework, an emphasis is placed upon local government's ability to deploy core capabilities with limited to no notice. Therefore, continuity planning and operations must be incorporated into pre-disaster planning processes. Strategic planning assists with Recovery Support Functions and establish processes for assessments on pre- to post-disaster damage.

2.2 Community Resilience

This section discusses the origins of community resilience and related research within the emergency management area and continues the discussion on communication adaptation and highlights the need for situation-based communication strategies. More importantly, this section brings local community needs to the surface.

2.2.1 Community Resilience

Although researchers debate the definition of resilience, it is broadly considered as an encompassing, proactive concept of capability to prepare, mitigate, respond and recover (Edwards, 2012; Norris et al., 2008; Waugh & Liu, 2014). With its Latin roots, resilience comes from *resilio* meaning to bounce back. For the social sciences, resilience is typically defined as the ability to return to a sense of equilibrium after a disruption; however, recent studies showcase variations in their operational definition and indicators used to measure this ability (see Table 1). Researchers and practitioners continue to debate the capability of communities to return to a pre-disaster stage due to unique needs and challenges (Collins, Carlson, & Petit, 2011; Cutter, Burton, & Emrich, 2008; Longstaff et al., 2010; Miller & Dabson, 2015; Norris et al., 2008; Stewart, Kolluru, & Smith, 2009). For this study, resilience was defined via Cutter, Burton, and

Emrich's (2008) definition of "[r]esilience is the ability of a social system to respond and recover from disasters and includes those inherent conditions that allow the system to absorb impacts and cope with an event, as well as post-event, adaptive processes that facilitate the ability of the social system to re-organize, change, and learn in response to a threat" (p. 599).

Table 1. Operational Variations of Community Resilience.

Authors	*Publication Date*	*Definition of Community Resilience*	*Indicators for Measurement*
Cutter, Burton, and Emrich	2008	The ability to respond to and recover from a threat once it has been realized.	Economic Development; Community Capital; Institutional Resilience; Infrastructure;
Norris, Stevens, Pfefferbaum, Wyche, and Pfefferbaum	2008	A process linking a network of adaptive capacities (resources with dynamic attributes) to adaptation after a disturbance or adversity	Economic Development; Community Competence; Social Capital;
Stewart, Kolluru, and Smith	2009	Utilizes definition from Norris et al. (2008)	Economic Development; Social Resilience; Critical Infrastructure; Public-Private Partnerships; Supply Chain Resilience
Longstaff, Armstrong, Perrin, Parker, and Hidek	2010	The ability of a community to absorb a disturbance while retaining its essential functions.	Economic Development; Civil Society; Ecological Resilience; Governance Resilience; Physical Infrastructure
Collins, Carlson, and Petit	2011	A function of the resilience of the specified subsystems.	Economic Resilience; Infrastructure Resilience; Institutional Resilience; Emergency Services Sector Resilience; Civilian Population Resilience

As noted by Cox and Hamlen (2015), the range of resilience definitions has evolved over the years from a general sense of recovery to inclusion of activities related to preparation,

mitigation, and adaptation due to focus on the community (Alexander, 2013; Berkes & Ross, 2013; Quinlan, Berbés-Blázquez, Haider, & Peterson, 2016). Definitions of the community may vary from rural, protected lands, or trade-specific, but the focus led researchers to include the lens of risk reduction and vulnerability to assist in generating practical recommendations or indicators for measurement. To give specific emphasis, the inclusion of a vulnerability lens does not directly correlate to deficits or negative insufficiencies but speaks more to the competence of the community's capabilities to understand nuances affecting capacity.

In terms of operationalizing community resilience, the capability of a local area is determined via its ability to utilize resources, minimize disruptions, and guide growth through complexity (Kapucu, Hawkins, & Rivera, 2013; Paton & Johnston, 2001). For assessing resilience, many lean to more quantitative measures such as budget and staff ratio and fail to incorporate a qualitative component to understanding how an administrators' understanding of the more finite items impacts their conception of resilience capacity and affects their decision-making abilities. In essence, there is a disconnect between perception and reality as numbers only detail so much to the area of resilience and community capacity. It is essential to understand the capability for a community to recover and educate emergency management practitioners on gauging resilience capacity through quantitative and qualitative indicators (Cutter et al., 2008; Cutter, Burton, & Emrich, 2010; Pine, 2015). For the purpose of this study, the researcher defined and operationalized community resilience as the capability of a community to respond to, recover from, and adaptively develop from a crisis and will utilize methods to assess an administrator's perception in contrast to more quantitatively driven assessment measures. The next portion discusses the current assessment methods and measurement factors.

2.2.2 Community Resilience and Measurement

As previously stated, local level emergency managers have a diverse range of responsibilities from: coordinating local agencies by functions; facilitating plan development and cooperation with private sector entities, community organizations, local agencies, and non-governmental organizations; informing and advising the public and local officials on emergency management activities; conducting training exercises related to plans and systems and adjusting based on lessons learned; and, integrating rights of all individuals (i.e., race, gender, ethnicity, disability, etc.) within emergency planning and response (FEMA, 2016).

Within these strategic planning efforts, it is critical for local governments to integrate the needs of their community, such as geographic risks, vulnerable populations, economic or resource deficits. This occurs through a variety of mapping and planning initiatives to visually depict and identify susceptible geographic areas, infrastructure systems, neighborhoods, demographic groups, and environmental or cultural resources. To measure and assess community level resilience, researchers have created indicators coinciding with multiple facets of resilience capacity (Collins, Carlson, & Petit, 2011; Cox & Hamlen, 2015; Cutter et al., 2008; Longstaff et al., 2010; Norris et al., 2008; Renschler et al., 2010; Sherrieb, Norris, & Galea, 2010; Stewart, Kollaru, & Smith, 2009).

The challenge with creating indicators to measure resilience is the focus on quantitative, or arguably more objective, aspects. This varies from measurable components such as population, budgets, emergency management connected staff, community size, number of hospitals or clinics, shelter locations, etc. However, the tendency to incorporate measures obtained via census data or more easily measured is the lack of inclusion for factors that have a significant impact but require time and more analysis (Bowen & Kreindler, 2008; Cox &

Hamlen, 2015; MacGillivray & Zadek, 1995; Miller & Dabson, 2015). An example of difficult indicators to measure revolves around perception, or subjective, aspects or aspects such as cultural competence of the community itself. These indicators range from social, economic, infrastructure, institutional, and environmental arenas.

The promotion of quantitative indicators aligns with the common approach objectivity in scientific inquiry where indicators must be mechanisms to explain complex processes with little subjectivity. Yet, recent research has discussed including more qualitative indicators to assist in generating a more comprehensive understanding of resilience (Birkmann, 2006; Cox & Hamlen, 2015; Norris et al., 2008; Sherrieb, Norris, & Galea, 2010; Twigg, 2009). For the purposes of this study, the influence was drawn from Cutter, Burton, and Emrich's (2008) placed-based indicators and subcomponents that were applied to a county-level study in order to determine the community's resilience capacity. These indicators included social, institutional, economic, infrastructure, and community capital. These indicators were not only chosen for the focus on county-level communities, but also due to the indicators providing inspiration for quantitative and qualitative components for the perception survey that was disseminated to emergency managers.

The social indicator consists of demographics (age, race, class, gender, occupation), social networks and embeddedness, community values-cohesion, and nonprofit organizations (Cutter, Burton, & Emrich, 2010; Pine, 2015). Understanding these social factors leads to increased knowledge about the diversity and vulnerabilities within the community along with issues to address when communicating about a crisis and developing a knowledge base for preparation, mitigation, response and recovery (Boin & O'Connell, 2007).

Institutional indicators embody a planning perspective between local, state and federal agencies regarding hazard mitigation plans, emergency services, comprehensive land use plans, communications, and continuity of operations plans; however, if ineffective communication exists between local, state, and federal actors then the limited exchange of information detrimentally affects the community's understanding of a crisis and, in turn, negatively impacts its resilience (Bharosa, Lee, & Janssen, 2010). In terms of economic indicators, components include employment, property value, wealth generation and municipal finance/revenues. Infrastructure is supportive in nature and incorporates critical systems, transportation networks, residential housing, and commercial and manufacturing establishments.

Community competence entails a local understanding of risk, counseling services, health and wellness, quality of life and community cohesion. Development of community competence is specifically important for emergency management practitioners as it indicates whether they are more connected and action-driven within their communities (Comfort, 2007; Comfort, Boin, & Demchak, 2010; Cutter, Burton, & Emrich, 2010; Paton & Johnston, 2001; Pine, 2015). Within each of the indicators, knowledge of a community in terms of its demographics, needs and vulnerable populations is critical. This lends itself to supporting the county level focus of this study. This study focuses on four of the indicators. The main is the disaster and its scale due to its connection to crisis typology. Then social, institutional, and community capital was highlighted due to their strong connections to local community and communication needs.

Furthering the application of county and county-equivalent level indicators, Cutter, Ash, and Emrich (2014, 2016) applied United States census data to the indicators and created the Baseline Resilience Indicators for Communities (BRIC). This scoring index generates a resilience score for county and county-equivalent level communities and is used for strategic

planning and assessing community needs. For the purposes of this study, BRIC scores were utilized to create a comparative baseline for emergency managers who respond to the perception survey (this is discussed in more detail in chapter 3) (Cutter, Ash, & Emrich, 2014, 2016; Cutter, Burton, & Emrich, 2010). As far as indicator selection, the BRIC scores were adapted to the social, institutional and community capital indicators being the focus (see Table 2) for selection.

Table 2. BRIC Indicator Selections per Category.

Category	*Variables*
Social	Educational Equity Age Transportation Access Communication Capacity Language Competency Special Needs Health Coverage
Institutional	Mitigation Flood Coverage Municipal Services Political Fragmentation Previous Disaster Experience
Community Capital	Place Attachment Political Engagement Social Capital-Religion Social Capital- Civic Involvement Social Capital- Advocacy Innovation

2.3 Crisis Communication

This section discusses the evolution of crisis management and communication strategies, the connection to emergency management communication strategies, as well as previous research. Before beginning, it is important to note crisis communication differs from the field of risk communication (Reynolds & Seeger, 2005; Walker, 2012). Whereas risk communication is

focused more on threats to public health and methods to reduce harm, crisis communication is focused more on a specific event, what is known and not known, the scope of impact, and is principally informative.

2.3.1 Crisis Management and Crisis Communication

In terms of a concrete discipline of disaster communication, there is an argument of its nonexistence due to a lack of consensus regarding the definition of communication research and demarcation of this research area being a field of study (Anderson, 2016). However, there exists an acknowledgment of territories within the research field distinguishing communication as an intentional activity and a constitutive practice (Griffin et al., 2010). In terms of this study, the perspective of communication is seen as an intentional activity, as it incorporates the intention of communication and is connected to the areas of transmission and information processing, crisis communication, and risk communication (Anderson, 2016). In terms of transmission and information processing, this area is concerned with the aspects of channels and sources. Risk communication focuses on the expressions' influence on behavior whereas crisis communication places an importance on rhetoric (Anderson, 2016; Griffin et al., 2010; Reynolds & Seeger, 2005). Essentially, risk communication is "a process of sharing information about hazards, risks, vulnerability, assets, and adaptive mechanism within organizations or with the public. The process is intentional and goal directed" (Pine, 2015, p. 186). Additionally, risk communication arguably addresses cultural and social factors more so than crisis communication (Reynolds & Seeger, 2005).

Where a disaster was viewed, and potentially defined, as an event that is seen collectively as a harmful episode, a crisis is considered when "a community of people- an organization, a

town, or a nation- perceives an urgent threat to core values or life sustaining functions, which must be dealt with under conditions of uncertainty" (Boin & McConnell, 2006, p. 42). In terms of its origin, Boin and McConnell (2006) discussed the Greek and Chinese connections to the term and highlighted references to a critical point, a fork in the road, a threat, an opportunity, and a critical phase. Moreover, the term crisis has been applied to a diverse range of situations from natural disasters and environmental threats to infrastructural dramas, financial meltdowns or organizational decline. More recently, Coombs (2012) generated crisis type to include: natural disasters, workplace violence, rumors, malevolence, challenges, technical-error accidents, technical-error product harm, human-error accidents, human-error product harm, and organization misdeeds. The types are discussed more fully within the theoretical section; yet, this study focused on natural disasters, community violence (an adaptation to workplace violence and organization misdeeds), as well as health epidemic (an adaptation to human-error product harm). However, "[w]hat all these dramatic events have in common is that they create impossible conditions for those who seek to manage the response operation and have to make urgent decisions while essential information about causes and consequences remains unavailable" (Boin & McConnell, 2006, p. 43).

Viewing emergency management through the lens of a crisis approach incorporates the act of seeking to answer questions related to the immediate situation, understanding the unexpected event, and finding opportunities within the chaos (Boin & McConnell, 2006; Rosenthal, Boin, & Comfort, 2001). Shifting the lens to the arena of communication, a crisis is defined as "the perception of an unpredictable event that threatens important expectations of stakeholders and can seriously impact an organization's performance and generate negative outcomes" (Coombs, 2012, p. 2-3). For the purposes of this study, the researcher built upon the

previously stated definition of crisis by Coombs (2012) to view a crisis as connected to perceptions of unpredictable events threatening stakeholder expectations and can seriously impact performance with potential for not only negative outcomes but learning opportunities that can lead to positive growth. The differentiation of negative and positive outcomes is done due to previous literature highlights the opportunity to learn with each unprecedented event (Birkland, 2009; Drupsteen & Guldenmund, 2014; Norris et al., 2008; Toft & Reynolds, 2016).

The beginning of crisis communication and crisis management is attributed to the 1980s when a tampering incident occurred within the Johnson & Johnson organization regarding its Tylenol product that led to the death of seven individuals from Chicago due to poison within the product (Coombs, 2014). This interest grew for corporate organizations as society and businesses began to realize how negative consequences of improper management could have a resounding impact on their bottom line and resilience. Crisis Management took form and became a field where individuals sought to mitigate or diminish the negative impact of a crisis and protect stakeholders (Coombs, 2012). The definition of crisis management is "a set of factors designed to combat crises and to lessen the actual damage inflicted" (p. 5). In terms of these factors, the process of lessening the impact spans across the phases of pre-crisis, crisis, and post-crisis. In terms of crisis communication, the operational definition provided by Sellnow and Seeger (2013) states, "crisis communication could simply be understood as the ongoing process of creating shared meaning among and between groups, communities, individuals and agencies, within the ecological context of a crisis, for the purpose of preparing for and reducing, limiting and responding to threats and harm" (p. 13).

Although the concept of crisis management began in the early 1980s, research regarding this arena did not start surfacing until later in the decade (Coombs, 2014). The early research is

characterized by its focus on organizational reputation and practitioners discussing how they managed issues and their personal experiences. With the Tylenol case being considered a catalyst for this field, the critical importance was cemented with the Challenger explosion in 1986. These two events led to research focusing on decision-making and emphasizing rhetorical analysis. It created what is known as Apologia and became a dominant theory with researchers focusing on what managers said and did to address crises and their lack of acknowledgment for impacted stakeholders (Coombs, 2014; Dionisopoulos & Vibbert, 1988).

Within the 1990s, crisis communication, for lack of a better term, exploded due to research driven by the field of public relations. Publications and case studies came about focusing on corporate apologia, image restoration theory, and Situational Crisis Communication Theory (SCCT) (Benoit, 1995; Coombs, 2014; Hearit, 1994; Ice, 1991). The theoretical surge was supported by evidence-based research and management implications. Entering into the 2000s, interest in crisis communication increased within fields related to communication, but the management arena keeps its strong hold along with organizational psychology (Coombs, 2014).

The expansion of crisis communication resulted in national and international conferences, new theories (i.e. contingency theory), and practical models for implementation (i.e. Integrated Crisis Mapping) (Cameron, Pang, & Jin, 2007; Jin & Pang, 2010). A distinction came about surrounding macro versus micro conceptualizations of crisis communication and how it influenced practice as well as stage of communication in terms of pre-crisis, during, and post-crisis or adjusting, sharing, and instructing (Coombs & Holladay, 2002; Frandsen & Johansen, 2010; Ulmer, Seeger, & Sellnow, 2013). In the recent decade, the introduction of social media has continued the expansion of crisis communication and available strategies with a new focus on marketing. In essence, crisis communication has gone global.

2.3.2 Crisis Communication Strategies and Emergency Management

In terms of basic crisis communication strategies, a three-stage approach has been promoted throughout the literature concerning ideal crisis management occurring before, during, and after the crisis. Within these stages, there is a distinction between managing information and managing meaning (Coombs, 2012). Within the precrisis, or before, stage, it is critical for responsible officials to focus on planning and preparation. The more effective individual is one who is knowledgeable about policies and procedures and goes through training and exercises to determine any potential challenges. The crisis response, or during, stage focuses more on the implementation of policies and procedures and differentiating how an official reacts to the crisis and adapt communication strategies. The postcrisis, or after, stage concerns follow-up with stakeholders and returning to a sense of calm before preparing for the next event.

Speaking to emergency management and communication strategies, research has discussed the impact of communication before, during and after a disaster or hazard with an emphasis on information collection, organization, and dissemination (Chandler, 2010; Kapucu, Hawkins, & Rivera, 2013; Kapucu & Özerdem, 2011; McEntire, 2007; Sylves, 2014; Waugh & Streib, 2006) as well as strategies to aid in generating timely and comprehensible messages that meet the diverse needs of its audiences (Ulmer, Sellnow, & Seeger, 2017; Walker, 2012). Although variations in this research are discussed in later sections, the general recommendations and considerations revolve around: 1) how to transfer the message; 2) when to send the message; 3) will the recipient see, read or hear the message; 4) is the message comprehensible; and, 5) what will be the response. Overlap is also seen in terms of Situational Crisis Community Theory focusing on the aspects of instructing, adjusting, and sharing (see Figures 1, 2, and 3 for visual overlapping between crisis communication and emergency management communication).

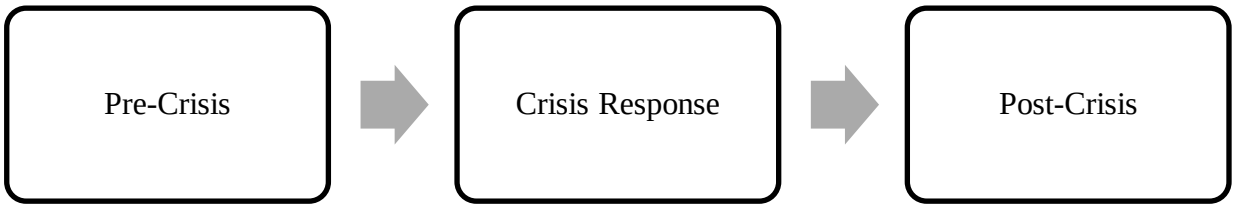

Figure 1. Visualization of Crisis Communication Strategies in Linear Timeline.

It is important to note the major differentiation between the visualizations below are the time-dependent, linear format of basic crisis communication and emergency management communication versus the cyclical, always evolving structure of Situational Crisis Communication Theory with elements of crisis communication integrated into it.

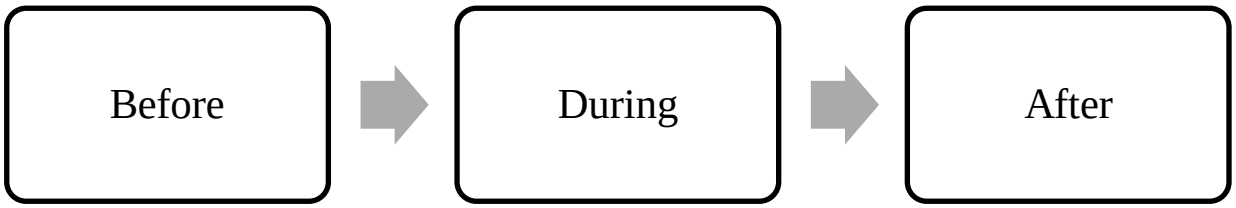

Figure 2. Visualization of Emergency Management Information Collection, Organizing, and Dissemination in Linear Timeline.

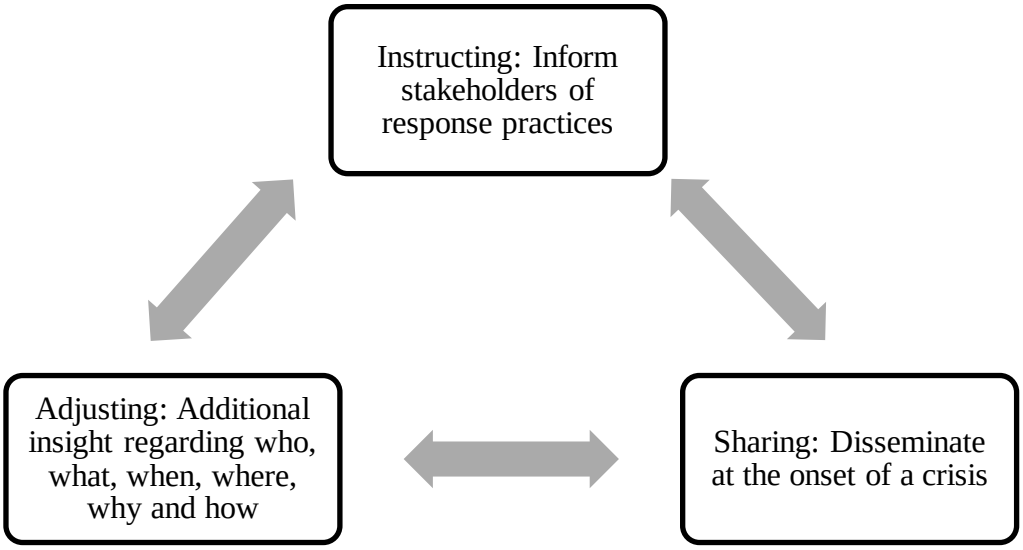

Figure 3. Visualization of Crisis Communication Strategies connected to Situational Crisis Communication Theory.

In terms of the current National Incident Management System (NIMS), developed by the FEMA (2015a), a traditional, all-hazards approach to assisting communities during the life cycle of a disaster (i.e., preparation, mitigation, response, and recovery) influences the adjustment of emergency management information and communication. Preparation involves increasing the readiness for potential disasters or hazards. Mitigation focuses on prevention and reduction of potential impact through: (a) changing the nature of the threat; (b) decreasing vulnerability; and (c) reducing exposure. The response component incorporates the community's capacity to monitor, predict, avoid, and reduce potential damage or address potential threats along with strengthening preparation activities for responding to disasters and assisting those impacted (Kapucu, Hawkins, & Rivera, 2013; Kapucu & Özerdem, 2011; McEntire, 2007; Sylves, 2014; Waugh & Streib, 2006).

Since it cannot be fully predicted how a crisis will affect local communities, trust and reliance are placed within an Incident Command System (ICS). This centralized command and control structure incorporates five dimensions (i.e., command, operations, planning, logistics, and finance and administration) and may include a public information officer, safety officer and a liaison (Boin & O'Connell, 2007; FEMA, 2015b). The main benefit of ICS is the ability for unified command and collaboration between local, state and federal stakeholders (Hu, Knox, & Kapucu, 2014); however, major challenges include lack of flexibility and adaptive capability of the system, growing complexity of communication needs for citizens, and variations in organizational hierarchy on local levels (Birkland, 2009; Hu, Knox, & Kapucu, 2014; Liu, Guo, & Nault, 2014).

In order to address these challenges, FEMA (2011) developed a whole community perspective to emergency management practice and expanded the significance of crisis related activities. Broadening responsibility from a government-centric to a community engagement perspective, FEMA (2011) promoted a deeper understanding of community complexity, recognition of capabilities and needs, intentional relationships with leaders, support of critical partnerships, empowerment of local action, and leverage of infrastructure, networks, and assets. As stated by FEMA Administrator Craig Fugate (2015):

> We need to move away from the mindset that the Federal and State governments are always in the lead, and build upon the strengths of our local communities and, more importantly, our citizens. We must treat individuals and communities as key assets rather than liabilities.

The inability of emergency management practitioners to understand all the needs of their community and generate a stable system for delivering critical information is time intensive and

complex (Paton & Johnston, 2001) with the most important aspects of communication consisting of the sources, channels and messages (Lindell & Perry, 2007; Walker, 2012). Sources are characterized by their expertise and trustworthiness. Channels are organized via type and number (i.e. radio, brochures, face-to-face, etc.). Messages consist of the information provided about hazards and the protective measures are characterized via comprehensibility, specificity, and number.

Concerning the sources, the "experts" sending and receiving information range from community members, first responders, and local, state and/or federal actors (Lindell & Perry, 2007). Practitioners and researchers soon began to notice disconnects between the sources of information, channels or communication tools utilized, and messages being released. As stated by Emergency Manager Manual Soto (2017) from the City of Orlando, "There needs to be one message…if your NGO partners, community partners, and government partners are saying something different, then the community suffers." However, issues arose concerning: anticipation of community needs; adaptation of communication for crisis type; information release before, during, and after a crisis; lack of initiative to communicate; inadequate or incompatible communication technology; variations in values and norms; high levels of stress and pressure on individuals and teams; rapid event shifts and changing information; tension with media and the public; poor information-gathering capacities; inability to convey accurate information and its meaning; and cognition and collaboration (Benson, 1998; Bharosa, Lee, & Janssen, 2010; Chandler, 2010; Coombs, 2012; Walker, 2012). Although the intent of these communication streams was well-intentioned, the impact varied due to how the message was sent, received, applied and reacted to (Benson, 1998; Phillips & Morrow, 2007).

> Every communication situation during a crisis must be approached with consideration of many dynamics. Therefore, communicated messages are complex and ambiguous at the same time. Successful public communication seeks to balance the needs and expectations of all of these diverse audiences and speak to each of them while not miscommunicating to the remainder (Chandler, 2010, p. 58).

Without an explicit design, the communication processes utilized consist of serious constraints due to an uncertainty of risk and the when, where, what, how and why (Comfort & Haase, 2006; Coombs, 2012). In order to stabilize the practice of emergency management communication, the Federal Communications Commission (FCC) became responsible for creating and administering policies regarding emergency communications and protection of existing infrastructure. Moreover, the Homeland Security Act of 2002 established an Office of Emergency Communications responsible for coordinating the establishment of a national planning, implementation, and training of communications equipment for relevant state, tribal, and local governments and emergency response providers (Department of Homeland Security [DHS], 2014).

Through their efforts, a plan was generated focusing on national emergency communication and provided guidance to practitioners and administrators. The National Emergency Communications Plan (NECP) specifically addresses: governance and leadership to enhance coordination, planning, and decision-making; planning and procedures in terms of assessing and improving emergency management communications and their readiness for dynamic environments; improving capabilities for responders to communicate and coordinate through exercise and training programs; operational coordination to improve effectiveness of

operations through communication of, and for, resources, personnel, and capabilities across the community; and, research and development to evaluate and support responders and unveil innovative capabilities (see Figure 4) (DHS, 2014).

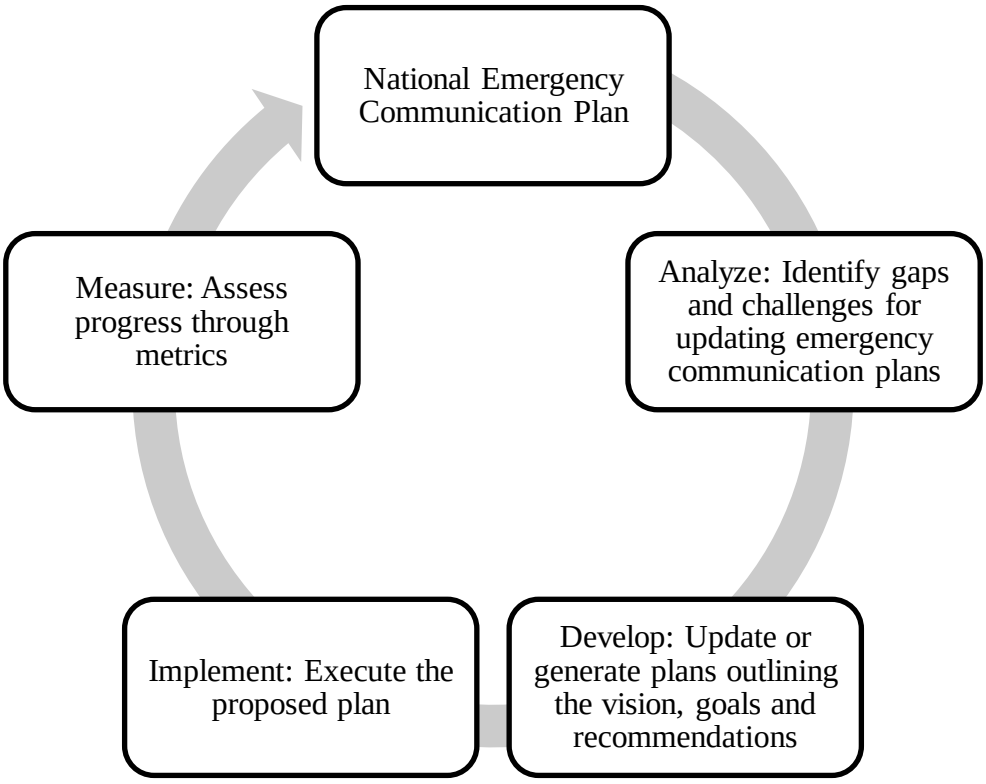

Figure 4. Adapted Visualization of National Emergency Communications Plan Goal Implementation (DHS, 2014).

The NECP was established to help local, state, and tribal emergency management practitioners strategically plan and incorporate seven objectives (DHS, 2014). The first is the creation of formal decision-making structures and designation of leaders to coordinate emergency communications capabilities. Second is the promotion of federal programs and initiatives to enhance collaboration and align with national goals. Third is the employment of common planning and operational protocols to intentionally utilize personnel and resources. Fourth relates to emerging technologies to be integrated into current communication structures

and be available for research, development, testing and evaluation. Fifth, in terms of responders, there must be a shared vision and approach to training and exercises to improve expertise and enhance response capabilities. Sixth focuses on the advancement of emergency communication within and between all levels, strategic planning efforts must integrate public-private partnerships and develops procedures as well as allocate resources. Lastly, preparation, mitigation, response and recovery capabilities must be implemented during all significant events.

Overall, the NECP provides a guiding tool for decision and policy makers to examine their emergency management, or crisis, communication in a way to develop more effective policies and procedures (DHS, 2014). The emphasis on assessment connects to the need for understanding local community needs and identifying areas of vulnerability where the community's resilience capacity could be affected. Intentional assessment and strategic planning related to overcoming any potential areas that may negatively affect resilience lead to information necessary for emergency managers. This information may lead to more insightful or detailed plans, action-related messages for community members, new stakeholders or partners that aid in related activities and tasks, or needed policies that do not currently exist.

To support effective crisis communication, emergency managers should operate in such a way that information collection, organization, and dissemination leads to messages characterized as: open, honest, accurate, tailored, two-way, and knowledgeable. Some additional identified best practices include: promoting effective communication regarding process approaches and policy development; pre-event planning; partnerships with the public; listening to the public's concerns and understanding the audience; collaboration and coordination with credible sources; meeting the needs of the media and remaining accessible; communicating with empathy and concern; accepting uncertainty and ambiguity; and promoting self-efficacy (Seeger,

2006). “The more attention that a [public administrator] can give to providing information on hazards, risk, and protective measures in non-crisis situations, the more likely it is that such information communicated during an actual emergency will result in adaptive citizen actions” (Perry & Nigg, 1985, p. 76). Essentially, the more attention given to crisis communication strategies and adaptations for local community needs, then the more resilient a community can become.

2.4 Identification of Local Community Needs

This section discusses local community needs with an emphasis on potential risks and vulnerabilities with a connection to crisis communication strategies.

2.4.1 Local Community Needs

In terms of a community level understanding, the concept of resilience has intrigued scholars from psychology to ecology to emergency management (Cutter et al., 2008; Drabek, 1985; Mayunga, 2007; Norris et al., 2008; Paton & Johnston, 2001; Ross, 2016; Sherrieb, Norris, & Galea, 2010). Regardless of the discipline focusing on resilience, dialogue between academicians and practitioners generated themes for administrators to seek out in order to support local community resilience. The themes consist of: 1) investing in a community’s social infrastructure; 2) expanding public participation; 3) deepening the process and opportunities for meaningful exchange between community residents and authorities in order to build trust and learn together; 4) assessing and aligning leadership practices between local priorities and community structures; 5) collaborating across jurisdictional boundaries for the purpose of matching initiatives and

resilience opportunities; and, 6) improving governance to increase a community's capacity and achieve a greater level of resilience (Bach, Kaufman, & Dahns, 2015).

Vulnerability is difficult to define. Early research related vulnerability to physical and structural attributes. For example, White and Haas (1975) studied place-based needs and the potential and actual losses from natural hazards. Mileti (1999) examined vulnerability in an attempt to reduce losses through emphasizing natural and human systems, human agencies, and the built environment. The more recent research focused on connections to specific populations, or qualities of social systems, inherently exposed and sensitive during a crisis (Cutter et al., 2008; Donner & Rodriguez, 2008; Myers, Slack, & Singelmann, 2008). Yet, at its basic level, vulnerability speaks to a lack of resources or a potentially heightened risk for negative impact.

Taking a vulnerability approach in research includes a focus on interconnected dimensions of social, political, and economic conditions (Bolin, 2006). This focus led to a vulnerability science or analytical field, which utilized a broad theoretical approach to investigate hazards and inequalities with an intrinsic focus on sustainability (Cutter, Boruff, & Shirley, 2003; Kasperson, Kasperson, & Down, 2001). Within this vein, the concept of vulnerability is a result of unnatural occurrences within already existing environmental, social, political, and economic conditions (Cutter, Boruff, & Shirley, 2003; Cutter et al., 2008; Quarantelli, 1990; Wisner, Blaikie, Cannon, & Davis, 2004).

The term vulnerability has been defined as "the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard" (Wisner et al., 2004, p. 11). The definition takes on the application of human factor characteristics and connects to aspects of ethnicity, gender, race, class, immigration status, and caste. Furthermore, the definition of a vulnerable population and a general guideline

was identified by the Centers for Disease Control and Prevention (2014b) through indicators of socioeconomic status, geography, age (children and elderly), disability, and risk status related to gender and sex.

Current research expanded these general guidelines to include populations that identify as having special needs, such as individuals with serious mental illness, extremely obese individuals, the institutionalized population, pregnant women, the homeless, English-as-second-language speakers, individuals with serious health issues such as those on dialysis, households with pets, households with no vehicles, and indigenous populations (Baker & Cormier, 2015; Kailes & Enders, 2007; Walls, Whitbeck, & Armenta, 2016). This social perspective lends itself to the need for understanding local context, adaptive capabilities, and fluctuating nature before, during, and after crises (Cutter et al., 2008; National Research Council, 2006).

When referring to the practice of emergency management, vulnerable populations are considered as individuals with the highest risk of injury, death or property loss due to specific circumstances or social characteristics (McEntire, 2012; Phillips & Morrow, 2007; Lazrus, Morrow, Morss, & Lazo, 2012). These specific circumstances or social characteristics may inhibit an individual, on some level, to function once a crisis has occurred (Baker & Cormier, 2015). The inclusion of a vulnerability perspective of local community needs is necessary to generate a holistic view of a community's capacity. This study referred to vulnerabilities as characteristics, factors, or attributes that may heighten the risk of injury, death, property loss or the inhibition to function fully once a crisis has occurred.

Within previous research, public administrators, and emergency managers, were deemed the wisest or most successful when they "were fully aware of the cultural differences among the myriad agencies there were involved in picking up the pieces," (Drabek, 2016, p. 232) and had a

deep understanding of cultural differences and utilized it. These administrators had an "understanding of and respect for community diversity [that did] not preclude unity of command" (Drabek, 2016, p. 233). Although this previous research lends itself to the knowledge of populations with specific cultural characteristics, the incorporation of a vulnerability approach only enhances an administrator's community competence as they are able to more realistically gauge resilience capacity and have the knowledge of areas for future improvement to continue building this capacity. There is an acknowledgment of adaptations needed depending on an organization or administrator's audience as well as challenges dependent upon specific cultural groups for crisis communication (Chandler, 2010). "It is not just what you say and how you say it, although those aspects are important- but it is the attention, perception, needs, and cognitive abilities of people in the midst of a crisis and how they will understand and react to your messages that ultimately determine how effective will be your emergency communication" (Chandler, 2010, p. 58).

2.4.2 Identification and Incorporation into Research

The challenge then lies in identifying these populations and incorporating their unique needs in preparation, mitigation, response and recovery activities as well as not viewing these groups as impaired or weak (Kailes & Enders, 2007). In terms of crisis communication, the connections between demographics and abilities to cope with a crisis hinge on effective policies and implementation. If due attention is given to the why and how vulnerable populations receive and interpret disaster information, then negative impacts can be effectively mitigated (Lazrus, Morrow, Morss, & Lazo, 2012). For instance, individuals who are deaf or hard of hearing require closed captions (Phillips & Morrow, 2007). The homeless, or transient, community lacks stable

connections to electronic resources affecting the ability to receive crisis related information and effectively prepare and respond (Wexler & Smith, 2013). Urban, or rural, communities are at a higher risk to be completely isolated during a crisis and must rely on neighbors to assist should response agencies be delayed, or communication infrastructure is damaged.

Moreover, the needs of each audience affect whether the community accepts or rejects crisis-related information (Coombs, 2012). If research is going to be useful, then it must levy behavioral responses and the complex array of situational and structural variables (Phillips & Morrow, 2007). A way to identify vulnerable populations is through community mapping. A Community Vulnerability Map is an inventory that reflects at-risk groups such as: residents of group living facilities, elderly, individuals with disabilities, renters, low income households, women-headed households, language minorities, recent residents/immigrants/migrants, individuals under the age of 15, large households, the homeless, and tourists (Morrow, 1999). In conjunction with identifying vulnerable populations, Community Vulnerability Maps can identify valuable resources, shelters, and local response networks. Additional suggestions for mapping include the integration with Geographic Information Systems.

The concept of mapping provides a scientific basis and achieve the following outcomes: a) visualize complex processes and interactions that add to understanding of social, economic, and physical events; b) utilize as a tool for teaching and learning; c) describe social, economic, or physical phenomena and processes; d) compare and contrast processes, situations, events, and dynamics of complex systems; e) collect and analyze data; and f) construct or explore theories, concepts, or dynamics (Sylves, 2014).

In conjunction with mapping techniques, a Social Vulnerability Index (SoVI) was generated by Cutter, Boruff, and Shirley (2003) focusing on factors of socioeconomic status,

household composition, race/ethnicity/language, and housing and transportation. These factors affect a community's ability to prepare, mitigate, respond and recover from a crisis and provide a more expansive contextual snapshot for decision-making. This index focuses on a geographically limited area, specifically counties and county-equivalents in the United States, to generate a cumulative score. This score uncovers the factors connected to areas of vulnerability, as well as interactions that could have a positive or negative impact on the community's resilience capacity. The usefulness of mapping techniques and understanding social vulnerabilities is to expand the understanding of a community's ability to effectively prepare, mitigate, respond and recover from a crisis. It is important to reiterate that vulnerability and resilience are not contrasting concepts, but complementary and are critical to understanding the community's inherent capacity. A population can be deemed vulnerable and still be resilient. These assessments are critical to understanding the unique needs of these populations to assist in more effectively preparing, mitigating, responding and recovering.

This study integrated the BRIC scores due to their range of factors connected to local community needs within the indicators (Cutter, Ash, & Emrich, 2014, 2016; Cutter, Burton, & Emrich, 2010). To briefly reiterate, the scoring index incorporates a range of factors connected to social vulnerabilities and is used for strategic planning and assessing community needs. In terms of a crisis communication plan, this document is essential in mapping out how to mitigate communication breakdowns as well as how to adapt strategies to the diverse audience (Chandler, 2010). Within this plan, roles and responsibilities are designated and the administrator is able to become the expert and source of information in terms of key stakeholders, contact databases, information policies, legal and ethical concerns, message planning, communication tools, common communication issues, and training timelines.

2.5 Theoretical Perspective: Situational Crisis Communication Theory

This section expands on the origins of Situational Crisis Communication Theory (SCCT) and its placement within previous research, as well as the inclusion of SCCT as the theoretical foundation for this study.

2.5.1 Theory Selection

Before moving to the discussion, it must be noted the researcher examined several other theories before choosing SCCT as being most appropriate. The researcher first examined theories related to the area of communication and emergency management. One of the first concepts investigated was focusing events generated by Birkland (1996; 1997; 1998; 2006). Birkland spoke to the phenomena of natural disasters acting as focusing events for policy change. With each new disaster, a spotlight is given to the policies and procedures related to the disaster. For many policies, the question of how to prevent the disaster from happening again is posed along with how to improve policies that failed during response and recovery. Although the concept of focusing events is easily connected to crisis communication and community resilience, the researcher searched for a theory that could incorporate diverse types of disasters or crises into the study.

The next concept examined is the discourse of renewal. This discourse incorporates four theoretical objectives that highlight a crisis as an opportunity for organizational learning, ethical communication, prospective vision, and positive rhetoric (Ulmer, Sellnow, & Seeger, 2007, 2017). In terms of organizational learning, the crisis unveils areas of growth, which is a similar concept to Birkland's focusing event and other researchers that see disasters as learning opportunities (Birkland, 2009; Drupsteen & Guldenmund, 2014; Norris et al., 2008; Toft &

Reynolds, 2016). The focus on ethical communication is to emphasize the organization's positive values that are, hopefully, in place before, during, and after the crisis. These values range from honesty, transparency, and trustworthiness and are the best predictors of positive renewal. Including a prospective vision means incorporating optimism into communication and keeping the organization's purpose and mission in mind to support renewal. The last concept of the discourse of renewal is positive rhetoric and connects to the leadership who would inspire others to stay committed to the cause. The discourse of renewal is seen to contrast corporate apologia or image restoration theory as not beginning from a perspective of protecting or repairing the organization's image (Ulmer, Sellnow, & Seeger, 2007, 2017). Albeit an idealistic approach, the reality of crises and disasters incorporates negatively impacted reputations and public images necessitating a restoration or repairing element. The theory for this study could not focus so intently on public relations and not be easily translatable into the area of emergency management.

The next model examined was the Center for Disease Control and Prevention's Crisis and Emergency Risk Communication (CERC) lifecycle (2014a). Although the focus is on public health and leans more towards the arena of risk communication, the model emphasizes six principles that connect to best practices of emergency management related communication. These principles include being first, right, credible, empathic, action-oriented, and respectful. The lifecycle of CERC is similar to the generalized timeline for emergency management related communication of pre-crisis, during, and after with expansion to include an evaluation component. CERC also incorporates similarity to SCCT with consideration for crisis type. However, the intricate focus on public health and lack of expansion to all arenas of emergency management led to further theoretical evaluations (CDC, 2014a).

2.5.2 Crisis Communication Theory

Regarding the endeavors of this study, a critical component is the application of theory to practice. Theory is useful in guiding the research and providing an explanatory framework regarding the results providing systematic explanations about relationships among phenomena and knits together observations and facts into an orderly system (Creswell, 2012; Diesing, 1992; Smith & Larimer, 2016). Integration of theory provides a way to predict future scenarios, inform practice, promote understanding, and uncover research topics (Sellnow & Seeger, 2013). Therefore, the theory guiding this study is Situational Crisis Communication Theory (SCCT).

Speaking of theoretical perspectives regarding a crisis, Boin and McConnell (2006) discussed the amalgam of perspectives connected to the range of social sciences. Within the discipline of sociology, the disaster perspective views a crisis as a phase in which institutions stop functioning. These phases are time-limited and functioning, or performance, of an institution or organization is impacted to the point of stopping all actions until the event ends. Additionally, sociologists incorporated a silver lining thought stream as a crisis was viewed as an opportunity for growth and change. Although crisis research was not deemed a niche within sociological research, the subfield of organization theory was integrated within a disaster event and formulated one of the most powerful theories for the crisis approach (Boin & McConnell, 2006). The inquiry into organizational theory then created a bridge between sociology and psychology and connects to the work done regarding safety research and decision making (Flin, 1996; Klein, 1999; Reason, 1990). The decision-making research led into international crises as well as political science. Entering into these arenas led to a focus on leadership, conflicts, and subjectivity (Allison, 1971; Boin & McConnell, 2006; George, 1991; Hermann, 1972; Herek, Janis, & Huth, 1987; Lebow, 1984).

Within the political science arena, crises were studied more with the lens of structure and function (Almond, Flanagan, & Mundt, 1973; Boin & McConnell, 2006; Keeler, 1993; Rosenthal, Boin, & Comfort, 2001; Stern, 1997; Zimmerman, 2013). In some research, the crisis was a necessary component that led towards a more democratic society (Almond, Flanagan, & Mundt, 1973; Boin & McConnell, 2006; Linz & Stepan, 1978; Zimmerman, 2013). Shifting towards the advancement of business management, research began to incorporate a focus on reputation damage and business continuity (Mitroff & Pauchant, 1990; Coombs, 2012; Sellnow & Seeger, 2006). The focus on reputation and organizations leads us back to the area of communication studies and research on actors, stakeholders, and communities (Fearn-Banks, 2016; Seeger, Sellnow, & Ulmer, 2003).

2.5.3 From Crisis Communication Theory to Situational Crisis Communication Theory

Linking crisis rhetorical theory and strategies with attribution theory, Coombs (2012) developed Situational Crisis Communication Theory (SCCT) to "evaluate the reputational threat posed by the crisis situation and then recommend crisis response strategies based upon the reputational threat level" (p. 138). The crisis response strategies came as a result of Apologia, Impression Management, and Image Repair Theory. The incorporation of attribution theory, a social science traditional approach, applies to crisis management situations by taking an audience-centered approach and considering the reaction of stakeholders to an event (Coombs, 2012). Attribution theory focuses on how an individual cognitively processes cause and effect within their environment (Kelley, 1967; Weiner, 1985). SCCT expands the concept from individual focused on an event to a group of individuals and how they infer a cause related to the action of an

emergency management organization (Sellnow & Seeger, 2013; Ulmer, Sellnow, & Seeger, 2017; Walker, 2012).

At the heart of SCCT is an emphasis on recovering from the crisis. It attempts to balance proactive and reactive measures in a way to intentionally respond and recover. With one of the overarching goals being to maintain a positive reputation within crisis response, SCCT is predominantly utilized in public relations research and acknowledges how the public assigns responsibility to response organizations (Sellnow & Seeger, 2013; Walker, 2012). More specifically, SCCT is focused on the degree to which individuals or a stakeholder holds an organization responsible for a crisis. A threat to effective communication consists of any negative reputation held by an administrator or organization. This theory proposed four groups of response strategies:

1) Denial Strategies- "Seek to prevent any connection between the organization and some crisis event and include denial, attacking the accuser, and scapegoating"
2) Diminish Strategies- "Try to reduce the perceived responsibility for the crisis and include justification and excuses"
3) Rebuild Strategies- "Attempt to improve the reputation and include compensation and apology"
4) Bolstering Strategy- "Try to draw on existing goodwill and should be used as a secondary strategy in support of others" (Coombs, 2012, p. 11).

The basic premise holds that the increase in attribution to an organization concerning crisis responsibility, then strategies must be adapted to meet the increased needs. In terms of basic crisis communication strategies, an administrator or emergency manager can begin with a threat assessment of crisis type, history, and prior reputation. As previously discussed, the

typologies include natural disasters, workplace violence, rumors, malevolence, challenges, technical-error accidents, technical-error product harm, human-error accidents, human-error product harm, and organization misdeeds (see Table 3 for definitions). Depending on typologies, administrators and their communities relate preparation, mitigation, response and recovery activities to previous events and gauge predilection for future events. Prior connections determine whether the community holds a negative or positive reputation for community resilience capacity (Coombs, 2012; Sherrieb, Norris, & Galea, 2010).

Table 3. Definitions of Crisis Typologies (Coombs, 2012).

Crisis Type	*Definition*
Natural Disasters	When an organization is damaged as a result of the weather or "acts of God" such as earthquakes, tornadoes, floods, hurricanes, and bad storms.
Workplace Violence	When an employee or former employee commits violence against other employees on the organization's grounds.
Rumors	When false or misleading information is purposefully circulated about an organization or its products in order to harm the organization.
Malevolence	When some outside actor or opponent employs extreme tactics to attack the organization, such as product tampering, kidnapping, terrorism, or computer hacking.
Challenges	When the organization is confronted by discontented stakeholders with claims that it is operating in an inappropriate manner.
Technical-error Accidents	When the technology utilized or supplied by the organization fails and causes an industrial accident.
Technical-error Product Harm	When the technology utilized or supplied by the organization fails and results in a defect or potentially harmful product.
Human-error Accidents	When human error causes an accident.
Human-error Product Harm	When human error results in a defect or potentially harmful product.
Organizational Misdeeds	When management takes actions, it knows may place stakeholders at risk or knowingly violates the law.

The crisis types for this study include natural disasters, community violence, and health epidemics. In terms of natural disasters, this study incorporates an emphasis on earthquakes,

hurricanes, tornadoes, and floods due to their prevalence in the United States (Disaster Survival Resources, 2017; FEMA, 2017). Community violence is an adaptation of workplace violence and organizational misdeeds where the act of violence is transferred from a workplace environment to a community, which is an increasing crisis in the United States, and incorporates actions of management, or community leaders, that may increase the risk for community members and potentially violate current laws (Coombs, 2012). In the United States, civil rest is arguably on the rise giving grounds to community related violence that incorporates violent crime, hate crimes, and riots (Bureau of Justice Statistics, 2013; Cook, 2017; Marable, 2016; Sackett, 2016). Health epidemic was included as an adaptation to human-error product harm as the United States has experienced health-related crises due to product tampering or biologically driven terrorism caused by individuals versus technology (Coombs, 2012). Health epidemic was chosen due to the connection to public health concerns and risk communication.

SCCT broadens these strategies and provides a prescriptive system to connect response strategies to the crisis situation (Coombs & Holladay, 2002). Although the focus is on organizational reputation, SCCT is applicable to this study as crisis type affects crisis communication strategies and local community needs, including vulnerable populations, to strengthen community resilience capacity. An emergency manager's response to a crisis directs the ability to adapt communication and whether they include local community needs and vulnerable populations into this adaptation (see Table 4 for crisis response strategies) (Coombs, 1999; Coombs & Holladay, 2002; Sellnow & Seeger, 2013).

Table 4. Crisis Response Strategies adapted from Coombs (2012).

Response Strategy	*Description*
Attack on the accuser	Crisis manager confronts the group or person that claims a crisis exists.
Denial	Crisis manager claims that there is no crisis.
Excuse	Crisis manager attempts to minimize organizational responsibility for the crisis.
Victimization	Crisis manager reminds stakeholders that the organization is a victim of the crisis as well.
Justification	Crisis manager attempts to minimize perceived damage inflicted by the crisis.
Ingratiation	Crisis manager praises stakeholders and reminds them of the past good works done by the organization.
Corrective action	Crisis manager tries to prevent a repeat of the crisis and/or repair the damage done by the crisis.
Full apology	Crisis manager publicly accepts responsibility for the crisis and requests forgiveness from the stakeholders.

If an emergency manager is aware of how they will respond to the crisis, then they are more apt to pick a strategy that will positively impact their company as they tailor their messages and instruct specific stakeholders in such a way to circumvent any negative consequences. On the other side, knowing these strategies assists those receiving the information to understand how the manager is viewing the incident and how they and the community are impacted by their leadership. In conjunction with the manager's response, the type of crisis impacts the communication needs and previous history, or experiences, will affect how emergency management practitioners and their community responds (Coombs, 2012; Liu, Austin, & Jin, 2011; Sherrieb, Norris, & Galea, 2010; Ulmer, Sellnow, & Seeger, 2017; Walker, 2012). In addition to the response strategy groupings, SCCT takes into consideration crisis clusters, which were formed by integrating crisis type with attributions of crisis responsibility (Coombs, 2014; Coombs & Holladay, 2002).

1) Victim Cluster- Weak attributions of crisis responsibility where the organization is considered a victim. These include natural disasters, workplace violence, product tampering, and rumor.
2) Accidental Cluster- Minimal attributions of crisis responsibility and the event is considered uncontrollable or unintentional by the organization. These include technical-error accident, technical-error product harm, and challenge.
3) Intentional/Preventable Cluster- Strong attributions of crisis responsibility and the event is considered purposeful. These include human-error accident, human-error product harm, and organizational misdeed.

Once this information has been taken into account, an administrator or emergency manager can utilize SCCT to organize information into three types: instructing, sharing and adjusting, which parallel the basic emergency information communication process of information collection, processing and dissemination. SCCT broadens these strategies and provides a prescriptive system to connect response strategies to the crisis situation (see Table 5) (Coombs & Holladay, 2002; Ulmer, Sellnow, & Seeger, 2017).

Table 5. Crisis Type and Strategy Matching adapted from Coombs (2012).

Crisis Types		*Crisis Response Strategies*	
Victim Cluster	Natural Disaster Rumor Workplace Violence Product Tampering/ Malevolence	**Deny Strategies**	Attack the accuser Denial Scapegoat
Accidental Cluster	Challenges Technical-Error Accidents Technical-Error Product Harm	**Diminish Strategies**	Excuse Justification
Preventable Cluster	Human-Error accidents Human-Error Product Harm Organizational misdeed with no injuries or with injuries or management misconduct	**Rebuild Strategies**	Compensation Apology

Overall, SCCT is applicable as it places importance on the individuals involved and how they interact with the crisis. Although the focus is traditionally attributed to organizational reputation and previous researchers applied this theoretical lens to the area of product recalls and nonprofit organizations, SCCT is applicable to this study as situational response to a crisis affects communication strategies and, in turn, impacts community resilience capacity (Coombs & Holladay, 2002; Sellnow & Seeger, 2013).

2.6 Conceptual Framework and Hypotheses

The following conceptual framework highlights the relationship between crisis communication strategies, crisis typology, local community needs, and community resilience. Moreover, the framework is based on the research discussed in the literature review and theoretical perspective (see Figure 5). Within the visualization, the definitive lines represent direct effect from one variable onto another while the dotted line represents a potential indirect effect from one variable to another.

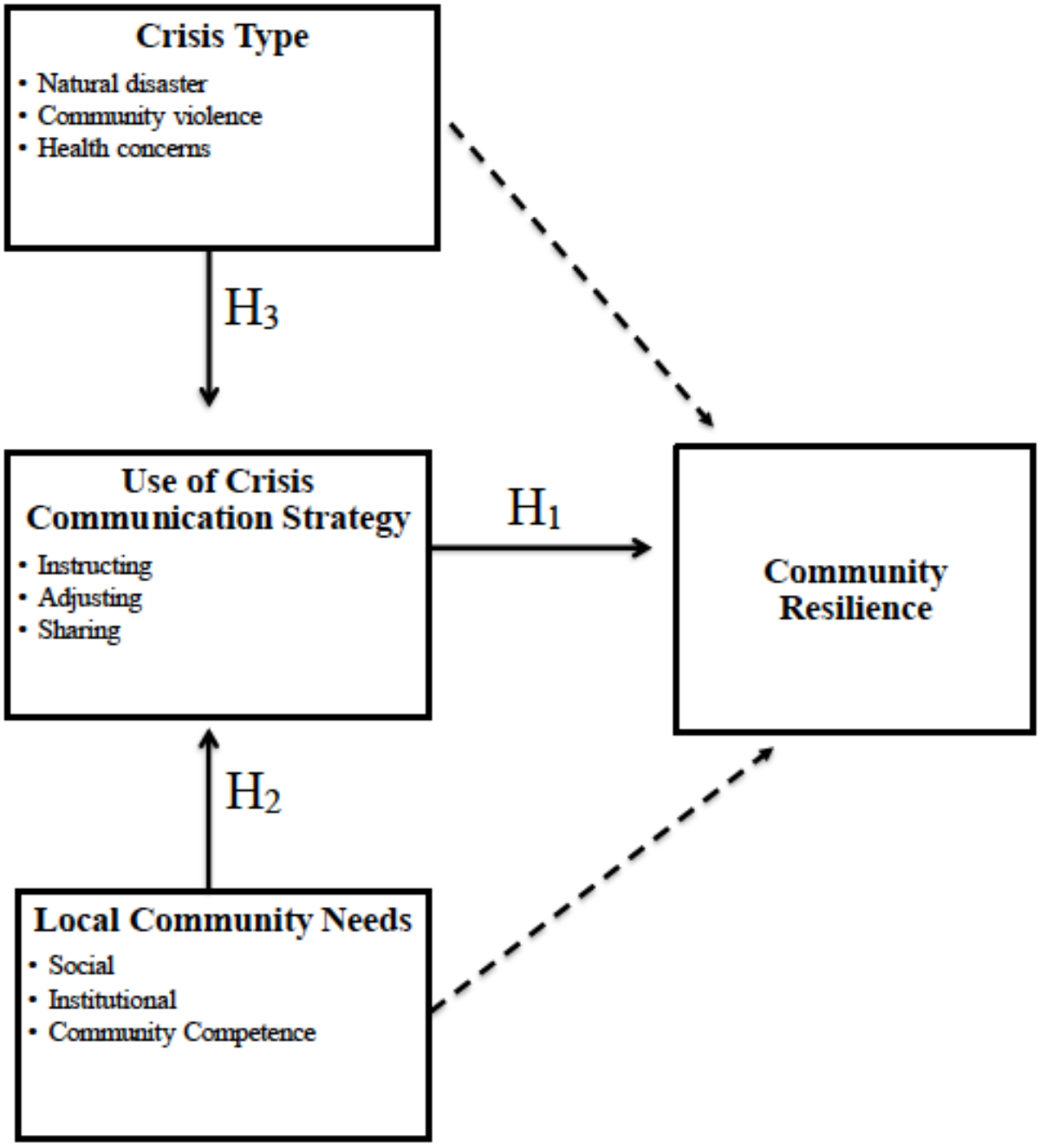

Figure 5. Conceptual Framework.

Based on the literature review and research questions, the following hypotheses were developed:

To support effective crisis communication, emergency managers must operate in such a way that information collection, processing, and dissemination leads to instructing, adjusting, and sharing messages characterized as: open, honest, accurate, tailored, two-way, and knowledgeable (Kapucu, Hawkins, & Rivera, 2013; Kapucu & Özerdem, 2011; McEntire, 2007; Perry & Nigg, 1985; Seeger, 2006; Sylves, 2014; Waugh & Streib, 2006). Some identified best practices include: promoting effective communication regarding process approaches and policy development; pre-event planning; partnerships with the public; listening to the public's concerns and understanding the audience; collaboration and coordination with credible sources; meeting the needs of the media and remaining accessible; communicating with empathy and concern; accepting uncertainty and ambiguity; and promoting self-efficacy. These practices are intrinsically connected to crisis communication and are critical to building community resilience. Therefore, the use of crisis communication strategies will improve community resilience and is verified if the results of covariance structure model analysis yields a positive score.

H_1: Use of crisis communication strategies positively affects community resilience.

It has become imperative to not only identify local community needs but the vulnerable populations within an emergency manager's jurisdiction. They must be able to understand how effective crisis communication and coordination influences resilience capacity of these communities (Comfort, 2007; Comfort, Boin, & Demchak, 2010; Cutter, Burton, & Emrich, 2010; Paton & Johnston, 2001; Pine, 2015). Recent catastrophes shed light on the inexcusable inabilities of emergency management to adapt their communication needs to the local community and its vulnerable populations, which can be classified by socioeconomic status,

race, political connections, infrastructure and more. The critical relationship between community characteristics and vulnerability is not a linear relationship; therefore, practitioners must understand how communities receive, react and comprehend information and adapt crisis communication strategies accordingly. Therefore, the use of crisis communication strategies adapted to local community needs will improve community resilience and is verified if the results of covariance structure model analysis yields a positive score.

H_2: Use of crisis communication strategies adapted to local community needs affects community resilience.

By integrating crisis typology into communication strategies, emergency management practitioners are theorized to more effectively respond a crisis and prepare for a future event; however, a level of adaptability is needed as perception and reality differ especially as how someone perceives themselves differs from how another individual or group sees them (Bandura, 1989; Markus & Kitayama, 1991; Markus & Wurf, 1987; Mead, 1934). The Situational Crisis Communication Theory also provides practitioners with more resources for informed decision-making to prepare their communities for crisis response and recovery dependent upon adaptation of communication strategies based on crisis typologies (Coombs, 2012; Coombs & Holladay, 2002; Sellnow & Seeger, 2013; Sherrieb, Norris, & Galea, 2010; Ulmer, Sellnow, & Seeger, 2017; Walker, 2012). Therefore, the use of crisis communication strategies adapted to crisis type will improve community resilience and is verified if the results of covariance structure model analysis yields a positive score.

H_3: Use of crisis communication strategies adapted to crisis type affects community resilience.

2.7 Chapter Summary

This chapter discussed the incorporation of emergency management related tasks and activities into the role and responsibilities of public administrators. More specifically, supporting safe communities and fostering positive development to prepare, mitigate, respond and recover from crises are quintessential. This goal is incorporated fully into emergency management communication focused on trustworthy, accurate, and tailored messages where the process of information collection, organization, and dissemination is imperative. The ineffectiveness of communication negatively impacts community resilience albeit the concept is complex in its measurement and hinges on experts connected to emergency management. Integrating the lens of crisis communication strategies supports the goal of safe and resilient communities through its emphasis on local community needs and adaptation due to crisis type. These pivotal connections are also detailed in the theoretical perspective of the study, Situational Crisis Communication Theory. Overall, the evolution of emergency management and public administration, complex measurement of resilience, integration of crisis communication strategies with its inclusion of adaptations per crisis type and local community needs, and infusion of Situational Crisis Communication Theory led to the creation of a conceptual framework and study hypotheses for testing. The next chapter highlights the research method deemed most appropriate for the study as well as the chosen statistical analysis of Structural Equation Modeling.

CHAPTER 3: RESEARCH METHOD

This chapter details the method for this non-experimental, cross-sectional research by discussing variables, quantitative and qualitative methods, Structural Equation Modeling (SEM), power analysis, survey instrument, and data collection. For this exploratory analysis, the researcher collected data through a web-based survey to ascertain county level emergency management practitioner's perception of community resilience capacity with a focus on crisis communication strategies and local community needs.

3.1 Research Design

This study utilizes a cross-sectional, non-experimental research design, as these are predominantly used within social science research (Campbell & Stanley, 2015; Miller & Salkind, 2002). The cross-sectional portion of the study lends itself to being more feasible as it does not encounter time or logistical constraints found within experimental or quasi-experimental designs. Additionally, cross-sectional studies are characterized as being more useful for social science research, since there is no need to create an artificial environment and it allows us to survey groups at one point in time.

According to research, surveys are well suited for studies regarding public opinions or perceptions (Coombs, 1997; Dillman, 2000; Kaplowitz, Hadlock, & Levine, 2004; Sills & Song, 2002). The strengths of this particular method include: the ability to obtain descriptive information, enhance the feasibility of the research, allow for flexibility for analysis, and strengthen measurement. Weaknesses incorporate requirements of question standardization, challenges regarding contextual information, lack of flexibility in design, and social desirability bias. As previously discussed, the proposed plan to survey emergency managers on the county

level is pivotal as this level is the beginning of preparation, mitigation, response and recovery activities (Cutter et al., 2008; McGuire & Silva, 2010; Morrow, 1999; Okechukwu Okoli, Weller, & Watt, 2014; Waugh & Streib, 2006; Waugh, 1994). County level emergency management practitioners are considered the experts of their communities meaning their knowledge base is critical to understanding relationships between crisis communication strategies, local community needs, and community resilience (Okechukwu Okoli, Weller, & Watt, 2014; Sills & Song, 2002).

As discovered by Okechukwu Okoli, Weller and Watt (2014), eliciting expert knowledge provides insight into information filtering, knowledge base and mental models, pattern matching, leverage points and mental simulation. Information filtering calls to the ability of an expert to systematically review information for relevance and increase their cognitive capacity. Knowledgebase and mental model speaks to the ability to translate the information into a meaningful representation. Pattern matching alludes to the expert's ability to relate a current situation to previous experiences and integrate into their actions. Leverage points speak to the ability to improvise and adapt to each new situation. Mental simulation is the ability of an expert to project their current situation to future events and plan accordingly.

3.2 Population, Sample Size, and Power Analysis

For the purposes of this study, the population consists of county level emergency managers in the United States. As previously discussed, the county level is the lowest formalized level in the organizational structure and the connected emergency managers are the experts of their communities. The survey was distributed to 2073 county level emergency managers and contained closed- and open-ended questions to understand practitioners' perceptions of crisis

communication, local community needs, and community resilience. For Structural Equation Modeling (SEM), there lacks agreement on the sample size necessary for analysis (Arbuckle & Wothke, 2012; Kaplan, 2001; Sideridis, Simos, Papanicolaou, & Fetcher, 2014; Weston & Gore, 2006; Wolf, Harrington, Clark, & Miller, 2013). Researchers vary in their recommendation from 5, 10, or 15 cases per parameter to a minimum of 200. Although the promoted sample size varies, the main concern is whether model fit can be achieved. According to Wolf, Harrington, Clark, and Miller (2013), the sample size requirement actually decreases when the number of model indicators increases. Sideridis, Simos, Papanicolaou, and Fletcher (2014) concluded model fit in their study that included five latent variables.

The researcher reviewed recommendations on general survey research. Dillman (2000) stated a response rate of 70% could be achieved if the survey design is given close attention and the subject matter is for general public populations. Kittleson (1997) stated response rates are higher for those who utilize notices and reminders in an appropriate fashion without oversaturation. If no notices or reminders are provided, researchers can expect a response rate of at least 25 to 30%. However, obtaining a response rate of 25% or higher for this population (approximately 519 respondents) is unrealistic, as practitioners in the field of emergency management reach their peak of natural disasters and response scenarios at the end of the summer season (Ready.gov, 2017; Staletovich, 2015; Stapf, 2017).

After reviewing the research and comparing to the variables in this study's models, it was determined that 60 to 200 responses are adequate. In terms of power analysis, this study utilized an alpha level of .05. The power analysis takes into account effect size, or the salience of the program relative to the noise, the alpha level or significance level, and the probability of

rejecting the null hypothesis when the null hypothesis is false and means there is a 95% confidence rate that the results are not due to chance.

3.3 Survey Instrument and Data Collection

The survey instrument is a 68-item questionnaire, containing 5-point Likert style and open-ended questions as well as demographic information. The web-based survey, hosted in University of Central Florida's Qualtrics account, was created and disseminated to 2,073 county level emergency managers across the nation. The informed consent page is located in Appendix A with the survey instrument in Appendix B. It is important to note survey questions related to communication avenues, collaboration potential, and demographics were adapted from previously conducted research by Naim Kapucu to determine preparedness for hurricanes in Florida (Kapucu, 2008). Moreover, a pilot test was conducted to determine whether there are validity or reliability issues and if it produces stable and consistent results. Review of the initial survey led to minor adaptations to the wording of questions as well as the addition of a section to determine the time period when the emergency manager experienced natural disasters, health epidemic, and community violence.

The survey instrument is divided into five sections: 1) Crisis Communication Strategies with integrated Crisis Type, 2) Local Community Needs, 3) Community Resilience, 4) Open-ended Questions, and 5) Demographics (Appendix B). The measurement of these sections is detailed in the next segment. Quantitative analysis was conducted for sections one, two and three as specific questions align to a closed-ended, Likert-scale style where the respondent noted agreement or importance for components of crisis communication strategies, local community needs, and community resilience.

The qualitative portion of the instrument applied to open-ended questions within the survey to add depth to the breadth of the received responses. The questions are listed below and were analyzed using coding and thematic analysis (Boyatzis, 1998; Miles & Huberman, 1994; Saldaña, 2015), which is discussed in a later segment.

1. How would you describe your level of expertise?
2. Is there anything you would like to add that you believe is critical for crisis communication?
3. Is there anything you would like to add that you believe is critical to building community resilience?
4. Are there any documents or reports you would like to share that connects the concepts of crisis communication and community resilience? If so, how can the copies be obtained?

Another qualitative component of the study was the option for follow-up interviews for those interested. This opportunity was presented at the end of the web-based survey. Those who volunteered were contacted and provided more information (i.e. interviews were recorded and adherence to anonymity) along with a link for scheduling a 30-minute timeslot with the researcher.

In conjunction to the survey, the researcher utilized BRIC scores to provide a secondary data source for comparing emergency manager's perceptions and resilience scores for their county. The BRIC data file the researcher utilized is the 2010 scores compiled from the University of South Carolina Hazards and Vulnerability Research Institute (2016). BRIC creates a resilience score based on 49 disaster-focused indicators on the county level (Cutter, Ash, & Emrich, 2014, 2016; Cutter, Burton, & Emrich, 2010). During the survey creation process, the

BRIC indicators related to disaster and its scale, institutional, social, and community competence were integrated into those that measure community resilience.

The use of qualitative and quantitative methods assists in methodological triangulation where multiple methods are used to gather data, such as surveys, interviews, and secondary data (Denzin, 1978, 2012). The utilization of a web-based survey, comparison to BRIC scoring, and follow-up interviews provides more support to obtained results through increased credibility, reliability and validity of the study's design (Denzin 1978, 2012; Jick, 1979; Olsen, 2004).

Once the data was collected, it was cleaned and reviewed for missing values to determine if the values are missing at random, not at random, or completely. This is an important part of the data cleaning process, as there may be a pattern needing attention before further analysis is completed. The next set of examinations include descriptive statistics to get an overview of the variables then verification of assumptions for Structural Equation Modeling, such as confirmatory factor analysis and Cronbach's alpha (Arbuckle & Wothke, 2012; Gliem & Gliem, 2003; Pallant, 2013; Santos, 1999). These assumptions include sample size, complete data, multicollinearity, normality, and model identification.

3.4 Measurement and Study Variables

The primary dependent, and latent endogenous, variable for this study was Community Resilience with Crisis Communication Strategies being a secondary, latent endogenous variable. It is important to note although Crisis Communication Strategies was considered endogenous in its relationship to Local Community Needs and Crisis Type, it is exogenous in its relationship to Community Resilience and was categorized as an independent variable (Arbuckle & Wothke, 2012; Kaplan, 2001; Kenny, 2014; Kline, 2015). The unit of analysis was the county level

emergency manager. The independent, or latent exogenous, variables consisted of Local Community Needs and Crisis Type with. The study variables are included in Table 6 followed by a more detailed discussion of each component closing with a comprehensive list and SEM components.

Table 6. Study Variables.

Variable	*Definition*	*Survey Section*
Community Resilience (Endogenous)	The capability of a community to respond to, recover from, and develop once a crisis has been realized.	Likert-Scale Score for agreement or importance designation concerning community resilience section and comparison to BRIC scores.
Crisis Communication Strategies (Endogenous)	The ongoing process of creating shared meaning among and between communities within the ecological context of a crisis, for the purpose of preparing for and reducing, limiting and responding to threats and harm (Sellnow & Seeger, 2013). This is done via strategies connected to instructing, adjusting and sharing.	Likert-Scale (1-5) for agreement or importance designation for crisis communication section.
Crisis Typology (Exogenous)	Crisis types include: natural disasters, health concerns, and community violence (Coombs, 2012).	Likert-Scale (1-5) for agreement or importance designation. This segment is integrated into crisis communication section of the survey.
Local Community Needs (Exogenous)	Includes aspects of Cutter, Burton, and Emrich's (2008) resilience model focusing on Social, Institutional, and Community Competence components. These components also focus on vulnerable populations as individuals with characteristics that inhibit their ability to function once a crisis has occurred.	Likert-Scale (1-5) for agreement or importance designation. This segment is integrated into crisis communication section.
Demographics (Control)	Characteristics of the survey participant and their emergency management organization and community (i.e., state, community type, gender, age, educational degree).	Open response area or categorical response possibilities

3.4.1 Crisis Communication Strategies

The questions related to the latent endogenous variable of Crisis Communication Strategies are seen in Table 7. Response options included a 5-point Likert scale from strongly disagree to strongly agree and a segment to denote time since experiencing certain crisis types and importance of communication avenues.

Table 7. Crisis Communication Strategies Survey Connections.

Conceptual Connections	*Variable Code*	*Survey Question*
Instructing/Adjusting	Q1	My department is mainly responsible for creating crisis communication plans and strategies
	Q2	My department exercises crisis communication strategies regularly
	Q3	My department exercises crisis communication strategies with community partners
Sharing	Q4	My department focuses on information sharing between different community departments
	Q5	My department markets our plans on our websites
	Q6	My department markets our plans on other community partner's websites
	Q7	My department markets our plans on flyers and posters
	Q8	My department markets our plans via social media
	Q9	My department provides updated information at least every hour during the event
	Q10	My department provides updated information at least once every three hours during the event
Adjusting	Q11	My department assesses our crisis communication plan at least once a year
Instructing/Sharing	Q12	My department assesses our crisis communication plan with community partners

The proposed measurement model is illustrated in Figure 6.

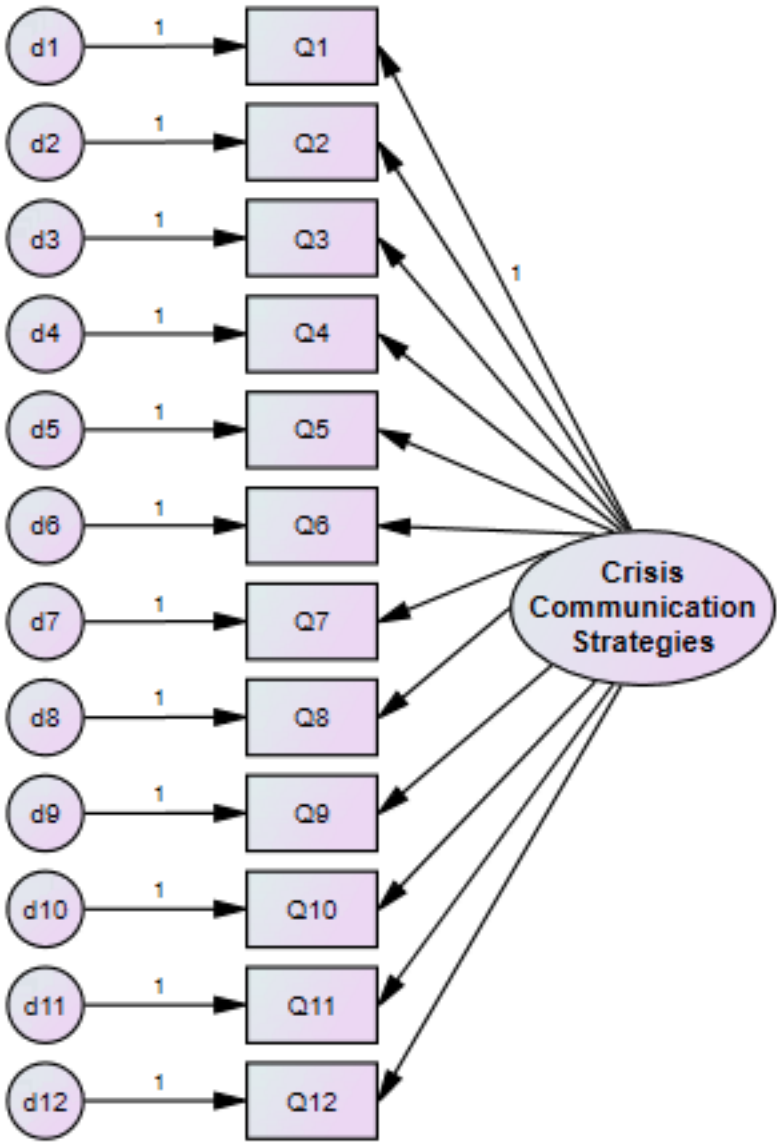

Figure 6. Crisis Communication Strategies Measurement Model.

3.4.2 Local Community Needs

The questions related to the latent exogenous variable of Local Community Needs are seen in Table 8 and the response options are on a 5-point Likert scale denoting agreement.

Table 8. Local Community Needs Survey Connections.

Conceptual Connections	*Variable Code*	*Survey Question*
Local Community Needs	Q13	My department has a positive relationship with the community
	Q14	My department identifies what is most important for the community to know
	Q15	My department provides tailored messages for different cultures within the community
	Q16	My department provides communications in different languages for the community
	Q17	My department provides community outreach campaigns for vulnerable populations
	Q18	My department uses (easy-to-understand) language to explain what is going on
	Q19	My department uses visual images such as maps to help explain what is going on
	Q20	My department identifies the most important topics and highlights these in communication
	Q21	My department uses a spokesperson with whom the community is familiar
	Q22	My department includes specific action to be taken by the community in each warning message

The proposed measurement model is illustrated in Figure 7.

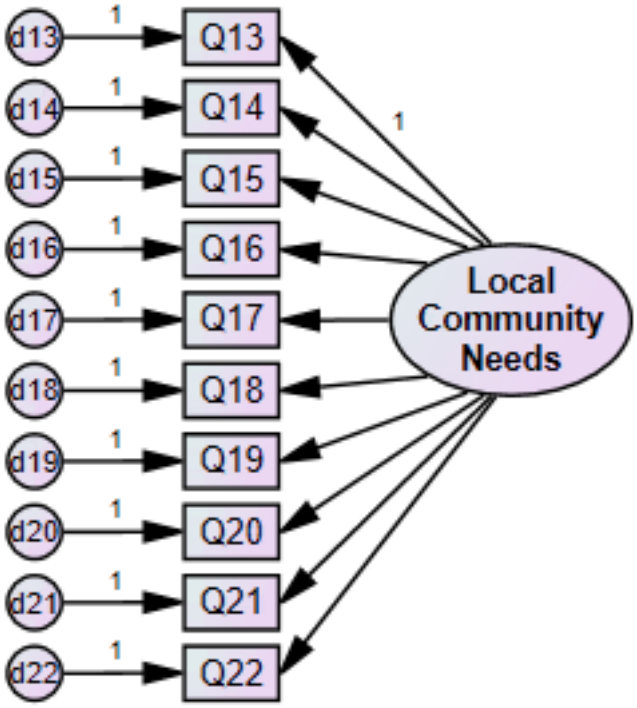

Figure 7. Local Community Needs Measurement Model.

3.4.3 Crisis Type

The questions related to the latent exogenous variable of Crisis Type are seen in Table 9 and the response options consisted of a 5-point Likert scale denoting agreement as well as a categorical scale for time period since experiencing certain crisis types.

Table 9. Crisis Type Survey Connections.

Conceptual Connections	*Variable Code*	*Survey Question*
Crisis Type/ Disaster and its Scale	NA	Please note how recently your community has experienced the following crisis type(s): Earthquake
	NA	Please note how recently your community has experienced the following crisis type(s): Tornado
	NA	Please note how recently your community has experienced the following crisis type(s): Flood
	NA	Please note how recently your community has experienced the following crisis type(s): Hurricane
	NA	Please note how recently your community has experienced the following crisis type(s): Health Epidemic
	NA	Please note how recently your community has experienced the following crisis type(s): Community Violence
	Q23	My department adapts information for natural disasters
	Q24	My department adapts information for health concerns
	Q25	My department adapts information for community violence

The proposed measurement model is illustrated in Figure 8.

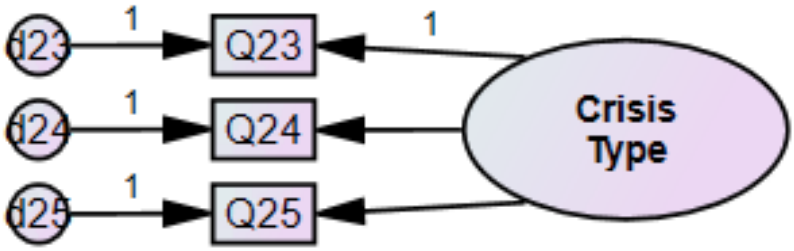

Figure 8. Crisis Type Measurement Model.

3.4.4 Community Resilience

The questions related to the latent endogenous variable of Community Resilience are seen in Table 10 with response options include on a 5-point Likert scale denoting agreement or importance level.

Table 10. Community Resilience Survey Connections.

Research Connection	*Variable Code*	*Corresponding Likert-Scale Survey Question*
Institutional/ Social/ Community Competence	Q26	Leadership support from the state emergency management practitioner(s)
	Q27	Leadership support from surrounding local emergency management practitioner(s)
	Q28	Trust with the community
	Q29	Providing emergency management training and certification opportunities for administrators
	Q30	Conducting routine assessments to update plans and procedures
	Q31	Conducting routine needs assessments
	Q32	Conducting comprehensive vulnerability assessments
	Q33	Collaborating with community partners for support, expertise, etc.
	Q34	Personally, participating in training and certification opportunities focused on emergency management
	Q35	In the absence of a crisis, sustaining relationships with other organizations
	Q36	In the absence of a crisis, being involved in collaborative strategies (such as exercises, and meetings) with organizations you collaborate with during a crisis

The proposed measurement model is illustrated in Figure 9.

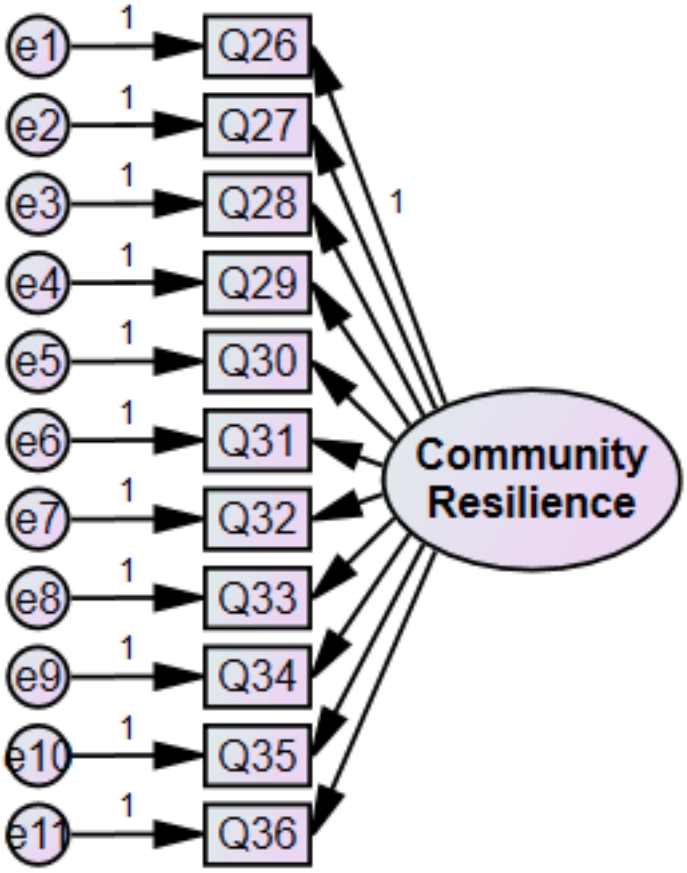

Figure 9. Community Resilience Measurement Model.

3.4.5 Control Variables

The questions related to these indicators are seen in Table 11. Response options are also provided in the table varying from an open box to categorical options.

Table 11. Control Variables Survey Connections.

Question	*Answer Options*
How many years have your worked in your position?	Open
How many years have you worked in your current jurisdiction?	Open
How many years have you worked in public sector?	Open
Approximately, how many full-time employees work in your department/unit? (Please check one)	_ 1-5 _ 6-15 _ 16-25 _ 26-50 _ over 50
What is your gender?	_ Male _ Female
What is your age?	_ under 35 _ 35-44 _ 45-54 _ over 54
What is your highest degree?	_ High school graduate, diploma or the equivalent _ Trade/technical/vocational training _ Associate Degree _ Bachelor's Degree _ Master's Degree _ Doctorate degree
In which field is your highest degree?	Public Administration, Engineering, Emergency management, Sociology, Political Science, management, Others

3.4.6 Structural Equation Modeling for the Covariance Structural Model

The hypothesized relationship between the endogenous and exogenous variables is examined utilizing SEM and is presented in Table 12.

Table 12. Operationalization of Variables for Structural Equation Model.

Code	Attribute	Variable	Measurement Type	Data Type
1	*Endogenous*	*Community Resilience*	*Latent*	
Q26	Endogenous-Indicator	Leadership support from the state emergency management practitioner(s)	Measurable	Ordinal
Q27	Endogenous-Indicator	Leadership support from surrounding local emergency management practitioner(s)	Measurable	Ordinal
Q28	Endogenous-Indicator	Trust with the community	Measurable	Ordinal
Q29	Endogenous-Indicator	Providing emergency management training and certification opportunities for administrators	Measurable	Ordinal
Q30	Endogenous-Indicator	Conducting routine assessments to update plans and procedures	Measurable	Ordinal
Q31	Endogenous-Indicator	Conducting routine needs assessments	Measurable	Ordinal
Q32	Endogenous-Indicator	Conducting comprehensive vulnerability assessments	Measurable	Ordinal
Q33	Endogenous-Indicator	Collaborating with community partners for support, expertise, etc.	Measurable	Ordinal
Q34	Endogenous-Indicator	Personally, participating in training and certification opportunities focused on emergency management	Measurable	Ordinal
Q35	Endogenous-Indicator	In the absence of a crisis, sustaining relationships with other organizations	Measurable	Ordinal
Q36	Endogenous-Indicator	In the absence of a crisis, being involved in collaborative strategies (such as exercises, and meetings) with organizations you collaborate with during a crisis	Measurable	Ordinal
2	*Endogenous*	*Crisis Communication Strategies*		
Q1	Endogenous-Indicator	My department is mainly responsible for creating crisis communication plans and strategies	Measurable	Ordinal
Q2	Endogenous-Indicator	My department exercises crisis communication strategies regularly	Measurable	Ordinal

Code	Attribute	Variable	Measurement Type	Data Type
Q3	Endogenous-Indicator	My department exercises crisis communication strategies with community partners	Measurable	Ordinal
Q4	Endogenous-Indicator	My department focuses on information sharing between different community departments	Measurable	Ordinal
Q5	Endogenous-Indicator	My department markets our plans on our websites	Measurable	Ordinal
Q6	Endogenous-Indicator	My department markets our plans on other community partner's websites	Measurable	Ordinal
Q7	Endogenous-Indicator	My department markets our plans on flyers and posters	Measurable	Ordinal
Q8	Endogenous-Indicator	My department markets our plans via social media	Measurable	Ordinal
Q9	Endogenous-Indicator	My department provides updated information at least every hour during the event	Measurable	Ordinal
Q10	Endogenous-Indicator	My department provides updated information at least once every three hours during the event	Measurable	Ordinal
Q11	Endogenous-Indicator	My department assesses our crisis communication plan at least once a year	Measurable	Ordinal
Q12	Endogenous-Indicator	My department assesses our crisis communication plan with community partners	Measurable	Ordinal
3	*Exogenous*	*Local Community Needs*	*Latent*	
Q13	Exogenous-Indicator	My department has a positive relationship with the community	Measurable	Ordinal
Q14	Exogenous-Indicator	My department identifies what is most important for the community to know	Measurable	Ordinal
Q15	Exogenous-Indicator	My department provides tailored messages for different cultures within the community	Measurable	Ordinal
Q16	Exogenous-Indicator	My department provides communications in different languages for the community	Measurable	Ordinal
Q17	Exogenous-Indicator	My department provides community outreach campaigns for vulnerable populations	Measurable	Ordinal

Code	Attribute	Variable	Measurement Type	Data Type
Q18	Exogenous-Indicator	My department uses (easy-to-understand) language to explain what is going on	Measurable	Ordinal
Q19	Exogenous-Indicator	My department uses visual images such as maps to help explain what is going on	Measurable	Ordinal
Q20	Exogenous-Indicator	My department identifies the most important topics and highlights these in communication	Measurable	Ordinal
Q21	Exogenous-Indicator	My department uses a spokesperson with whom the community is familiar	Measurable	Ordinal
Q22	Exogenous-Indicator	My department includes specific action to be taken by the community in each warning message	Measurable	Ordinal
4	*Exogenous-*	*Crisis Type*	*Latent*	
Q23	Exogenous-Indicator	My department adapts information for natural disasters	Measurable	Ordinal
Q24	Exogenous-Indicator	My department adapts information for health concerns	Measurable	Ordinal
Q25	Exogenous-Indicator	My department adapts information for community violence	Measurable	Ordinal

The hypothesized relationship between all variables is illustrated in the full model of Figure 10.

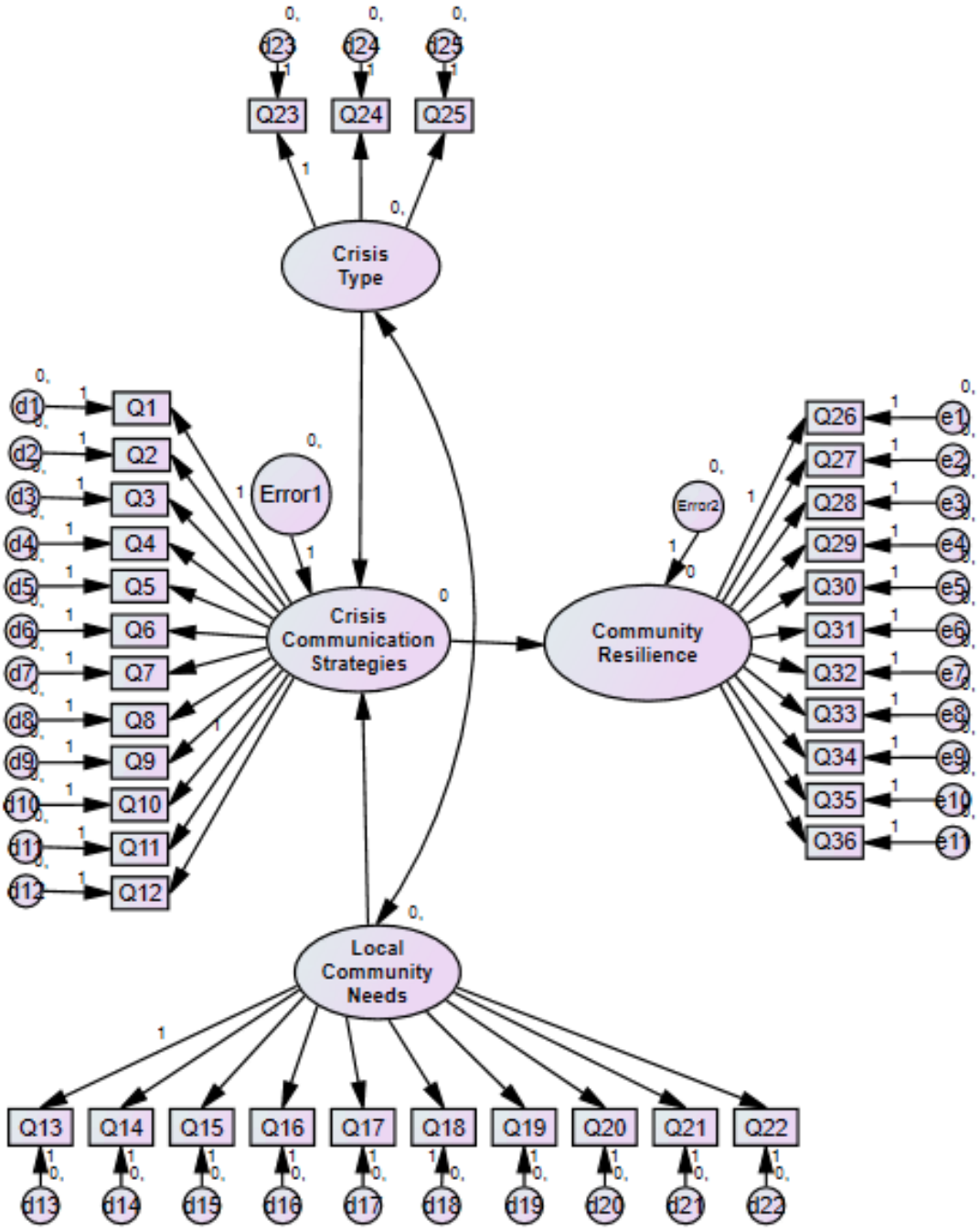

Figure 10. Covariance Structure Model.

3.5 Data Analysis

In terms of statistical analysis, the researcher utilized parametric tests as they transition characteristics into interval values analyzed via statistical analysis within IBM SPSS Statistics for Windows, version 22, software and Amos Graphics, version 24. Descriptive analysis via SPSS provided a better understanding of the data in terms of frequencies, normality of indicators, and correlation analyses. Correlation analysis was critical as highly correlated indicators lessen the ability to determine effects between independent and dependent variables. Therefore, this study imposed a correlation threshold of .85 (Weston & Gore, 2006).

In addition, Structural Equation Modeling (SEM) examined the relationships between variables and focused on the strength of the relationships as well as the significance of them through tests of model fit and individual parameter estimates (Arbuckle & Wothke, 2012; Kaplan, 2001; Kline, 2015; Weston & Gore, 2006). This analysis was also chosen as the study's variables are considered latent and are indirectly measured from other observed variables. Moreover, SEM allows for simultaneous comparison of regression coefficients, means, and variances. The last feature was the added ability to visually create a unifying framework (Arbuckle & Wothke, 2012; Kaplan, 2001; Kline, 2015; Weston & Gore, 2006).

As previously mentioned, the qualitative data analysis consists of reading, describing, classifying, interpreting, and visualizing data. For the open-ended questions, the data was reviewed to determine specific codes. A code is a short phrase or word "that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language based or visual data" (Saldaña, 2015, p. 4). More specifically, axial coding was utilized as it aims to highlight core concepts that surface within the study (Boyatzis, 1998). Axial coding connects to Boyatzis' (1998) discussion of thematic analysis and codes as a way to translate

patterns into a common language of sorts. The emphasis is on distinguishing relationships between the concepts and categories. For instance, the transcripts of the semi-structured interviews and responses to the open-ended questions are analyzed for their connection to the concepts of crisis communication strategies, local community needs, and crisis types. Within these core concepts, there are categories that surfaced to expand these concepts. The expansion is discussed in Chapter 4 and 5 in terms of their relevance and implications.

Not only does thematic analysis and coding allow for qualitative researchers to speak amongst each other, but it also allows for quantitative analysis and adds to the validity of discovered themes. The qualitative methods complement the findings of this study and identified areas that may need further research in future studies. The perceptions were analyzed in conjunction with the BRIC scores for comparable counties within the emergency manager's state. This lends itself to a stream of analysis activity considered conclusion drawing and verification where the researcher holds onto patterns, explanations, and propositions until the data can verify (Miles & Huberman, 1994).

3.6 Researcher Bias

Due to the inclusion of qualitative analysis, it is essential to disclose any preconceived notions or assumptions on behalf of the researcher from before the study's survey period. This section came about as one preconceived notion surfaced during the survey distribution period. It was assumed each county in the United States would have a full-time emergency manager. However, the creation of a distribution listserv made it apparent that each county does not have an emergency manager and even fewer have those dedicated to the role full-time.

Additional assumptions the researcher made before analyzing the data includes the consistency of knowledge for each emergency manager and decision-making capabilities when it comes to policies and procedures. Likewise, the researcher assumed emergency managers experienced formal training aside from the certifications available from the Federal Emergency Management Agency to supplement any practical experience. More specifically, the researcher assumes respondents are knowledgeable of crisis communication strategies and are responsible for their inclusion in emergency management related activities.

3.7 Confirmatory Factor Analysis

SEM incorporates measurement models for each latent variable as well as a covariance structural model. For each model, it is important to conduct a confirmatory process. This is accomplished through Confirmatory Factor Analysis (CFA) (Arbuckle & Wothke, 2012; Kaplan, 2001; Weston & Gore, 2006). CFA assists in explaining variation and covariation within and between indicators of the latent variables. This process begins with examining factor loadings for statistical significance. If the factor loadings indicate statistical significance at the .05 level and critical values are larger than 1.96, then they were retained in the model.

The next step is to review the Goodness of Fit statistics. Similar to determinations of sample size, there are a range of statistics that determine fit (Kline, 2015). According to Kline (2015), evaluating model fit is done through the indexes and related criterion listed in Table 13. If the model is determined to fit, then it is considered valid and adequately fits the data. However, if there are issues with achieving the proposed criterion, then Modification Indices are examined to denote correlations between measurement errors and potential adaptations that improve the model's fit. This area is to be accompanied with an examination of the theoretical

and conceptual foundation for the model as changes should only be made if they maintain logical consistency.

Table 13. Goodness of Fit Indexes and Criterion.

Index	*Criterion*
Chi-square (x^2)	Low
Degrees of Freedom (*df*)	≥ 0
Significance of Model (*p*)	< .05
Likelihood Ratio (x^2 / *df*)	<4
Goodness of Fit Index (GFI)	> 0.9
Adjusted Goodness of Fit Index (AGFI)	> 0.9
Root Mean Square Error of Approximation (RMSEA)	< 0.05; 0.08

In terms of overall model fit and goodness of fit statistics, the process is similar to validation of each latent variable measurement model. The path coefficients are examined for statistical significance at the .05 level followed by a review of critical values to be larger than 1.96 and a review of goodness of fit statistics (Bentler, 1990; Kenny, 2014). In terms of these statistics, Chi-square is called a discrepancy function and determines how closely a model conforms to observed data. Degrees of Freedom relates to the number of observations in a data set that are able to vary within estimated statistical parameters. The Likelihood Ratio is calculated by the Chi-square value divided by Degrees of Freedom and is part of the foundation for the Root Mean Square Error of Approximation (RMSEA), which counter-balances the Chi-square statistic to help determine model fit through analysis of the hypothesized model and population covariance matrix. Likelihood Ratio is set to less than 4 as this ratio determines the probability of the data within the parameter estimates. The Goodness of Fit Index (GFI) measures the hypothesized model against the observed covariance matrix and the Adjusted Goodness of Fit (AGFI) provides a semblance of correction as GFI is influenced by the number of indicators per latent variable. MacCallum, Browne, and Sugawara (1996) generated a range

for RMSEA from .01, .05, and.08 to denote excellent, good, and adequate with a suggested cutoff of .10 for poor fitting models.

3.8 Human Subjects

This study adheres to research guidelines to ensure respondents remain anonymous. Approval was given by the Institutional Review Board (IRB) of the University of Central Florida. The documentation is presented in Appendix C.

3.9 Summary of the Chapter

This chapter discussed the study's research design, sampling method, data collection process, and connections between key variables and the survey instrument. The measurement models for crisis type, local community needs, crisis communication strategies, and community resilience were illustrated along with the covariance structure model. Lastly, the validation processes were discussed before closing with acknowledging the approval received by the University of Central Florida's Institutional Review Board. The next chapter presents the results of the analysis and presents key findings.

CHAPTER 4: FINDINGS

This chapter presents the results of quantitative and qualitative analysis. First, the survey sample is discussed with descriptive statistics. Next, all variables included in the Structural Equation Model (SEM) are examined and their descriptive statistics are presented. Then, the data is analyzed for potential violations of the assumptions related to SEM in terms of sample size, complete data, multicollinearity, normality, and model identification. Once confirmatory factor analysis (CFA) and Cronbach's alpha is analyzed for model validation and reliability, then the measurement models are analyzed. The quantitative analysis section closes with results of the tested hypotheses. The qualitative analysis section begins with a review of responses to the open-ended questions within the survey. Next, the results from analysis of transcripts from the seven semi-structured interviews are discussed.

4.1 Quantitative Analysis

4.1.1 Sample Size and Response Rate

The survey invitation and response period began on July 13, 2017, with reminders sent on July 27, 2017, August 10, 2017, and August 18, 2017. The official closing date of the survey was August 31, 2017. The initial survey was sent to 2,073 county level emergency managers. Issues arose during distribution as many counties do not have a full-time, emergency manager or the survey period occurred during high incident periods for coastal states. The total responses were 198, but initial analysis of the results led to 171 usable responses adequate for SEM analysis.

The number of responses appears low, but many unanticipated factors surfaced and led the researcher to question initial assumptions or biases. For instance, the researcher believed each county would have a full-time, emergency manager resulting in a population totaling 3,142

county and county-equivalents (i.e., parishes, boroughs, special districts); however, the creation of the distribution listserv resulted in the population lowering to approximately 2,073. In addition, some respondents stated how their state did not have designated emergency management practitioners for all counties aside from related duties falling to lead administrators. Moreover, the data collection period occurred during a busy time period due to delay in the Institutional Review Board process.

4.1.2 Sample Representativeness

Within the 171 respondents, 39 out of 50 states were represented with Texas comprising the largest at 12 (7%). The second largest group was Florida at 11 (6%) and Missouri at 10 (5%). Six states only had one respondent while the majority had an average of 4 respondents. The full list of states and percentages is listed in Appendix E. In terms of county and equivalents type, 132 (77%) identified themselves as Rural, while 20 (12%) designated Urban and 19 (11%) as Other. If they noted other, they provided their own definition that mixed and combined urban, suburban, and rural. A cross-tabulation is in Appendix E between states and county and equivalents types.

In terms of the respondents themselves, 114 (67%) were male, 41 (24%) were female, and 16 (9%) did not respond. As for age, the largest group was 56 or older with 73 (43%) followed by those 46 to 55 at 49 (29%), 36 to 45 at 21 (12%), 35 or Younger at 11 (6%), and did not answer at 17 (10%). In terms of highest degree earned by the respondent, 47 (28%) hold a bachelor's degree, 32 (19%) have trade/vocational/technical training, 31 (18%) hold a Master's degree, 25 (15%) hold an Associate degree, 14 (8%) hold a high school diploma or equivalent, 5 (3%) hold a Doctorate, and 17 (10%) did not answer. For those who denoted the field of their highest degree, 71 (42%) selected other, 36 (21%) for Emergency Management, 15 (9%)

Business Administration, 13 (8%) Public Administration, 5 (3%) Political Science, 4 (2%) Engineering, 1 for Sociology and 26 (15%) did not answer.

To gain more context as to the lens in which these respondents are answering from, the survey included questions relating to their department and the number of full-time employees as well as how recently they experienced certain crisis types. The overwhelming majority (122, 71%) of respondents noted they have 1 to 5 full-time employees, followed by 19 (11%) stating 6 to 15, 7 (4%) with 26 to 50, 4 (3%) 16 to 25, 3 (2%) 51 or more, and 16 (9%) did not answer. As for the crisis types, the study narrowed its focus to natural disasters, health epidemics, and community violence. In Table 14 below, a cross-tabulation is presented with the crisis type as well as the survey selections of 1 to 3 years, 4 to 6 years, 7 to 10 years, 11 or more years, not applicable, and did not answer.

Table 14. Years since Experiencing Crisis by Type.

	Earthquake		*Tornado*		*Flood*		*Hurricane*		*Health Epidemic*		*Community Violence*	
	Fre.	*Per.*	*Fre.*	*Per.*	*Fre.*	*Per.*	*Fre.*	*Per.*	*Fre.*	*Per.*	*Fre.*	*Per.*
1 to 3 Years	28	16.4	81	47.4	117	68.4	19	11.1	26	15.2	38	22.2
4 to 6 Years	15	8.8	30	17.5	29	17.0	13	7.6	20	11.7	7	4.1
7 to 10 Years	8	4.7	20	11.7	14	8.2	12	7.0	23	13.5	6	3.5
11 or More Years	36	21.1	29	17.0	8	4.7	10	5.8	35	20.5	40	23.4
Not Applicable	82	48.0	11	6.4	3	1.8	115	67.3	65	38.0	77	45.0
Did not answer	2	1.2	0	0	0	0	2	1.2	2	1.2	3	1.8

Note: Fre.=Frequency; Per.=Percent.

After reviewing the information on sample representativeness, the average respondent is a male, 56 or older from a rural county with either a bachelor's degree or trade/ vocational/ technical training. This respondent would come from the Southeast and work in a department with 1 to 5 employees. Moreover, within the past 1 to 3 years they experienced tornadoes and floods. Expanding to 4 to 10 years, they also experienced hurricanes and health epidemics. Lastly, if expanding for more than 11 years then they may have experienced community violence. Although this is not the lens that each respondent is incorporating when responding to the survey, it may be relevant once all the data is analyzed.

In terms of the semi-structured interviews, seven individuals responded to the opportunity. Six of the seven were male with one being female. Five of the respondents considered their counties to be rural, 1 deemed it frontier, and 1 was considered mixed. In terms of describing their experience, 3 entered their position from previous employment in military or police operations and 4 came from emergency management programs or the emergency management institute. The seven states represented by the respondents include: Florida, Michigan, Minnesota, Mississippi, South Dakota, Texas, and Wyoming. To maintain anonymity of the respondents, their names were changed. In addition, no further information is provided without jeopardizing their true identity.

4.1.3 Data Completeness, Normality, and Multicollinearity

In reviewing the usable responses, missing data was the first aspect reviewed. After calculating case summaries in SPSS, it was determined that any missing values were random and did not encroach a 5% threshold. Due to this, the missing values were determined to be suitable for imputation using maximum likelihood estimated values. This method is appropriate as the

estimated values of each parameter were reviewed to determine what most likely would have resulted in the observed data. The estimated values are appropriate as they did not suppress the variance structure within the data and present unbiased parameter estimates along with their standard errors (Allison, 2000; Hox, 1999; Schafer, 1999; Scheffer, 2002).

An additional component of the initial analysis was to determine normality of the data. Multivariate normality was examined via skewness and kurtosis of the observed indicator distributions. According to Weston and Gore (2006), the skewness values should be lower than 3.0 and the kurtosis index should have a value lower than 10. It should be noted the data is ordinal and perfect normality is not achievable. After examination of these values, the data was determined to fall within the accepted range of parameters and the values are provided in Appendix D.

The next aspect to consider is multicollinearity. As previously discussed, the threshold was set at .85 for determining whether the correlation is too high. To assist in this portion of the analysis, Spearman's rank order correlation was used due to the ordinal data (Pallant, 2013). After reviewing the correlation matrixes, a few adjustments were made to the measurement models and these results are presented in Appendix F.

In terms of the indicators for the latent construct Crisis Communication Strategies, none of the indicators crossed the threshold of .85 indicating there is no multicollinearity present. The coefficients were as low as .095 to the highest value of .713. The lowest correlations were between *My department exercises crisis communication strategies regularly* (Q2) and *My department exercises crisis communication strategies with community partners* (Q6). The highest correlation between *My department exercises crisis communication strategies regularly* (Q2) and *My department markets our plans on other community partner's websites* (Q3).

Another interesting result regarding correlations were those that were not statistically significant, such as:

- *My department is mainly responsible for creating crisis communication plans and strategies* (Q1) and *My department provides updated information at least every hour during the event* (Q9).
- *My department exercises crisis communication strategies regularly* (Q2) and *My department exercises crisis communication strategies with community partners* (Q6).
- *My department focuses on information sharing between different community departments* (Q4) and *My department provides updated information at least every hour during the event* (Q9).

After reviewing the level of statistical and conceptual foundation, the indicators of *My department exercises crisis communication strategies with community partners* (Q6) and *My department provides updated information at least every hour during the event* (Q9) were removed. The remaining indicators were kept in the measurement model due to connection to the theoretical and conceptual foundation and since they achieved statistical significance at the .05 level in terms of their correlation coefficients.

Review of the indicators for the latent construct Local Community Needs, none of the indicators crossed the threshold of .85 indicating there is no multicollinearity present. The coefficients were as low as .030 to the highest value of .769. The lowest correlation was between *My department has a positive relationship with the community* (Q13) and *My department provides communications in different languages for the community* (Q16). The highest correlation between *My department uses (easy-to-understand) language to explain what is going on* (Q18) and *My department identifies the most important topics and highlights these in*

communication (Q20). Another interesting result regarding correlations were those that were not statistically significant, such as:

- *My department has a positive relationship with the community* (Q13) and My department *provides communications in different languages for the community* (Q16).
- *My department provides communications in different languages for the community* (Q16) and *My department identifies the most important topics and highlights these in communication* (Q20).
- *My department provides communications in different languages for the community* (Q16) and *My department includes specific action to be taken by the community in each warning message* (Q22).

After reviewing the level of statistical and conceptual foundation, the indicator of *My department provides communications in different languages for the community* (Q16) was removed. The remaining indicators were kept in the measurement model due to connection to the theoretical and conceptual foundation and since they achieved statistical significance at the .05 level in terms of their correlation coefficients.

Review of the indicators for the latent construct Crisis Type, none of the indicators crossed the threshold of .85 indicating there is no multicollinearity present. The coefficients were as low as .431 to the highest value of .588. The lowest correlation was between *My department adapts information for natural disasters* (Q23) and *My department adapts information for community violence* (Q25). The highest correlation between *My department adapts information for health concerns* (Q24) and *My department adapts information for community violence* (Q25). All of the indicators were kept in the measurement model since they achieved statistical significance at the .05 level in terms of their correlation coefficients.

Review of the indicators for the latent construct Community Resilience, none of the indicators crossed the threshold of .85 indicating there is no multicollinearity present. The coefficients were as low as .205 to the highest value of .823. The lowest correlation was between *Leadership support from the state emergency management practitioner(s)* (Q26) and *Collaborating with community partners for support, expertise, etc.* (Q33). The highest correlation between *Conducting routine needs assessments* (Q31) and *Conducting comprehensive vulnerability assessments* (Q32). All of the indicators were kept in the measurement model since they achieved statistical significance at the .05 level in terms of their correlation coefficients.

4.2 Confirmatory Factor Analysis

In the next section, the measurement models for all latent constructs are examined through CFA. As previously discussed, CFA tests the goodness of fit.

4.2.1 Crisis Communication Strategies

The proposed model (hereafter referred to as generic model) of Crisis Communication Strategies contained 12 indicators. Results of multicollinearity analysis led to the indicators of *My department exercises crisis communication strategies with community partners* (Q6) and *My department provides updated information at least every hour during the event* (Q9) being removed. After the indicators were removed, the measurement model was tested (see Figure 11).

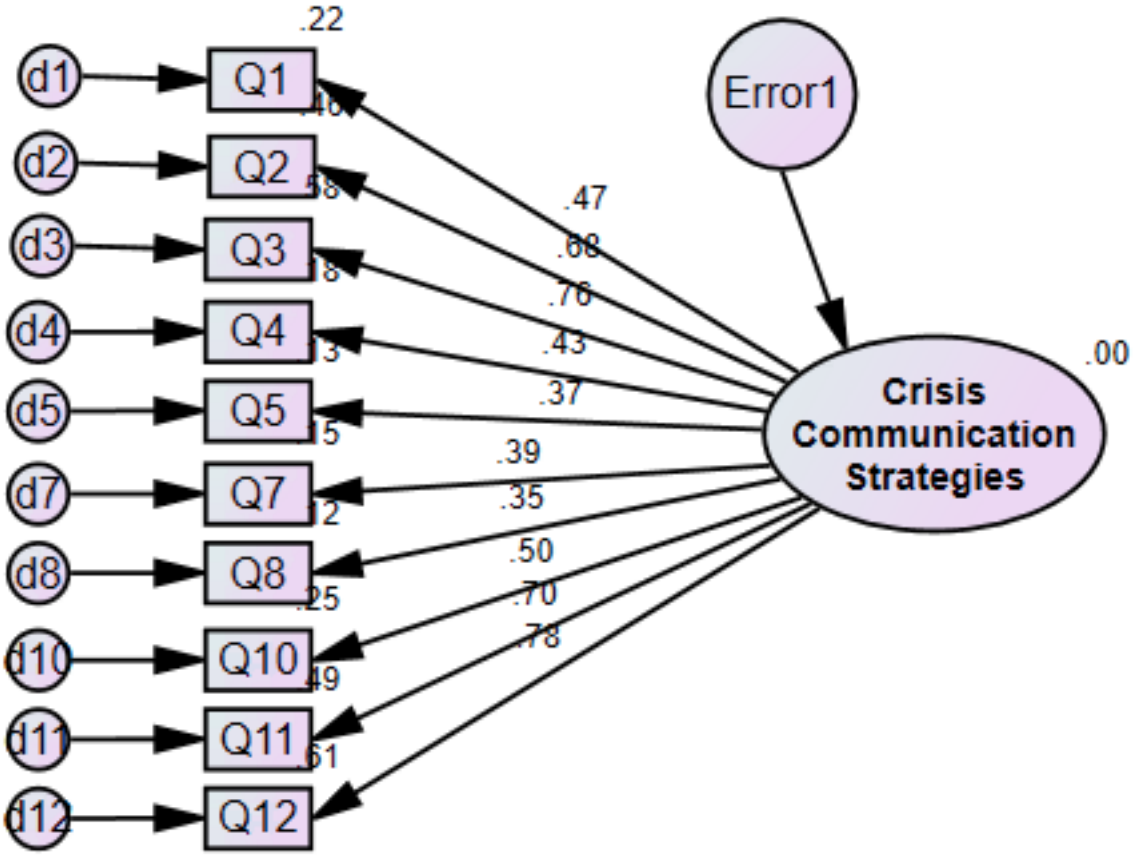

Figure 11. Crisis Communication Strategies Measurement Model after Multicollinearity Modifications.

To determine the validity of the measurement model, factor loadings were examined to determine if the critical values of the indicators were larger than 1.96 and statistically significant at the 0.05 level. These values are presented in Table 15. This is followed by reviewing goodness of fit statistics. For Crisis Communication Strategies, the indicators adhere to the threshold for critical value and statistical significance; however, the goodness of fit statistics indicate otherwise due to the high Likelihood Ratio, low GFI, low AGFI, and high RMSEA scores as presented in Table 16. As shown in Table 16, the Chi-square statistics dropped from 226.944 to 38.702, the Likelihood Ratio dropped from 6.484 to 1.548, GFI increased from .775 to .953, AGFI increased from .646 to .915, and the RMSEA decreased from .180 to .057.

Table 15. Parameter Estimates for Crisis Communication Strategies.

	Generic Model					*Revised Model*				
	USRW	*SRW*	*S.E.*	*C.R.*	*P*	*USRW*	*SRW*	*S.E.*	*C.R.*	*P*
Q1	1.000	.472				1.000	.425			
Q2	1.278	.675	.232	5.516	***	1.212	.576	.254	4.779	***
Q3	1.283	.762	.221	5.797	***	1.278	.684	.255	5.015	***
Q4	.615	.429	.144	4.261	***	.675	.423	.170	3.963	***
Q5	.857	.366	.225	3.809	***	.761	.292	.246	3.087	.002
Q7	.955	.389	.240	3.983	***					
Q8	.911	.347	.249	3.658	***	.721	.247	.266	2.711	.007
Q10	1.076	.498	.229	4.692	***	1.214	.505	.280	4.332	***
Q11	1.503	.697	.269	5.591	***	1.814	.757	.356	5.093	***
Q12	1.364	.782	.233	5.849	***	1.649	.851	.321	5.138	***
d2 <-> d3						.200	.471	.043	6.654	***
d5 <-> d8						.721	.566	.114	6.308	***

Note: URW= Unstandardized Regression Weight; SRW= Standardized Regression Weight; S.E.= Standard Error; C.R.= Critical Ratio; ***=Correlation is significant at the .01 level.

Table 16. Goodness of Fit Statistics for Crisis Communication Strategies.

Index	*Criterion*	*Generic Model*	*Revised Model*
Chi-square (x^2)	Low	226.944	38.702
Degrees of Freedom (*df*)	≥ 0	35	25
Significance of Model (*p*)	< .05	.000	.039
Likelihood Ratio (x^2 / *df*)	<4	6.484	1.548
Goodness of Fit Index (GFI)	> 0.9	.775	.953
Adjusted Goodness of Fit Index (AGFI)	> 0.9	.646	.915
Root Mean Square Error of Approximation (RMSEA)	< 0.05; 0.08	.180	.057

To determine necessary adjustments, modification indices were reviewed, and the theoretical, conceptual foundation of the study was referred to. The modification indices were reviewed for any parameter whose estimate was significantly above the threshold of 10 or whose potential impact warranted removal. The resulting measurement model is depicted in Figure 12 below with added correlational indicators between specific error terms and removal of indicator *My department markets our plans on flyers and posters* (Q7).

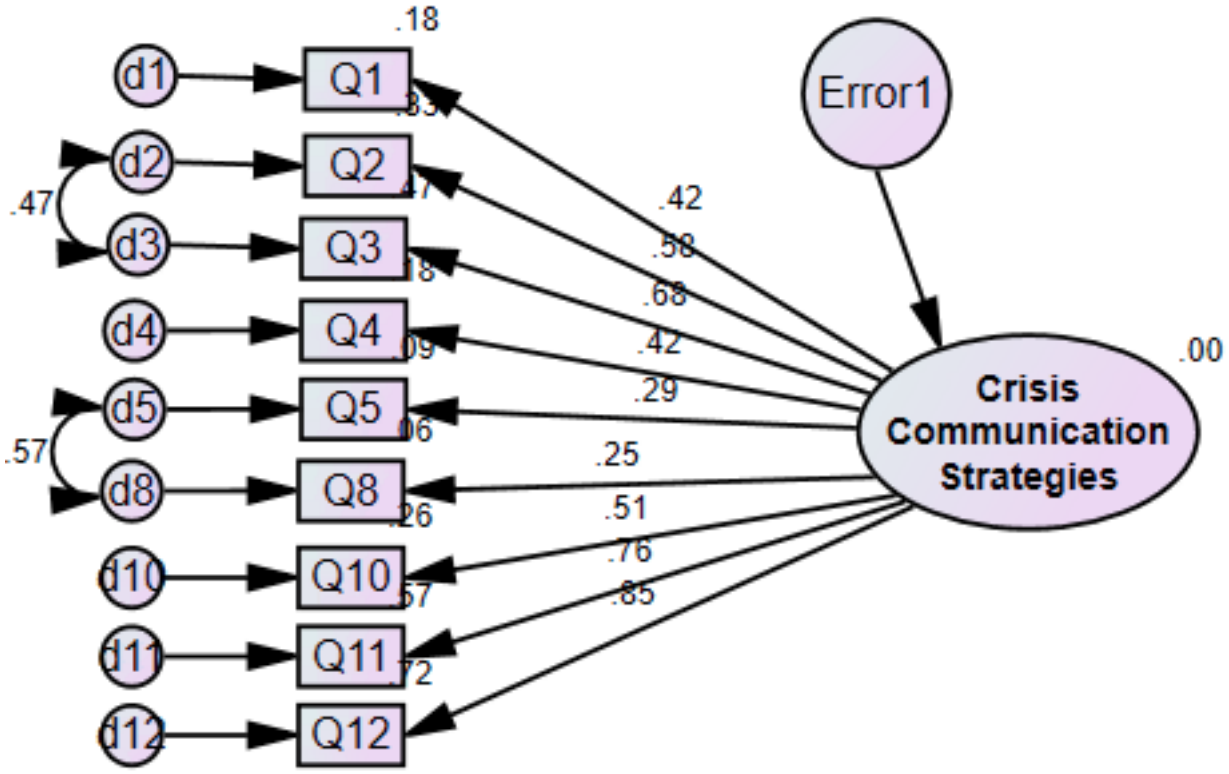

Figure 12. Revised Crisis Communication Strategies Measurement Model with Standardized Estimates.

Another crisis communication strategy related question within the survey corresponds to the avenue in which information is disseminated. The respondents were asked to rank the importance of a multitude of avenues and the results are in Table 17. Analyzing the table results, the avenues of Social Network (89), Text Messaging System (88), Telephone (86), National Oceanic and Atmospheric Association (84), Commercial Radio Station (81), and Local Television Stations (80) represent the avenues deemed Very Important with stark contrast in frequency for Distributing Flyers (15) and Electronic Signage (27). If the designations of Very Important and Important were merged together, then the results change rather significantly. The

top avenues then include Telephone (161), Social Networking (158), Text Messaging System (156), Commercial Radio Station (153), and Press Conferences (151). The differences between higher and lower designations are not contrasted than in Very Important. However, the ones achieving a lower score stayed the same with Distributing Flyers (88) and Electronic Signage (95).

Due to the lower designations, an assumption could be made that Distributing Flyers and Electronic Signage are unimportant. Yet, the column of Don't Know/Can't Say illustrates that Distributing Flyers (45) and Electronic Signage (46) are closely connected and just may be underutilized or not available. However, Distributing Flyers did receive ample responses in the Unimportant category (25) in comparison to the remaining avenues. The last interesting result is Local Television Stations received 0 in the Unimportant column. This was the only avenue that no one connected it to lack of importance.

Table 17. Importance of Communication Avenues.

		Very Important	*Important*	*Don't Know/ Can't Say*	*Unimportant*	*Not Applicable*
Telephone	Fre.	86	75	1	6	3
	Per.	50.3	43.9	0.6	3.5	1.8
National Oceanic and Atmospheric Association	Fre.	84	59	18	4	6
	Per.	49.1	34.5	10.5	2.3	3.5
Email	Fre.	61	82	15	12	1
	Per.	35.7	48	8.8	7	0.6
Social Networking	Fre.	89	69	8	3	2
	Per.	52	40.4	4.7	1.8	1.2
Text Messaging System	Fre.	88	68	6	5	4
	Per.	51.5	39.8	3.5	2.9	2.3
Commercial Radio Stations	Fre.	81	72	11	4	3
	Per.	47.4	42.1	6.4	2.3	1.8
Local Television Stations	Fre.	80	67	5	0	19
	Per.	46.8	39.2	2.9	0	11.1
Outdoor Warning Sirens	Fre.	54	60	16	8	33
	Per.	31.6	35.1	9.4	4.7	19.3
Distributing Flyers	Fre.	15	73	45	25	13
	Per.	8.8	42.7	26.3	14.6	7.6
Community Website	Fre.	40	78	29	9	15
	Per.	23.4	45.6	17	5.3	8.9
Daily Situation Reports	Fre.	33	80	34	13	11
	Per.	19.3	46.8	19.9	7.6	6.4
Press Conferences	Fre.	61	90	12	5	3
	Per.	35.7	52.6	7	2.9	1.8
Electronic Signage	Fre.	27	68	46	9	21
	Per.	15.8	39.8	26.9	5.3	12.3

Note: Fre.=Frequency; Per.=Percent

4.2.2 Local Community Needs

The generic model of Local Community Needs contained 10 indicators. Results of multicollinearity analysis led to the indicator of *My* department *provides communications in different languages for the community* (Q16) being removed. After the indicator was removed, the measurement model was tested (see Figure 13).

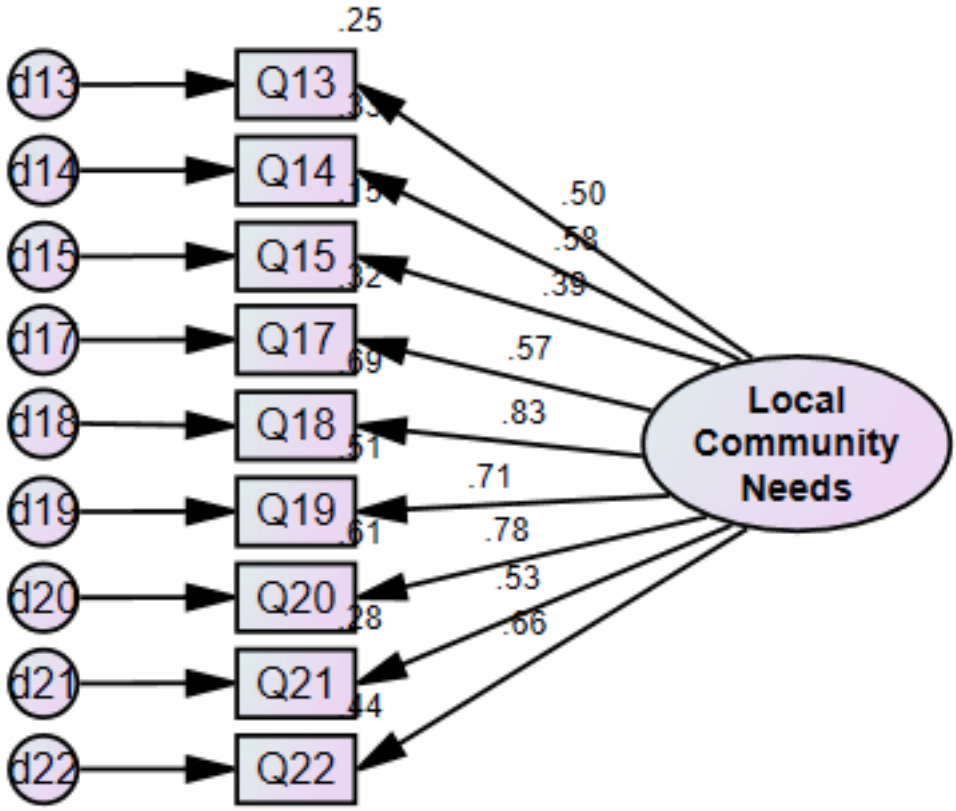

Figure 13. Local Community Needs Measurement Model after Multicollinearity Modifications.

To determine the validity of the measurement model, factor loadings were examined to determine if the critical values of the indicators were larger than 1.96 and statistically significant at the 0.05 level. These values are presented in Table 18. This is followed by reviewing goodness

of fit statistics. For Local Community Needs, the indicators adhere to the threshold for critical value and statistical significance; however, the goodness of fit statistics indicate otherwise due to the slightly high Likelihood Ratio, slightly low GFI, low AGFI, and high RMSEA scores as presented in Table 19. As shown in Table 19, the Chi-square statistics dropped from 106.267 to 29.184, the Likelihood Ratio dropped from 3.936 to 1.717, GFI increased from .875 to .958, AGFI increased from .792 to .912, and the RMSEA decreased from .131 to .065.

Table 18. Parameter Estimates for Local Community Needs.

	Generic Model					*Revised Model*				
	USRW	*SRW*	*S.E.*	*C.R.*	*P*	*USRW*	*SRW*	*S.E.*	*C.R.*	*P*
Q13	1.000	.502				1.000	.495			
Q14	1.427	.577	.262	5.451	***	1.461	.584	.238	6.139	***
Q15	1.230	.393	.293	4.194	***					
Q17	1.699	.569	.314	5.404	***	1.498	.495	.311	4.811	***
Q18	1.778	.829	.273	6.515	***	1.754	.807	.284	6.181	***
Q19	1.928	.712	.316	6.104	***	1.710	.628	.312	5.481	***
Q20	1.894	.779	.298	6.357	***	1.976	.802	.320	6.171	***
Q21	1.695	.528	.329	5.159	***	1.772	.545	.347	5.107	***
Q22	1.641	.660	.279	5.872	***	1.726	.685	.299	5.780	***
d13 <-> d14						.069	.248	.024	2.865	.004
d17 <-> d19						.190	.436	.037	5.086	***
d18 <-> d19						.062	.292	.021	3.029	.002

Note: URW= Unstandardized Regression Weight; SRW= Standardized Regression Weight; S.E.= Standard Error; C.R.= Critical Ratio; ***=Correlation is significant at the .01 level.

Table 19. Goodness of Fit Statistics for Local Community Needs.

Index	*Criterion*	*Generic Model*	*Revised Model*
Chi-square (x^2)	Low	106.267	29.184
Degrees of Freedom (*df*)	≥ 0	27	17
Significance of Model (*p*)	> .05	.000	.033
Likelihood Ratio (x^2 / *df*)	<4	3.936	1.717
Goodness of Fit Index (GFI)	> 0.9	.875	.958
Adjusted Goodness of Fit Index (AGFI)	> 0.9	.792	.912
Root Mean Square Error of Approximation (RMSEA)	< 0.05; 0.08	.131	.065

To determine necessary adjustments, modification indices were reviewed, and the theoretical, conceptual foundation of the study was referred to. The resulting measurement model is depicted in Figure 14 below with added correlational indicators between specific error terms and removal of indicator *My department provides tailored messages for different cultures within the community* (Q15).

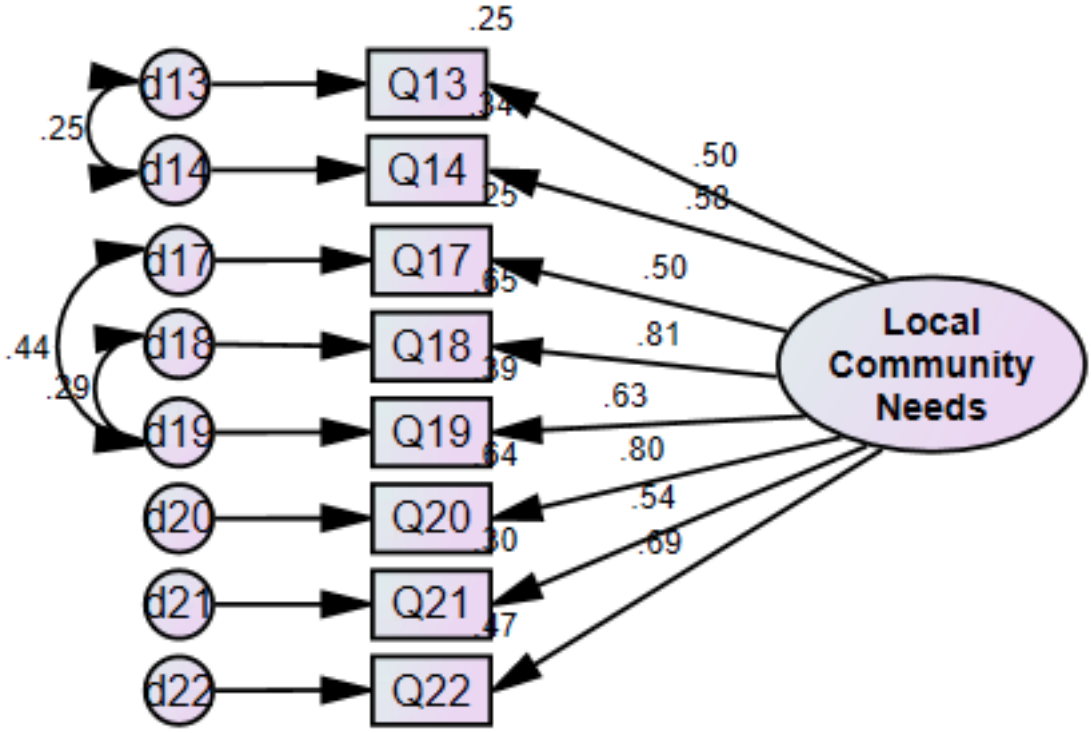

Figure 14. Revised Local Community Needs Measurement Model with Standardized Estimates.

4.2.3 Crisis Type

The generic model of Crisis Type contained 3 indicators. Results of multicollinearity analysis did not lead to adjustments, so the measurement model was tested (see Figure 15).

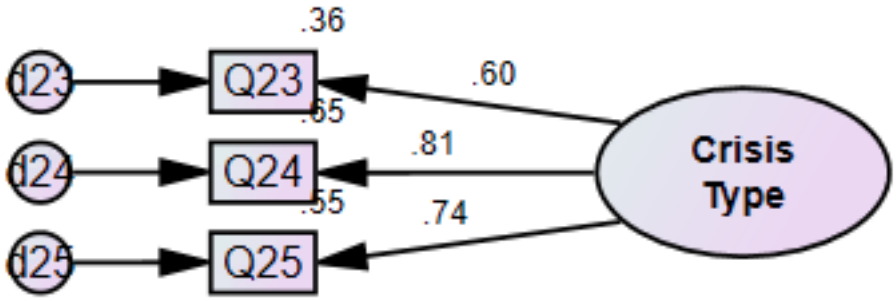

Figure 15. Crisis Type Measurement Model after Multicollinearity Analysis.

Due to the limited indicators for Crisis Type, factor loadings and goodness of fit statistics could not be reviewed due to the limited indicators in this section of the model. Also, significance could not be calculated. However, the theoretical and conceptual foundation for the study led to the decision to keep the measurement model.

4.2.4 Community Resilience

The generic model of Community Resilience contained 10 indicators. Results of multicollinearity analysis led to all indicators staying in the model. The measurement model was then tested (see Figure 16).

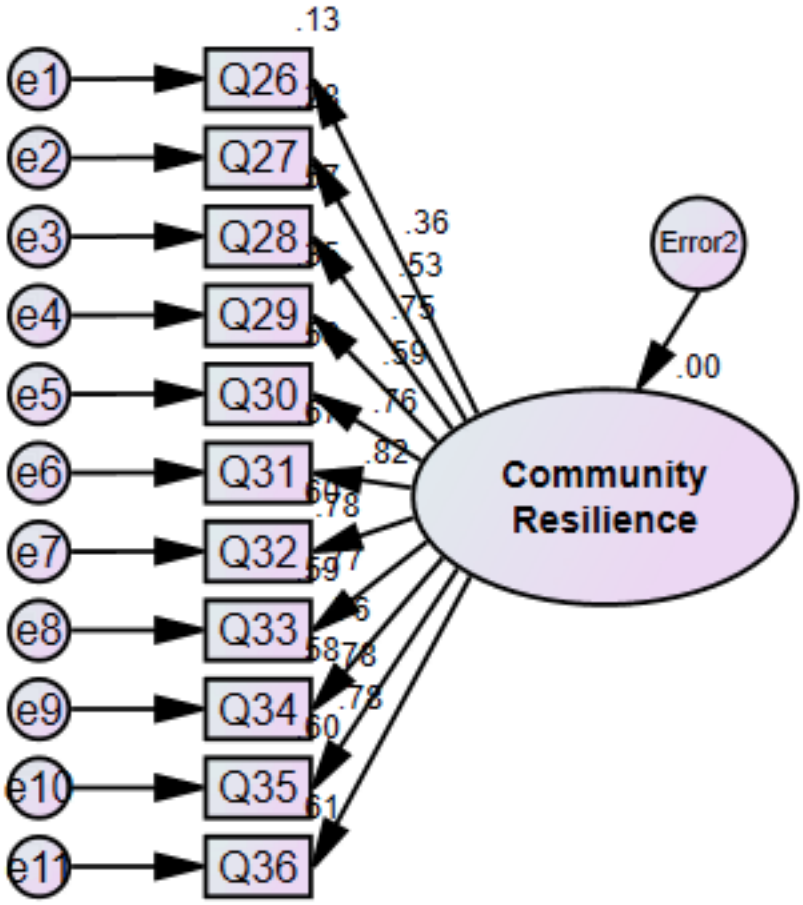

Figure 16. Community Resilience Measurement Model after Multicollinearity Modifications.

To determine the validity of the measurement model, factor loadings were examined to determine if the critical values of the indicators were larger than 1.96 and statistically significant at the 0.05 level. These values are presented in Table 20. This is followed by reviewing goodness of fit statistics. For Community Resilience, the indicators adhere to the threshold for critical value and statistical significance; however, the goodness of fit statistics indicate otherwise due to the high Likelihood Ratio, low GFI, low AGFI, and high RMSEA scores as presented in Table 21. As shown in Table 21, the Chi-square statistics dropped from 297.903 to 33.730, the

Likelihood Ratio dropped from 6.771 to 1.874, GFI increased from .733 to .954, AGFI increased from .600 to .908, and the RMSEA decreased from .184 to .072.

Table 20. Parameter Estimates for Community Resilience.

	Generic Model					*Revised Model*				
	USRW	*SRW*	*S.E.*	*C.R.*	*P*	*USRW*	*SRW*	*S.E.*	*C.R.*	*P*
Q26	1.000	.365				1.000	.337			
Q27	1.200	.533	.288	4.174	***	1.337	.549	.319	4.188	***
Q28	1.205	.753	.259	4.649	***	1.339	.772	.312	4.293	***
Q29	1.342	.590	.310	4.332	***					
Q30	1.448	.762	.311	4.661	***					
Q31	1.687	.820	.356	4.738	***	1.642	.737	.396	4.150	***
Q32	1.621	.777	.346	4.683	***	1.524	.675	.396	4.067	***
Q33	1.400	.765	.300	4.667	***	1.554	.785	.370	4.201	***
Q34	1.406	.761	.302	4.661	***	1.513	.757	.363	4.172	***
Q35	1.405	.776	.300	4.681	***	1.584	.808	.375	4.223	***
Q36	1.340	.780	.286	4.687	***					
e1 <-->e2						.101	.235	.035	2.856	.004
e6 <-> e7						.126	.668	.021	6.161	***

Note: URW= Unstandardized Regression Weight; SRW= Standardized Regression Weight; S.E.= Standard Error; C.R.= Critical Ratio; ***=Correlation is significant at the .01 level.

Table 21. Goodness of Fit Statistics for Community Resilience.

Index	*Criterion*	*Generic Model*	*Revised Model*
Chi-square (x^2)	Low	297.903	33.730
Degrees of Freedom (*df*)	≥ 0	44	18
Significance of Model (*p*)	> .05	.000	.014
Likelihood Ratio (x^2 / *df*)	<4	6.771	1.874
Goodness of Fit Index (GFI)	> 0.9	.733	.954
Adjusted Goodness of Fit Index (AGFI)	> 0.9	.600	.908
Root Mean Square Error of Approximation (RMSEA)	< 0.05; 0.08	.184	.072

To determine necessary adjustments, modification indices were reviewed, and the theoretical, conceptual foundation of the study was referred to. The resulting measurement model is depicted in Figure 17 below with added correlational indicators between specific error terms and removal of indicators *Providing emergency management training and certification opportunities for administrators (Q29), Conducting routine assessments to update plans and*

procedures (Q30), and *In the absence of a crisis, being involved in collaborative strategies (such as exercises, and meetings) with organizations you collaborate with during a crisis* (Q36).

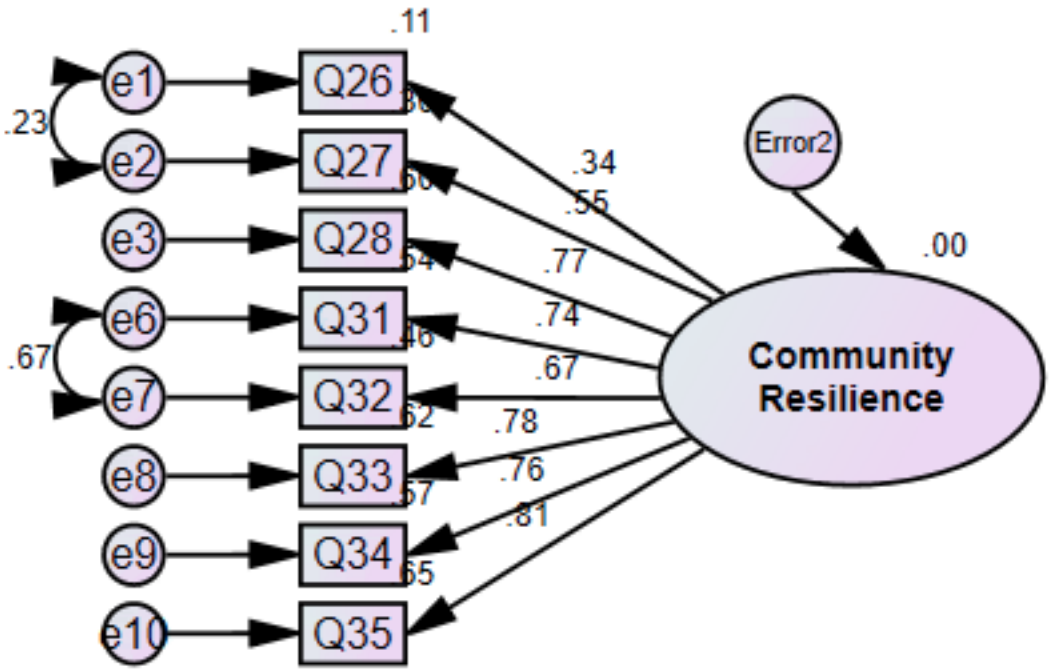

Figure 17. Revised Community Resilience Measurement Model with Standardized Estimates.

4.3 Reliability Analysis

To determine reliability, or internal consistency, the researcher ran Cronbach's alpha test. This is especially critical for this study as a standardized scale was not utilized. The test was conducted for the generic and revised models before being reviewed to determine if the coefficients achieved a value of .70 or higher (Gliem & Gliem, 2003; Pallant, 2013; Santos, 1999). The values are presented in Table 22. After reviewing the results, all measurement models achieved a score above .70 and are deemed reliable.

Table 22. Cronbach's alpha Values for Measurement Models.

Latent Variable	*Number of Indicators*		*Cronbach's alpha (α)*	
	Generic	*Revised*	*Generic*	*Revised*
Crisis Communication Strategies	10	9	.810	.791
Local Community Needs	9	8	.839	.841
Crisis Types	3	3	.744	.744
Community Resilience	11	8	.903	.863
Full Model	33	28	.782	.781

4.4 Model Summary and Analysis

In terms of the Covariance Structure Model contained all latent variables and their relevant indicators. Results of multicollinearity analysis and goodness of fit statistics for each latent variable led to the modification of the generic model. After the indicators were removed, controls were added, and endogenous variables were given residual errors, the measurement model was tested (see Figure 18). To determine the validity of the measurement model, factor loadings were examined to determine if the critical values of the indicators were larger than 1.96 and statistically significant at the 0.05 level. These values are presented in Table 23. This is followed by reviewing goodness of fit statistics.

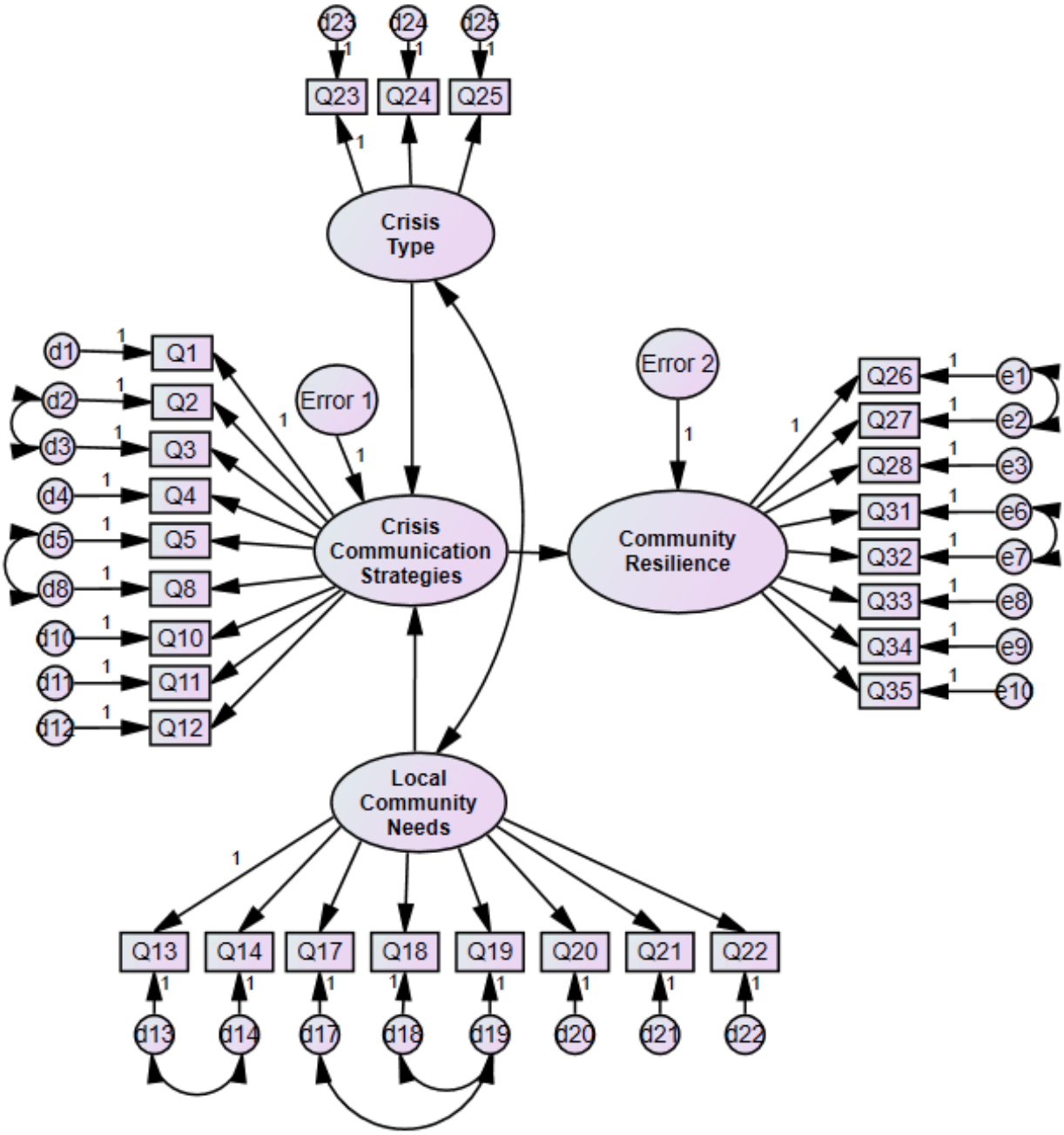

Figure 18. Generic Covariance Structure Model.

Table 23. Parameter Estimates for Covariance Structure Model.

	Generic Model					*Revised Model*				
	USRW	*SRW*	*S.E.*	*C.R.*	*P*	*USRW*	*SRW*	*S.E.*	*C.R.*	*P*
Crisis Communication Strategies <-> Crisis Type	.598	.559	.147	4.060	***	.560	.517	.150	3.728	***
Crisis Communication Strategies <-> Local Community Needs	.554	.352	.179	3.092	.002	.527	.435	.159	3.324	***
Community Resilience <-> Crisis Communication Strategies	-.288	-.464	.093	-3.083	.002	-.246	-.451	.087	-2.824	.005
Q26 <-> Community Resilience	1.000	.344				1.000	.309			
Q27 <-> Community Resilience	1.308	.548	.299	4.376	***	1.458	.550	.368	3.962	***
Q28 <-> Community Resilience	1.312	.774	.306	4.292	***	1.459	.775	.383	3.812	***
Q31 <-> Community Resilience	1.608	.722	.378	4.248	***	1.784	.778	.472	3.780	***
Q32 <-> Community Resilience	1.495	.737	.359	4.162	***	1.658	.737	.446	3.719	***
Q33 <-> Community Resilience	1.080	.676	.238	4.544	***	1.674	.676	.439	3.814	***
Q34 <-> Community Resilience	1.493	.763	.349	4.279	***	1.647	.758	.407	4.043	***
Q35 <-> Community Resilience	1.555	.810	.359	4.329	***	1.725	.810	.450	3.836	***
Q1 <-> Crisis Communication Strategies	1.000	.452				1.000	.463			
Q2 <-> Crisis Communication Strategies	1.156	.585	.234	4.957	***	1.069	.558	.202	5.298	***
Q3 <-> Crisis Communication Strategies	1.148	.653	.220	5.215	***	1.030	.600	.211	4.873	***
Q4 <-> Crisis Communication Strategies	.831	.554	.172	4.824	***	-	-	-	-	-
Q5 <-> Crisis Communication Strategies	.807	.330	.233	3.458	***	.878	.367	.242	3.630	***
Q8 <-> Crisis Communication Strategies	.753	.274	.252	2.991	.003	.778	.290	.257	3.026	.002
Q10 <-> Crisis Communication Strategies	1.214	.537	.256	4.749	***	1.255	.569	.264	4.752	***
Q11 <-> Crisis Communication Strategies	1.630	.723	.300	5.439	***	1.450	.659	.285	5.082	***
Q12 <-> Crisis Communication Strategies	1.396	.766	.252	5.550	***	-	-	-	-	-
Q13 <-> Local Community Needs	1.000	.508				-	-	-	-	-
Q14 <-> Local Community Needs	1.419	.582	.226	6.268	***	1.000	.544			
Q17 <-> Local Community Needs	1.467	.498	.297	4.942	***	1.136	.512	.217	5.237	***
Q18 <-> Local Community Needs	1.708	.806	.266	6.416	***	1.341	.840	.193	6.957	***
Q19 <-> Local Community Needs	1.635	.617	.292	5.593	***	1.262	.629	.214	5.903	***

	Generic Model					*Revised Model*				
	USRW	*SRW*	*S.E.*	*C.R.*	*P*	*USRW*	*SRW*	*S.E.*	*C.R.*	*P*
Q20 <-> Local Community Needs	1.879	.783	.296	6.344	***	1.437	.794	.210	6.827	***
Q21 <-> Local Community Needs	1.822	.575	.336	5.414	***	1.301	.545	.238	5.475	***
Q22 <-> Local Community Needs	1.683	.686	.282	5.968	***	-	-	-	-	-
Q23 <-> Crisis Type	1.000	.670				1.000	.677			
Q24 <-> Crisis Type	1.643	.742	.219	7.516	***	1.615	.737	.217	7.454	***
Q25 <-> Crisis Type	1.784	.738	.238	7.496	***	1.754	.734	.23	7.437	***
Local Community Needs <-> Crisis Type	.062	.514	.016	3.872	***	.087	.533	.022	4.039	***
d8 <-> d5	.696	.558	.112	6.228	***	.674	.551	.111	6.062	***
d3 <-> d2	.208	.477	.043	4.887	***	.233	.497	.046	5.080	***
d17 <-> d19	.192	.437	.037	5.166	***	.190	.438	.037	5.076	***
e2 <-> e1	.099	.230	.035	2.810	.005	.111	.256	.035	3.203	.001
e6 <-> e7	.126	.667	.020	6.180	***	.126	.668	.020	6.179	***
d13 <-> d14	.067	.240	.024	2.794	.005	-	-	-	-	-
d18 <-> d19	.067	.310	.020	3.315	***	.057	.288	.021	2.727	.006
d2 <-> d1						.144	.221	.048	3.013	.003
e9 <-> e1						.062	.224	.023	2.663	.008

Note: URW= Unstandardized Regression Weight; SRW= Standardized Regression Weight; S.E.= Standard Error; C.R.= Critical Ratio; ***=Correlation is significant at the .01 level.

Table 24. Goodness of Fit Statistics for Covariance Structure Model.

Index	*Criterion*	*Generic Model*	*Revised Model*
Chi-square (x^2)	Low	592.157	321.668
Degrees of Freedom (*df*)	≥ 0	339	240
Significance of Model (*p*)	> .05	.000	.000
Likelihood Ratio (x^2 / *df*)	<4	1.747	1.340
Goodness of Fit Index (GFI)	> 0.9	.811	.870
Adjusted Goodness of Fit Index (AGFI)	> 0.9	.774	.837
Root Mean Square Error of Approximation (RMSEA)	< 0.05	.066	.045
Tucker Lewis Index (TLI)	> 0.9	.869	.945
Comparative Fit Index (CFI)	Value close to 1	.883	.952
Incremental Fit Index (IFI)	> 0.9	.885	.953

For the Covariance Structure Model, the indicators adhere to the threshold for critical value and statistical significance; however, the goodness of fit statistics indicate the model could be improved as presented in Table 24. To determine necessary adjustments, modification indices were reviewed, and the theoretical, conceptual foundation of the study was referred to. The resulting measurement model is depicted in Figure 19 below with added correlational indicators between specific error terms and removal of indicators: *My department focuses on information sharing between different community departments (Q4), My department assesses our crisis communication plan with community partners* (Q12), *My department has a positive relationship with the community (Q13),* and *My department includes specific action to be taken by the community in each warning message (Q22).*

After reviewing goodness of fit statistics once more, the researcher noted the GFI and AGFI were still lower than the threshold; however, there are supplemental goodness of fit statistics that support the conclusion that the model is a good fit. These statistics include the Tucker Lewis Index (TLI), Comparative Fit Index (CFI), along with the Incremental Fit Index (IFI) and are presented in Table 23. As shown in Table 23, the Chi-square statistics dropped from

592.157 to 321.668, the Likelihood Ratio dropped from 1.747 to 1.340, GFI increased from .811 to .870, AGFI increased from .774 to .837, and the RMSEA decreased from .066 to .045. In addition, TLI increased from .869 to .945, CFI increased from .883 to .952, and IFI increased from .885 to 953.

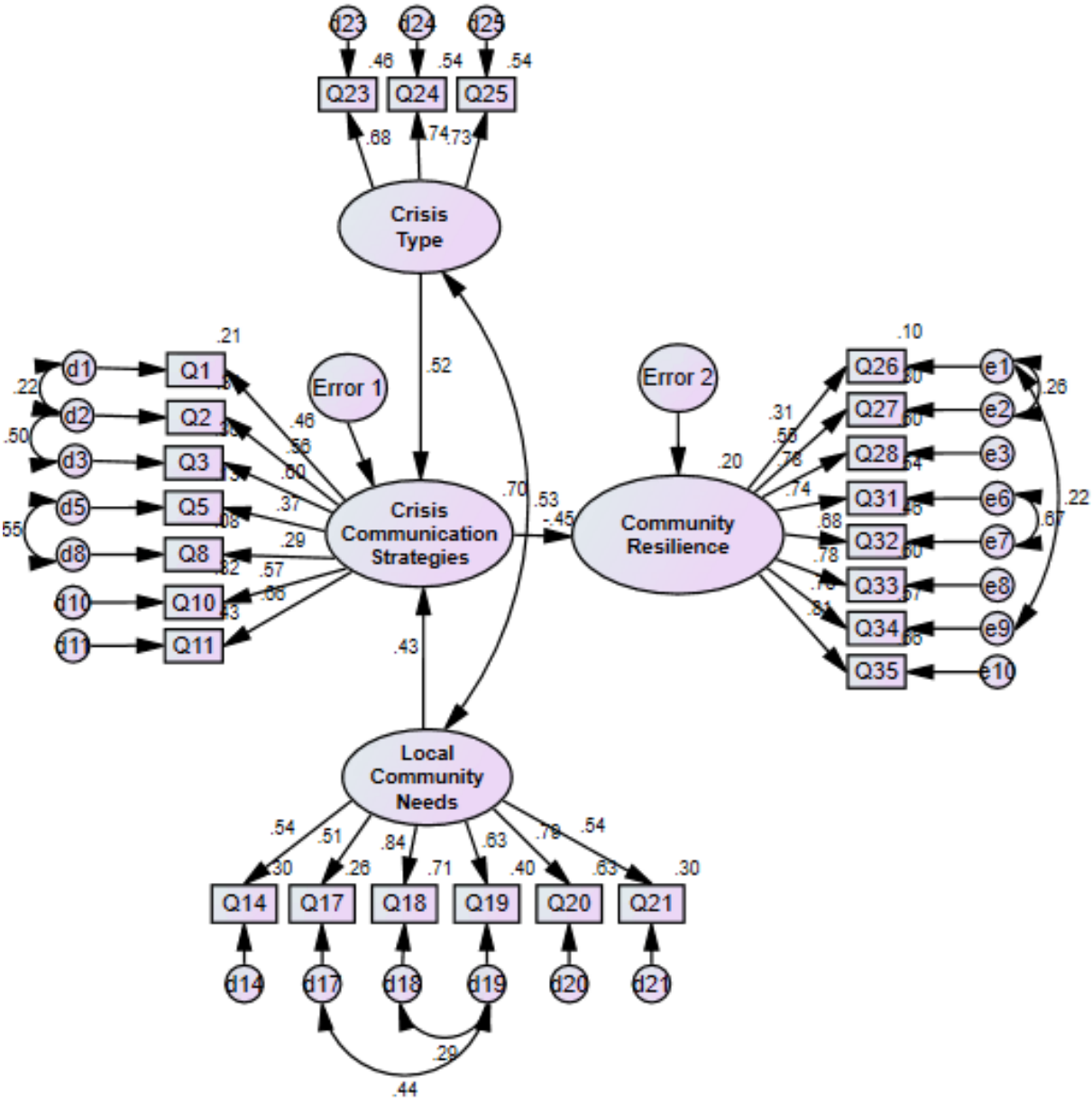

Figure 19. Revised Covariance Structure Model with Standardized Estimates.

After validating the model, the next step included reviewing the parameter estimates to determine the importance of each predictor in relation to its latent variable. Referring to Table 25, the standardized regression weights were examined. For Crisis Communication Strategies, the predictors with the highest significant influence included *My department assesses our crisis communication plan at least once a year (Q11)* at .659, *My department exercises crisis communication strategies with community partners (Q3)* at .600, and *My department exercises crisis communication strategies regularly (Q2)* at .558. Local Community Needs was most significantly impacted by *My department uses (easy-to-understand) language to explain what is going on (Q18)* with .840 with the next being *My department identifies the most important topics and highlights these in communication (Q20),* and the next having a noticeable difference at .629 *My department uses visual images such as maps to help explain what is going on (Q19).*

For Crisis Type, all three indicators were close in terms of importance with *My department adapts information for health concerns (Q24)* at .737, *My department adapts information for community violence (Q25)* at .734, and *My department adapts information for natural disasters (Q23)* at .677. Community Resilience indicator *In the absence of a crisis, sustaining relationships with other organizations* (Q35) was the highest at .810 with *Collaborating with community partners for support, expertise, etc. (Q33)* at .778, *Trust with the community (Q28)* at .775, *Personally, participating in training and certification opportunities focused on emergency management (Q34)* at .758, and *Conducting routine needs assessments* (*Q31*) at .737. In terms of mediating impact to Crisis Communication Strategies, Crisis Type was higher in significance at .517 with Local Community Needs at .435.

Table 25. Standardized Regression Weights for Parameters.

Parameters		*Estimates*
Covariance Structure Model	Crisis Communication Strategies <-> Crisis Type	.517
	Crisis Communication Strategies <-> Local Community Needs	.435
	Community Resilience <-> Crisis Communication Strategies	-.451
Community Resilience	Q26- Leadership support from the state emergency management practitioner(s)	.309
	Q27- Leadership support from surrounding local emergency management practitioner(s)	.550
	Q28- Trust with the community	.775
	Q31- Conducting routine needs assessments	.737
	Q32- Conducting comprehensive vulnerability assessments	.676
	Q33- Collaborating with community partners for support, expertise, etc.	.778
	Q34- Personally, participating in training and certification opportunities focused on emergency management	.758
	Q35- In the absence of a crisis, sustaining relationships with other organizations	.810
Crisis Communication Strategies	Q1- My department is mainly responsible for creating crisis communication plans and strategies	.463
	Q2- My department exercises crisis communication strategies regularly	.558
	Q3- My department exercises crisis communication strategies with community partners	.600
	Q5- My department markets our plans on our websites	.367
	Q8- My department markets our plans via social media	.290
	Q10- My department provides updated information at least once every three hours during the event	.569
	Q11- My department assesses our crisis communication plan at least once a year	.659
Local Community Needs	Q14- My department identifies what is most important for the community to know	.544
	Q17- My department provides community outreach campaigns for vulnerable populations	.512
	Q18- My department uses (easy-to-understand) language to explain what is going on	.840
	Q19- My department uses visual images such as maps to help explain what is going on	.629
	Q20- My department identifies the most important topics and highlights these in communication	.794
	Q21- My department uses a spokesperson with whom the community is familiar	.545
Crisis Type	Q23- My department adapts information for natural disasters	.677
	Q24- My department adapts information for health concerns	.737
	Q25- My department adapts information for community violence	.734

The final aspect considered was the percentage of variance, or R^2, explained within the model. For Crisis Communication Strategies, 70% (R^2 = .696) of variation is attributed to its predictors that incorporates indirect effects of Local Community Needs and Crisis Type. The predictors for Community Resilience account for 20% (R^2= .204) of its variation. In terms of indirect effects of Crisis Type or Local Community Needs on Community Resilience. Local Community Needs accounted for -20% (R^2= -.196) of the variation whereas Crisis Type accounted for -23% (R^2= -.233). Thus, the model achieves a statistically significant level of fit and is appropriate to analyze the relationships between Local Community Needs and Crisis Type onto Crisis Communication Strategies, as well as the relationship between Crisis Communication Strategies and Community Resilience. By understanding the variation, emergency managers and decision-makers gain deeper understanding into how the indicators of each variable ultimately impact the overall resilience of their communities.

4.5 Qualitative Analysis and Results

The following section incorporates analysis of the open-ended questions within the survey followed by the transcripts of seven semi-structured interviews. The interviews were recorded with consent and sent to a research transcriptionist to avoid initial analysis or bias by the researcher. The resulting documents were analyzed via axial coding for the connections to crisis communication strategies, local community needs, and crisis types as well as relationships between and within.

4.5.1 Open-Ended Survey Questions

The survey incorporated four open-ended questions. The first asked for the respondent to describe their level of expertise. A total of 140 responses were analyzed and the patterns that surfaced related to how they described the level (see Table 26).

Table 26. Expertise Level Coded Patterns.

Code	*Definition*	*Notes*	*Frequency*	*Percentage*
1	Level	Association with level variation without justification	44	32
2	Year	Justification connected to years in the field, service, association, etc.	36	26
3	Simple Justification	Level and/or Year with minimal details	41	30
4	Detailed Justification	Level and/or Year with substantial details	17	12
		Total:	138	100

For 32% of the responses (44), individuals simply stated a level they associate with their expertise, such as high, above average, excellent, moderate, experienced, expert, fair, low, etc. The answers were short and no explanation as to why they designated a certain level. The next pattern was justification by stating years related to time in the field, certain positions served, or related aspects. Therefore, the justification was equated to amount of years of experience. The third pattern was a statement of simplified justification that mixed a level or year with added details, such as the number of disaster declarations they experienced, certification or degree they acquired, or a comment related to their areas of expertise. The fourth pattern consisted of substantial detail meaning the respondent connected to Level or Year with multiple connections to certifications, positions, certifications, degrees, etc.

The next survey question asked the respondents whether they wanted to share anything else that is critical for crisis communication. There was a total of 81 responses to this question

and four themes emerged relating to relationships, adaptation, capacity, and crisis communication. In terms of relationship focused, there were a total of 18 (22%) that spoke to the necessity for collaboration, stakeholder buy-in, training and exercises, teamwork, sustaining relationships even after an event, and having relationships with a variety of public, private and individuals. Moreover, there was an emphasis on understanding the role and responsibility of the emergency manager position in general.

The theme of adaptation surfaced in 31 responses (38%). Adaptation related to the necessity for integrating old and new communication technology, incorporating multiple communication avenues, and utilizing social media. Other responses connected to adaptation consisted of making sure messages are clear, dissemination to the appropriate individuals, comprehensible to the audience, distributed in a timely manner, and acknowledged the need to verify rumors. Regarding the theme of capacity, respondents (27%) spoke mostly about the need to understand the county and equivalents' abilities during an event as well as the capacity of the ones they work with. In conjunction, an element of capacity linked to the emergency manager's knowledge of their community and its past, the incident command structure, and the technology at their disposal. In addition, it falls onto the emergency manager to place responsibility on the community itself and what actions they must take. The last theme was on crisis communication as a concept as well as the need for its growth in the field. This became evident when 9 respondents (11%) indicated needs for clarity of terminology, even regarding the survey itself.

The next open-ended question allowed respondents to state if there was anything they felt is critical to building community resilience. For this question, there were a similar 81 responses. The themes emerging from the responses spanned characteristics, relationships and communication, community approach, and overcoming obstacles. For characteristics (21%),

some of the answers spoke to the traits of an emergency manager, such as trust, transparency, consistency, perseverance, honesty, and competence.

For relationships and communication (26%), the responses focused on networking or sustaining/generating relationships with involved stakeholders. The general aspect of communication was discussed along with a focus on the whole community approach or a community approach (42%) in general and the necessity for buy-in and relationships. Also, there was a connection to community education and outreach programs. The last theme was overcoming obstacles (20%). There were a number of obstacles listed, such as economics, disconnects between emergency managers and their leadership, designation or understanding of responsibility, accountability, traditional ideals of the emergency management role and attitude towards response, planning disconnects, and overcoming apathy.

The last open-ended survey question asked the respondents if there were any reports or documents they wanted to share that connected the concepts of crisis communication and community resilience. Only 14 individuals responded aside from simply stating no and gave specific sites to refer to:

- After Action Reports
- National Weather Service for preparedness on severe weather
- Federal Emergency Management Agency
- National Flood Insurance Program
- Ready.gov
- Incident Action Plans
- Fire Adapted Communities
- County website

- National Institute of Standards and Technology Technical Investigation of the May 22, 2011, Tornado in Joplin, Missouri

Reviewing the responses to the open-ended questions, it is interesting to note the emphasis placed on adaptation for crisis communication. More specifically, the 38% of the respondents who emphasized adaptation also made mention of how pivotal it is for crisis communication to incorporate a clear, timely message that is sent to appropriate individuals and is comprehended by those who receive the information. These findings support the literature and confirm the importance of strategies for crisis communication especially as it impacts a community's capacity, which was the second-highest ranking response.

In terms of capacity, the imperative connection comes to the knowledge base or expert who is the decision maker. Without knowing all aspects of needs, the community cannot develop its capacity. The last two themes focused on relationships and growth of crisis communication in the field. These strategies are not fully known and have not infiltrated all disciplines connected to emergency management practice. Seeing as how many respondents identified public relations, or related departments, as the creator and implementers of crisis communication plans and the lack of an emergency manager in every county holding decision-making responsibilities, it is not surprising that these critical strategies are not well-known. Yet, the knowledge of these variations leads to strategic efforts to disseminating the information and clarifying the concept in its terminology and best practices for practitioners.

These efforts support the cause of positively developing community resilience. For the majority of respondents, the whole community approach that echoes throughout the field and guiding materials developed by FEMA and educational institutions supports community resilience. The less popular variations of responses connected to characteristics of communities,

relationships, and overcoming obstacles. For characteristics and obstacles, these concepts are connected as no county is alike and neither are their capabilities. The next step is to determine the most impactful characteristic differences between counties to help increase resilience nationwide through strategic goals and initiatives.

4.5.2 Emergency Manager's Perception of their Role and Responsibilities

To determine the lens by which the surveys were completed, one could deduce the average respondent to be male, 56 or older, located in a rural county with a bachelor's or trade/vocational/technical training with 1 to 5 employees (more details are located in chapter 4). Attempting to surmise an average level of experience, knowledge, skills, and abilities were more difficult to undertake as 140 individuals ranged in providing justification by acknowledging the years in the field, level of certifications received, variety of job placements, diverse threats faced, etc. Some examples of those that justified their level of expertise through more simplistic explanations include:

- Over 30 years of experience with a State Level Emergency Management Certification.
- 21+ years of experience in EMA including multiple presidential declarations.
- Entry level. My background has been working through local search and rescue teams and the local RACES group.
- I don't consider myself to be an expert at all. I have relationships and agreements with other agencies and individuals who are experts in their respective fields. I can call upon them when needed.

On the other hand, some respondents provided more detailed justifications including a mix of years in the field, positions held, and threats faced, such as:

My experience is a little above average for the size of my rural jurisdiction. Most similar counties have invested little in hiring well qualified EM's. I came with 22 years of active duty with considerable background in using disasters to increase or decrease the training experience for brigade level training exercises. I have also completed a master's in emergency management/homeland security as well as the FEMA PDS and APS series of training.

I have experience in County Government, City Government, Law Enforcement, Emergency Medical Services; I am Chief of a 80 person volunteer hazmat team (we have 7 branches, two dive/water rescue teams and a multi-county EMS Strike Team. I am an Emergency Management Director and have an AS Degree, BS Degree & MS Degree. I am very active both on the Local, County and State Government.

I served a total of 33 years as a police officer for a city of approximately 10,000. The last 6 years I was the Public Information Officer for the city. I have been the Emergency Management Director for [County] for 10 years. I earned my Professional Emergency Manager (PEM) certification from the State of [Name removed for anonymity purposes] and I earned my Associate Emergency Manager (AEM) certification from the International Association of Emergency Managers.

The variation in experience is important to note as the description of the individual's qualifications does not change the fact that many, if not all, emergency managers are not the

sought-after decision-maker within their county. Although some may have a direct connection to the administrator who does have influence over policies and procedures, the majority are just individuals who generate recommendations. This was a difficult reality to accept. The contrast in expertise, as well as the realization that not every county even has a full-time staff member, led to the question of: Are emergency managers valued? This question may seem harsh, but today's time consists of increasing severity of natural disasters, community unrest, and the reality of terrorist threats. Times have changed since the 1985 special symposium of public administration and the integration of emergency management activities (Comfort, 1985; McGuire, Brudney, & Gazley, 2010; Petak, 1985). We now must question whether these practitioners and experts are being used to their full capability.

This line of thought also surfaced during the seven semi-structured interviews. Interviewee North stated how their City Administrator is the individual with the decision-making responsibilities and any presentation given about a situation or attempts to be proactive means speaking to individuals such as police chief, fire chief, public safety director or public works officer. They even noted how the lack of specific emergency manager in various departments has led to the city administrator having the roles as part of their "Other duties as assigned." Interviewee South echoed similar statement when describing their role as being a part of a coordinating agency for local public safety-first responders. Interviewee East spoke to the unique positioning of being a part of an independent county department with other emergency managers falling under the organizational hierarchy of police or fire, health department, or 9-1-1 operators. Interviewee West mentioned their role as emergency manager was only 85% of their job while the rest was Veteran's Services and Interviewee NorthEast falls under the Board of County

Commissioners but is privileged to have multiple staff members and a seat at the table with the Chief Administrator who is responsible for decision making.

Interviewee SouthEast also deemed themselves lucky as they have a second staff member and is one of four staff members overseen by their county's judge. Although they are not the ones making the final decision, they felt as if their voice was well-regarded and their county judge was an exception who understood the need for dedicated staff. The last interviewee, Central, was even more unique in being a county emergency management coordinator who is the second highest ranking individual in their state due to years of experience, yet they are not a state employee. Interviewee Central jokingly stated: "We're always wondering what would happen if the County Commissioner and the Governor said that 'You're gone' and the County Commissioner said, 'No.'"

Despite the noted variations, there was an unspoken confidence emanating from each of the respondents about their role and what they bring to the table. There was, however, a noticeable wavering when the question of how they are perceived by other managers or administrators. For some, it came down to the audible sighs or mention of professional frustration they feel when encountering other practitioners who do not share the same focus on community well-being. As one respondent stated: “It's like water dripping on a stone. Just gotta stay at it consistently all the time. Eventually you'll notice you're making headway.”

4.5.3 Building Resilience and Adaptation

The question of value surfaced not only due to the diversity of the emergency managers and differentiation of their state, but due to the diversity of the counties they described. The range of experience was seen in responses to an open-ended question about community resilience, some

of the answers spoke to the traits or characteristics of the emergency manager, such as trust, transparency, consistency, perseverance, honesty, and competence. These traits were connected to the concept of resilience as practitioners whose main focus is not on community well-being leads to a lack of proactivity. This connects to the literature where community resilience is agreed to be a multi-faceted beast and the knowledge, skills, and abilities of its public administrators is critical (Boin & O'Connell, 2007; Clifford & Bourne, 2013; Comfort, 2007; Cutter et al., 2008; Cutter et al., 2013; Cutter, Ash, & Emrich, 2014, 2015; Cutter, Burton, & Emrich, 2010; Hu, Knox, & Kapucu, 2014; Kapucu, 2006; Kapucu & Van Wart, 2006; Liu, Guo, & Nault, 2014; McEntire, 2007; Waugh & Streib, 2006). If leadership is unaware of their county's capabilities, then it negatively impacts the ability to prepare, mitigate, response, and recovery. Within the interviews, each manager spoke to the nuances of their county and was very aware of the barriers they face in their position. For example, Interviewee East stated:

> Well, I think, you're right in the statement that the counties are important. It's not just because I'm at a county level but it's because we're the closest connection to the actual affected population...[M]y north, south and eastern contiguous counties are completely different than I am...[Y]ou either have a proactive EM or you don't...[O]ut of my three neighbors, two of them, this is a retiring gig for them. And so, there's not as much proactiveness...[T]here is no standardization because every county's demographics are so unique...And then how one county does it is a difference in another county...it's just harder to say, 'Oh, your county's not resilient'...I think that's where the issue is and why there isn't much research or much at the county level because you can't standard federally from State to State

> and you can have standards at the State level, kind of county to county. But at the county level, what works here will not work 30 to 40 miles down the road.

The variation supports the need for adaptation of policies and procedures, especially crisis communication strategies. One of the most critical adaptations is for crisis type. According to previous literature and theoretical evaluation, crisis type has the most significant impact on crisis communication strategies. Each crisis calls for different information to be disseminated, actions to take, and stakeholders to engage. Theoretically, each crisis causes those impacted to refer to previous experiences to determine whether they will respect local leader's warnings and act accordingly (Birkland, 1996, 1997, 1998, 2006; Boin & McConnell, 2006; CDC, 2014a; Coombs & Holladay, 2002; Sellnow & Seeger, 2013; Sylves, 2014; Ulmer, Sellnow, & Seeger, 2007, 2017; Walker, 2012).

Additional components critical for building community resilience included relationships and communication, community approach, and overcoming obstacles. For relationships and communication, the responses focused on networking or sustaining/generating relationships with involved stakeholders. The general aspect of communication was discussed.

> [J]ust communicating regularly to community groups will provide them with the feeling of inclusion in your planning. Many at risk feel they are not included in the plan when in fact they are.

> All aspects of emergency management and public safety should be built around communications. The aspects of planning, training, exercising, responding and recovering from disasters and larger than normal emergencies are all ineffective without consistent communications. Community resilience cannot be obtained

without communicating the who, what, when, where, how and why effectively before, during and after an event!!

An additional theme was the focus on the whole community approach or a community approach in general and the necessity for buy-in and relationships. There was a connection to community education and outreach programs. “Getting the community to understand that "yes, it can happen here" is a struggle. This also is reflected in the amount of money the community spends (or doesn't') on preparedness.”

Moreover, one of the interviewees made an interesting comment related to the use of planning frameworks by FEMA: "I love looking at these response frameworks and all of those and talking to people about these planning frameworks and how to use them; but they're just general guidelines, you have to tailor them so much specifically to your community. Lots of work."

> There's no such thing as a cookie cutter. But from going from a tropical depression to a Category 4 in 44 hours. We're used to the four to five-day kind of freight train that kind of points at us. The [Event removed for anonymity purposes] spin up and it's kind of the worst case scenario for us because really, normally, something that we would take three days to get in motion - have our evacuation hubs ready, our evacuation process set, something that would take us three to four days to get really going and just thoroughly done, we did in three and a half hours.

The theme of overcoming obstacles, such as economics, disconnects between emergency managers and their leadership, designation or understanding of responsibility, accountability, traditional ideals of the emergency management role and attitude towards response, planning

disconnects, and overcoming apathy. “Building community resilience is an economic issue. Funding to build infrastructure resilience is most difficult due to the overall economic conditions of the state and county.”

> Hold local elected officials accountable for their leadership, that's what they run on and give them training. Then we will better understand each person’s role in all areas of emergency and emergency communication will stop being the number one issue on ever AAR improvement list.

> Getting rid of old centric attitudes: It has never happened, we'll deal with it when it does, I have a plan - but doesn't share it, which suggests there is no plan. Your question about how many full-time employees does not include 0-part. My position is a part time position only. There is no full-time EM program here.

The overcoming obstacles connection only adds support to the need to adapt crisis communication strategies to local community needs as well as crisis type. This component is also supported by previous literature especially in the arena of measuring resilience and the county's capacity. Through the survey, several themes emerged when respondents were asked about what they believe is critical for crisis communication. There were four themes that emerged relating to relationships, adaptation, capacity, and crisis communication. In terms of relationship focused, respondents spoke to the necessity for collaboration, stakeholder buy-in, training and exercises, teamwork, sustaining relationships even after an event, and having relationships with a variety of public, private and individuals and emphasized understanding the role and responsibility of the emergency manager position in general. An example of the critical nature of relationships is:

I believe, as with any communication, the best thing an EM could do is built upon their own personal "people skills". You must be able to relate to people, to foster and build the relationships you need in emergency management. If the citizens respect you, they will listen to your message and take the actions you are giving. [W]orking toward collecting the political buy in and acceptance/understanding of critical communications. Tearing down silos and beliefs that individual departments or groups don't share information and will go it alone.

Speaking specifically to the role and responsibility, a respondent stated:

The first thing is County level Emergency Management is a Coach and Coordinator, my office ‘supports’ local leadership. all disasters start and ‘remain’ in the control of local elected leadership. We train and coach, we never take the leadership away from them nor do we let them fail. Any successful Emergency Management department knows we're always in a supporting role. We also help them write plans, but ownership must be from local government. If we run as your survey as questions, then preparing for disaster and recover would be a disaster itself. This survey puts the wrong perspective on the job of a emergency manager. Studies like this give faults and dangerous results to government and school leadership. Local leadership is "always" in charge of not only leadership but also what and how the plan and training is done and to what standard. Were all to ready to push off who is responsible to supporting agencies who are expert resources. (Emphasis via quotation marks added by respondent)

4.5.4 Challenge to Implementing Crisis Communication Strategies

The theme of adaptation not only connected to building a community's resilience capacity, but to the concept of crisis communication. The responses ranged from the challenge of integrating old and new communication technology, incorporating multiple communication avenues, and utilizing social media. Other responses connected to adaptation consisted of making sure messages are clear, dissemination to the appropriate individuals, comprehensible to the audience, distributed in a timely manner, and acknowledged the need to verify rumors. These connections support the literature and highlight how many initiatives to create a nationwide communication system will always encounter challenges as decision-makers do not take into account county variation (Birkland, 2006; Kapucu & Haupt, 2016; Kapucu, Haupt, & Yuksel, 2017; Rubin, 2007; Waugh & Streib, 2006). Speaking of communication technology, one example is:

> Maximizing new technologies such as social media are essential to communicating today. However, old analog radio continues to function with social media and digital/wireless methods bog down under emergency situations. Redundancy and legacy are vital. Many in my community have scanners. We broadcast some warnings over pagers "to responders" because we know much of the community will get the message quickly through that method.

> And interviewee South reiterated this component as the biggest disconnect for their area: Radio systems designed by manufacturers are typically designed with a 10-year life cycle...and they stop manufacturing parts for the existing system. If they do that after seven years, then there's a three-year time frame you have to buy. Basically, you buy off the inventory of spare parts. Once they're gone, they're

> gone, once they quit making them...That is the biggest problem that we all face. There is a huge disconnect between the price of technology today and the funding that the local government agencies have. That's the number one.

Transitioning from the technological challenges, there are aspects promoted by the respondents to keep in mind in terms of message dissemination and comprehension, one respondent stated: “Do not overuse systems when crises don't exist- for PSA's, community events, etc. This has a "numbing" effect on recipients.” Another wrote: “The community MUST trust you and you MUST provide adequate and accurate information to them. Important that you let them know that it is THEIR responsibility to respond to the information you provide, period.”

Another component related to policy-making is understanding funding streams. One of the major challenges to emergency management on a general level is to obtain enough funding to prepare for events. For many, the lack of acknowledging potential impact of an event is difficult to substantiate the need for funds. Many rural counties are finding the funding streams to be disproportionate and another difficult obstacle to overcome. For example:

> Residents are always looking at maintaining what the property tax is. We're in the same area where we really do our best to try to maintain our annual budget request at zero. That's really not an increased based on-- except for [inaudible 00:17:35] cost of living line. We're in the same boat as many others, doing the same things, doing as much as we can with what we have.

> The majority of the country is rural. You don't have as many people, but you have a large area that you have to cover, so I think more it's taking more money...You

have a large population, an urban population, that has a tax base. They have the funding to take care of themselves and really don't need as much from the FEMA but they're getting the majority of the FEMA funds. If you take a rural county, like us, we get just a little bit of FEMA money based on our population overall, if you don't have the tax base to support the day-to-day operations of the program.

Aside from challenges of technological disconnects and lack of funding streams, the biggest challenge discussed by respondents was apathy.

Sometimes it's just complacency. I'm still getting that word out, still have people understand the importance of preparing. And I think now that we've had two to three storms in the last few years. They understand that. But for the last ten-plus years we had a lot of population growth. It's very sad but it's a continual thing. We continue. Even though we can't rest on our laurels, we continue with public education throughout the year.

Apathy is indeed a challenge and continuing to promote the concept of preparation has yet to be solved and may never be. However, building capacity is not as out of reach. This arena is where the expertise of emergency management practitioners truly shines as respondents spoke about the need to understand the county and equivalents' abilities during an event as well as the capacity of the ones they work with. The intrinsic connection to the practitioner's knowledge of their community and its past, the incident command structure, and available technology was evident in the responses, but there was still a challenge of community involvement especially with stark variations inside the counties themselves. It falls onto the emergency manager to place responsibility on the community itself and what actions they must take. As far as the county and equivalents' capacity, one respondent stated:

> Not enough foresight from some agencies with regards to rural/small population communities regarding what applies in a big city does not necessarily apply in a rural, low-populated state. Expectations that communication is the same across the board (we have had several events where public communications - cell phones - were brought down) due to lack of cell towers is always an issue. Our agency has 2 people; it is difficult to fulfill duties and act as a PIO to keep the public informed.

Focusing on the knowledge of the community and capacity of collaborators, one respondent stated: “Communities with few crises struggle because they have little real experience or frequency of use with many systems.” Another wrote: "Accountability training for country EMA directors. Too many chosen based on local politics rather than skills and level of training. My personal experience with some has been quite disappointing. They freeze under real life situations.”

Bringing together an intersection of capacity and relationships, one respondent provided an interesting statement of:

> It is critical that we continue to work towards not just communications with the citizens we work for but that we continue the mission of interoperable communications between response disciplines. Many times, during mutual aid situations I have witnessed the lack of communications between local to local, state to state, and almost any to federal becomes overwhelmed on the federal interop channels. As much money as has been thrown at this we are still in poor shape.

The last theme was on crisis communication as a concept as well as the need for its growth in the field. This became evident when respondents indicated needs for clarity of terminology, even regarding the survey itself. For example: “Terminology and the perceived level of understanding are critical elements, just as with this survey, several of the questions are challenging not because of content, but due to some of the terms utilized.”

> Crisis communication tends to be tasked to public affairs/relations personnel. In small to mid-sized communities like ours, those are people who take on that role for the organization in addition to other duties - they are typically NOT part of a dedicated public affairs office. As a result, crisis communication tends to be somewhat disjointed and disorganized.

> [I]t's almost impossible to get enough people in these small counties trained and keep them trained to the level that they're expecting. We've figured, as long as we're trained and can fill in, there's not going to be anything that hits all of us or if it is, you know?

4.5.5 Semi-Structured Interviews

Of the 22 respondents who volunteered for a follow-up interview, 7 responded to the scheduling email sent by the researcher for a 15 to 20-minute timeslot. The interviews were conducted via phone and were recorded with the knowledge the name and county and equivalents of the interviewee would be changed to maintain anonymity. Although the county names are not publishable, the respondents represented 7 states: Florida, Michigan, Minnesota, Mississippi, South Dakota, Texas, and Wyoming. Six of the interviewees were male (86%) and one was

female (14%). In terms of county identification, 4 identified as rural (57%), 2 as mixed meaning urban and rural (29%), and 1 as urban (14%).

As the interviews were semi-structured in nature, the researcher had 4 guiding questions:

1. What is your role and describe your community.
2. What are some aspects that help or hinder your crisis communication efforts?
3. What do you feel positively or negatively impacts your community's resilience?
4. Anything else you would like to add when thinking of communication and community resilience?

The area in which variation is first discovered is in the simple descriptions of the respondent's role and county description. Only three of the seven respondents are full-time practitioners for their counties, whereas the rest are partially connected to other departments (ex: 15% to 40%). The description of each county could not easily be checked off as rural or urban. Each county incorporated some combination of both or was described by their major economical exports, such as oil or agriculture. Their responses only support the uniqueness and complexity of each county and necessity for knowledgeable practitioners to understand each attribute and how it impacts resilience.

When questioned on aspects that help or hinder their crisis communication efforts and community resilience, the connecting response is due to the contrasting characteristics of each county. As respondent Central stated: "That's one of the complexities you run into. It is not everybody does the same thing or reports to the same people." Not only are there organizational variations, but differences in geography, economy, and support. For instance, one respondent stated how they are geographically unable to assist surrounding counties as it can take an hour and a half to three hours depending on which direction.

> By the time something outside the system can come in, it's just not realistic. Let alone, we're the larger-- when we're the largest one. we wind up providing assistance sometimes to the smaller counties around us if they have a bad fire or something like that... It's just, it isn't feasible so most of us wind up, “You deal with it, with what you have.” And the other parts, fortunately, we don't wind up with major disasters in the same way.

> "You can either bracket the county on the north, middle and south or the east, middle and west. It depends on what the disaster is or what area it's affecting. It can be very isolated or very limited in impact or broad."

Another aspect of integrating knowledge and practice is for educational institutions teaching future emergency managers or individuals who return to school to obtain a degree. If the classroom contrasts too much from practice, then educational institutions are hindering growth and development. As one interviewee noted:

> To me, that's where it's just-- there really is a gap between the academic side of emergency management and then actual practitioner side. There's so much focus on homeland security and the response phase of emergency management. The recovery side, in both immediate and long-term, is a really a hidden area that just is not well understood both by the academic world and also by the general public, and understanding that this is just going to take time... I just had a graduate student as an intern here. My deputy just went through a graduate program as well and she's like-- both of them had said, It's like, “What we've learned and we're facing are just like drastically different.

To emphasize the lack of a one-size-fits-all reality that exists, one respondent connected to the area of education and training through a simple statement of: "And it doesn't quite match what you hear or see in a lot of the professional books." This connected to another common thread within the interviews of having to rely on yourself and your own resources or hoping if an event is big enough that there will be enough volunteers and resources to assist.

> The community spirit to pull yourselves up by your bootstraps. We're not going to wait for government handout kind of thing where when a disaster happens up here, it's not 'When is FEMA going to show up?' It's like 'If they're not going to show' which is get your stuff done anyway...One size does not fit all. And I think that's the biggest challenge, is that it's personality driven and demographics driven. Like the [Name removed for anonymity purposes], my county down south, their people come to me because they want things when their EM doesn't give it to them. But at the same point in time, what we do up here [Name removed for anonymity purposes] doesn't always work in [Name removed for anonymity purposes] because there may not be the same unit and we not have the same demographics so.

Another significant disconnect consisted of variation in the knowledge, skills, abilities and proactivity of emergency managers within connected counties. As one interviewee noted: "Basically, how prepared you are to handle some type of disaster is a direct result of how much suffering you will endure, or the lack thereof, if you're prepared. This is America the great, 'I want it all and I want it now.'"

The final connection within the analysis is the inability to fully separate the responses between what helps and hinders crisis communication versus community resilience. These are two integrated concepts and should be approached, researched, and practiced as such.

4.6 Baseline Resilience Indicators for Communities comparison

An integrated component of the survey was the focus on the respondent's perception for aspects of crisis communication strategies, crisis type, local community needs, and community resilience. To add a comparative analysis to balance subjective perception with objective indicators, the coinciding Baseline Resilience Indicators for Communities' score was attached to each respondent. This comparative analysis satisfies the triangulation method of utilizing a combination of qualitative and quantitative methods to gather data and provide more support to obtained results through increased credibility, reliability and validity (Denzin 1978, 2012; Jick, 1979; Olsen, 2004).

To generate a comparative score, the indicators that create the BRIC assessment tool were reviewed and those relating to social, community competence, and institutional were drawn out and a resilience score was generated. This was then compared to a composite score generated from the perception survey (see Table 28). There are noticeable differences in the indicators to avoid plagiarizing as well as integrating a perception component that would allow the emergency managers to answer the question without having to revert to quantitative data.

Of the 171 respondents, the average for resilience score as a result of BRIC analysis was 1.698 with a minimum of 1 and a maximum of 2.447. Contrastingly, perceived resilience based off of this study's survey indicators resulted in an average of 3.240 with a minimum of 1.890 and

a maximum of 4.060. Performing a state comparison, Table 27 details the state, number of respondents, BRIC mean score, and mean score of perceived resilience.

Table 27. State Comparison of Resilience Scores.

State	*Cases*	*BRIC Score*	*Survey Score*	*Diff.*	*State*	*Cases*	*BRIC Score*	*Survey Score*	*Diff.*
Alabama	6	1.577	3.323	1.746	New Jersey	4	1.845	3.387	1.542
Arkansas	2	1.658	3.221	1.563	New Mexico	2	1.408	3.217	1.809
California	1	1.642	2.817	1.175	New York	2	1.817	3.284	1.467
Colorado	2	1.456	3.142	1.686	North Carolina	5	1.623	3.101	1.478
Florida	11	1.410	3.408	1.998	North Dakota	6	1.865	3.170	1.305
Georgia	7	1.515	3.287	1.772	Ohio	6	1.831	2.972	1.141
Idaho	3	1.503	3.331	1.828	Oklahoma	3	1.671	3.030	1.359
Illinois	3	1.835	3.285	1.450	Oregon	1	1.440	3.635	2.195
Indiana	5	1.851	3.278	1.427	Pennsylvania	4	1.801	3.173	1.372
Iowa	6	2.089	2.979	0.890	South Carolina	5	1.615	3.641	2.026
Kansas	5	1.894	3.480	1.586	South Dakota	4	1.931	3.418	1.487
Kentucky	9	1.704	3.206	1.502	Tennessee	6	1.564	3.284	1.720
Maine	1	1.696	2.692	0.996	Texas	12	1.511	3.323	1.812
Maryland	1	1.775	3.827	2.052	Utah	2	1.355	3.012	1.657
Michigan	8	1.718	3.142	1.424	Virginia	2	1.809	3.531	1.722
Minnesota	4	1.991	2.899	0.908	Washington	1	1.647	3.464	1.817
Mississippi	5	1.557	3.188	1.631	West Virginia	1	1.730	3.341	1.611
Missouri	10	1.837	3.329	1.492	Wisconsin	4	1.979	3.197	1.218
Montana	3	1.595	3.257	1.662	Wyoming	4	1.416	3.132	1.716
Nebraska	5	1.968	2.896	0.928					

Table 28. BRIC and Survey Comparison.

BRIC Categories	*BRIC Variables*	*Study Survey*	*Survey Questions*
Social	Educational Equity Age Transportation Access Communication Capacity Language Competency Special Needs Health Coverage	Social	Q31- Conducting routine needs assessments Q32- Conducting comprehensive vulnerability assessments Q28- Trust with the community Q18- My department uses (easy-to-understand) language to explain what is going on Q19- My department uses visual images such as maps to help explain what is going on Q20- My department identifies the most important topics and highlights these in communication
Institutional	Mitigation Flood Coverage Municipal Services Political Fragmentation Previous Disaster Experience	Institutional	Q26- Leadership support from the state emergency management practitioner(s) Q27- Leadership support from surrounding local emergency management practitioner(s) Q34- Personally, participating in training and certification opportunities focused on emergency management Q5- My department markets our plans on our websites Q8- My department markets our plans via social media Q23- My department adapts information for natural disasters Q24- My department adapts information for health concerns Q25- My department adapts information for community violence
Community Capital	Place Attachment Political Engagement Social Capital-Religion Social Capital- Civic Involvement Social Capital- Advocacy Innovation	Community Capital	Q35- In the absence of a crisis, sustaining relationships with other organizations Q33- Collaborating with community partners for support, expertise, etc Q35- In the absence of a crisis, sustaining relationships with other organizations Q10- My department provides updated information at least once every three hours during the event Q21- My department uses a spokesperson with whom the community is familiar

Regarding county type, there were 20 Urban with a mean BRIC score of 1.660 and perceived resilience of 3.441 (difference of 1.781). For the 132 Rural counties, there was a mean BRIC score of 1.708 with perceived resilience of 3.209 (difference of 1.501) and the 19 counties who identified as Other had a BRIC score of 1.698 and perceived score of 3.240 (difference of 1.542). Although direct analysis cannot be drawn from these comparisons, it is intriguing to note the Rural counties appeared to be more perceptive of their resilience capacity versus their Urban and Other counterparts. For the statewide comparison, perceived resilience was always higher than the scores generated by the BRIC analysis. This was connected to the difference in indicators for each category (i.e., social, institutional, community competence) and the focus on quantitative versus qualitative measures.

4.7 Hypotheses Testing

The aim of this study was to understand the impact of crisis communication strategies on community resilience with components of local community needs and crisis type. Table

Table 29. Hypotheses Testing Results.

Hypothesis	*Result*
H_1: Use of crisis communication strategies improves community resilience.	Not Supported
H_2: Use of crisis communication strategies adapted to local community needs affects community resilience.	Supported
H_3: Use of crisis communication strategies adapted to crisis type affects community resilience.	Supported

The first hypothesis tested was:

H_1: Use of crisis communication strategies positively affects community resilience.

The first hypothesis was not supported by the data due to the results of the covariance structure model analysis indicating a negative, statistically significant association between crisis communication strategies and community resilience (β = -.451, *p* = .000). The unstandardized regression coefficient of crisis communication strategies indicates one unit would lead to a -.246 increase for community resilience.

H_2: Use of crisis communication strategies adapted to local community needs affects community resilience.

The second hypothesis was supported by the data. The results of the covariance structure model analysis showed a negative, statistically significant association between crisis communication strategies with local community needs on community resilience (β = -.196, *p* = .000). The unstandardized regression coefficient of crisis communication strategies indicates one unit would lead to a -.130 increase for community resilience.

H_3: Use of crisis communication strategies adapted to crisis type affects community resilience.

The third hypothesis was supported by the data. The results of the covariance structure model analysis showed a negative, statistically significant association between crisis communication strategies with crisis type on community resilience (β = -.138, *p* = .000). The unstandardized regression coefficient of crisis communication strategies indicates one unit would lead to a -.223 increase for community resilience.

The negative, statistically significant associations are not a concern for the researcher as there were positive, statistically significant associations between Local Community Needs and Crisis Communication Strategies as well as Crisis Type and Crisis Communication Strategies. The researcher anticipates future studies with larger sample sizes will overturn the negative association as the literature does suggest crisis type and local community needs can negatively

impact community resilience. The connections to previous literature and the conceptual framework are explained further in chapter 5.

4.8 Summary of the Chapter

This chapter presented the results of the Structural Equation Modeling analysis as well as the comparison to the Baseline Resilience Indicators for Communities' scores. In addition, the open-ended questions and 7 semi-structured interviews were qualitatively analyzed for patterns and themes. In terms of the quantitative analysis, the results were discussed by first exploring the sample representativeness and adherence to necessary assumptions before Structural Equation Modeling could be completed. This was followed by an examination of measurement models for each latent variable. After confirmatory factor analysis was completed, the validated measurement models were compiled into a covariance structure model that was found to be valid, reliable, conceptually and theoretically justified as well as a good fit.

For the qualitative results, the open-ended questions of the survey were detailed first and resulting themes were briefly discussed. Following this, the seven semi-structured interviews were presented followed by the comparison of perceived resilience scores to the Baseline Resilience Indicators for Communities. The findings were briefly presented with a general summation of indicators and themes as the next chapter discusses the results in more detail and connect to the previous literature and this study's conceptual and theoretical framework.

CHAPTER 5: CONCLUSION

This chapter presents the discussion and implications derived from the quantitative and qualitative analysis results. The discussion will occur by presenting each of the research questions and relevant results and findings. Then, implications are discussed in terms of theoretical and methodological components, policy, and leadership or practical aspects. The chapter concludes with a discussion of the limitations of the study and future research endeavors.

5.1 Key Findings

5.1.1 Crisis Communication Strategies Impacting Community Resilience

The initial focus of the study was to examine how crisis communication strategies impact the multi-faceted concept of community resilience. Previous studies attempted to measure community resilience and leaned towards quantitative factors arguing objectivity and linked these indicators to environmental, social, institutional, economic, infrastructure, and community aspects. The difficulty in doing this is neglecting the qualitative counterpart in research. This study utilized both. There were arguably more objective quantitative indicators combined with open-ended questions to bring in a qualitative component. In addition, follow-up interviews were conducted. The logic behind this research design was to obtain a breadth of information as well as depth.

Results from this study showcase that quantitative and qualitative components can be integrated to research community resilience and should be. The main indicator of this is respondents who answered to utilizing crisis communication strategies, such as adjusting information based on crisis type or sharing with leaders the community knows, and yet their answers to open ended questions showed they did not realize these were actual strategies. The

researcher was not surprised by this situation as crisis communication strategies in emergency management work is not fully known. It is important to note that although the support for integrating quantitative and qualitative research methodology, the results of the Structural Equation Modeling did show a negative impact on community resilience. However, this does not worry the researcher as there was a low response rate and if more were gathered then it would not take much to transition the negative impact to positive.

The negative result is also due to the complexity of emergency management roles and responsibilities, as many individuals surveyed are not decision-makers and do not contribute to plans of crisis communication on a deep level. As discussed in the assumptions of the researcher, each county, and county-equivalents, in the United States do not have a full-time, dedicated emergency manager to tend to its areas of preparation, mitigation, response, and recovery. The researcher was unable to survey the public administrators who take on those tasks within the timeline granted for this study, but this does leave room for future research.

In terms of indicators that led to the most impact on building community resilience in respect to the crisis communication strategies, the covariance structure model revealed two. The first is assessment of the plan at least once a year. This may be difficult seeing as how many respondents stated they are not the creators of their crisis communication plan and leave most of the responsibility to other departments. So, the emergency managers may enact the strategies through findings the information needed for instruction, sharing with stakeholders, and making any necessary adjustments, but they are not wholly responsible for all components of the communication plan. If assessment is so critically important then emergency managers need to make sure they are part of the assessment process as their expertise is critical for improvements. The second component is exercising the strategies regularly and with community partners. This

component not only emphasizes the need for regular practice and training but adds the caveat of including community partners. These partners not only include other first responder agencies, but incorporates nonprofits, community leaders, advocates for vulnerable populations, and volunteer organizations.

The covariance structure model also indicated the most impactful indicators for community resilience being the relationships that are sustained when a crisis is not occurring as well as collaboration with partners, maintaining trust with the community, continuing to participate in training and certification programs and continuous assessment of local community needs. These may seem like simple endeavors, but if an emergency manager is going to maintain the reputation of being an expert who effectively communicates with their community to prepare, mitigate, respond and recover from crises, then they must continue to develop their knowledge, skills, and abilities. More importantly, emergency managers need to understand that the network they create of first responder agencies, nonprofits, community leaders, advocates for vulnerable populations, and volunteer organizations, is absolutely critical for their success.

5.1.2 Crisis Communication Strategies adapted to Local Community Needs and Crisis Type

Overall, the indicators that lead to the most variation in crisis communication strategies are connected to local community needs and crisis type. If policy makers or emergency managers were to create crisis communication strategies and practices without considering local community needs and crisis type, then they would detrimentally impact their communities and the consequences could be astronomical. This is not surprising when reviewing previous research on the creation and implementation of crisis communication strategies, the foundational concepts, and Situational Crisis Communication Theory stress the importance of adaptation

based on local community needs and crisis type. Although crisis type appeared to be more impactful by a score of .517 over local community needs at .435, there is not a drastic difference between the two. As for the types of crisis involved in this study (i.e., health epidemic, community violence, natural disaster), the one having the greatest impact for those who responded was health concerns followed by community violence and then natural disaster.

In terms of local community needs, the covariance structure model unveiled the highest indicators being easy-to-understand language, identification of important topics to stress in the instruction process and use of visual images such as maps. These practices connect to necessary practices for communicating with a diverse audience and needing to generate comprehensible material. Making sure communication is direct, gives critical information, and incorporates common language or instructive visuals only helps crisis communication strategies reach a wider audience and leads to more effective practice. In terms of critical information, the act of adapting for crisis type supports crisis communication strategies as it is necessary when instructing community members of what to do when certain crises occur. The information needed for health concerns is different than community violence of a natural disaster.

5.2 Implications

There are several reasons this study resulted in significant contributions to the field. The first is this study was one of, if not, the first to incorporate Situational Crisis Communication Theory to a survey focused on emergency manager's perception of crisis communication strategies, local community needs, crisis type, and community resilience. The results support the path of future research to understanding how to integrate these strategies more fully into practice. Findings support the need to generate more comprehensive understandings of how local community needs

and crisis type lead to necessary adaptations for crisis communication strategies. Moreover, this study examined how the perception of community resilience affects emergency management practice and influences recommendations given to policy and decision makers. Although some findings were unexpected, such as the lack of full-time, dedicated emergency managers for every county and resulting questioning of their perceived value, the results did spurn implications for theory, methods, policy, and practice. Lastly, the results led to future research endeavors to build upon this study and continue contributing to the field. This next section highlights implications of the research and closes with a discussion of limitations as well as future research.

5.2.1 Theoretical Implications

The findings of this study support the need for future research integrating Situational Crisis Communication Theory into emergency management practice by the emphasis placed on adaptation to build community resilience. It was readily acknowledged that the variation in county characteristics, demographics and vulnerable populations, and resources must be incorporated into crisis communication strategies. However, the difficulty not only lies in how to disseminate the knowledge to the community, but to other practitioners and academics who study the field. Moreover, the challenges lie in understanding how response strategies to a crisis lead to positive changes regarding preparation and mitigation. With many crises, the response period is the only time in which plans, and protocols are put to the test. Assessment of how the practitioners respond on a collective level has occurred, but rarely are individual assessments taken into consideration in terms of how to better prepare practitioners and understand their innate leadership resilience. SCCT assists in this endeavor in the emergency management field instead of taking place in public relations or business administration type disciplines.

This is especially true when it comes to theoretical viewpoints and their connection to reality. SCCT provides a prescriptive way to connect leaders' response to communication strategies with an emphasis on adaptation to local community needs and crisis type. In theory, it would easily transfer and translate into practice. However, not all concepts of crisis communication strategies are known leaving a lower possibility for understanding SCCT as well. This is due to the respondents who noted crisis communication plans are not created or fully implemented within their department or connected to their role. Instead, this role and responsibility lie in departments like public relations, 9-1-1 operations, or via the press.

Regarding adaptation to county characteristics, a component briefly touched upon in a discussion of community apathy was past experience. Several respondents discussed the challenge of keeping communities prepared or at-the-ready as past experiences with hurricanes or blizzards leads to members believing they can handle it themselves or the transitioning of constituents results in a revolving door of ill-prepared individuals. Not only do community members exhibit apathetic behavior, but there are practitioners who do as well. As a couple respondents mentioned, practitioners in surrounding counties may not give their full focus to the position due to impending retirement or the responsibilities are included in 'other duties as assigned.' The apathy impacts crisis communication strategies and is connected to SCCT as this theory takes into account the practitioner's view and knowledge of strategies and how they incorporate their knowledge, adjust to receiving audiences, share with stakeholders and instruct the actions that each person needs to take. With future research, hopefully, SCCT will find more of a footing in the emergency management literature and disconnect itself from being isolated in public health or public relations literature.

5.2.2 Methodological Implications

Regarding this study's contribution to methodology, the researcher faced a challenge when determining how to integrate quantitative and qualitative indicators to measure resilience and the effort is not without its merit. As discussed in the literature, quantitative indicators connect to the promoted ideal of objective, scientific inquiry where indicators become mechanisms to explain complex processes. Paired with qualitative indicators to add depth to the received data, this study was able to incorporate influences from objective and subjective studies to measure resilience and provide a foundation for future research with the goal of holistically understanding community resilience.

Not only will future research efforts continue to find the most impactful indicators, the ones that are indispensable to emergency managers and public administrators, but the continued incorporation of quantitative and qualitative indicators with management perceptions will lead to answers of why there are such stark contrasts between perception and reality? The research will also discover what fuels the respondents to answer more favorably and how to mitigate against it. Lastly, does this contrast affect emergency management practice? By continuing to integrate quantitative and qualitative methods, researchers and practitioners begin to close that gap.

These future research efforts also connect to the need for re-testing the instrument generated for this study and continue to compare and contrast to other assessments with the goal of having a holistic resilience measurement tool that is reliable and valid for every county. This is not an easy situation with the diversity of each county and the evolving demographics and impending changes within the various indicators for component measurement.

5.2.3 Policy Implications

Several respondents noted how planning frameworks and training materials are only a part of the job. The true challenge lies in receiving buy-in from their communities and the decision-makers to help generate more effective policies and procedures. This narrows down to the question of how valuable and sought out are emergency managers? Do emergency managers value their role and the position they are in? A few of the interviewees mentioned how surrounding counties are being instructed by individuals who view the role as the last road to retirement. There is a lack of proactivity on their part and it does not assist the individuals who are trying to build the capacity of their own county.

An additional aspect of policymaking is including all voices in the process. As discovered in the covariance structure model, crisis communication strategies must include emergency managers in their assessment process and the exercising of these plans and strategies must include not only first responder agencies but nonprofits, community leaders, advocates for vulnerable populations, and volunteer organizations. The relationships with these partners is critical for building community resilience and necessary for effective crisis communication strategies.

Another critical component for the cycle of policy making and implementation is to adapt current protocols to make sure emergency managers are invested stakeholders and give the necessary support for their departments. This will initially occur when the role of emergency managers is seen as critical for community development. The role needs to be one where responsibilities do not consist mainly of preparation and response, but of mitigation and recovery. Although ideally the tasks give each phase of emergency management their due justice, many practitioners are forced to prioritize and aspects of fully assessing, adapting, and

instructing plans and protocols can fall to the wayside. Policy makers can assist in this endeavor through initial analysis of funding structures and streams to make sure departments are staffed, training and certifications are accessible and affordable for obtainment, software and technology is equitable across all counties and work with the private sector to make sure all stakeholders have the same capabilities.

5.2.4 Practical Implications

On the side of leadership and practice, it falls to all stakeholders to advocate for a seat at the table. To continue seeing a disconnect between academicians and practitioners do not assist in the end goal of creating a resilient nation. However, incorporating more studies that allow practitioners to speak and academicians to translate their research into comprehensible terms only supports the process. The first step is for local leaders to understand the value and importance of emergency managers and for emergency managers to do the same. It should not fall to times of crises for these knowledgeable, skillful, and able individuals to be sought out. It must occur during the absence of crisis and be supported not only by voice but through resource attainment as well (i.e., budget, staff, materials, etc.).

More importantly, these individuals need to be involved in decision-making and policy creation especially when it comes to creating and implementing crisis communication plans. They should not be responsible for a component of the process but should have a hand in all phases of information collection, organization, dissemination, instructing, adjusting, and sharing. The challenge falls to building the capacity of the community's and the emergency management departments to help in this endeavor. Capacity building falls to the arenas of technology, terminology, staffing, and collaborative relationships. Future research on capacity building is

essential as there is no one-size-fits-all plan that can be applied to every county, nor should there be.

The last aspect to emphasize is an emergency manager must actively maintain their reputation of being an expert who effectively communicates with their community. They must continue to develop their knowledge, skills, and abilities and understand their network of first responder agencies, nonprofits, community leaders, advocates for vulnerable populations, and volunteer organizations, is critical for success.

5.3 Limitations

One of the major limitations of this study was the low response rate due to the survey distribution period occurring during a high-traffic time period for many emergency managers. In addition, the survey focused on concepts of crisis communication strategies and several responses to open-ended questions made the researcher question whether the individuals knew what these strategies were. Lack of familiarity with the subject could account for the low response. Another limitation was the lack of a definitive listserv for the county, and county-equivalent, emergency managers or public administrators whose role encompasses related activities. It became evident that each county does not have a full-time emergency manager and the role may fall to public administrators who are only able to give as low as 10% of their focus to these activities outside of crisis periods.

In terms of comparing the survey indicators to those of the Baseline Resilience Indicators for Communities scores, the connections were generalized and there is room for growth in terms of wording and creating more direct connections while integrating a qualitative focus to the survey. The researcher places this component as a limitation only after analysis showcased stark

difference from perception and reality causing a need for future research. Are the differences a limitation or are they just areas for improvement? The BRIC scores utilized for comparison are from 2010 although the 2015 scores were stated to be available on the website for the Hazards and Vulnerability Institute at the University of South Carolina. During the data analysis period, the 2010 scores were the only ones available leaving the researcher to wonder if the 2015 score would have provided different results of perception versus reality.

5.4 Future Research

This study generated a foundation for future research. One goal of future research is to generate more specific qualitative and quantitative indicators that continue to expand the current community resilience assessment tools. Moreover, the researcher wants to conduct the study during a more appropriate time-period to generate a higher response rate and compare the significant indicators and impact of Crisis Communication Strategies on Community Resilience for a grander population. The researcher is interested to integrate definitions into the next survey and questions whether it impacts the perception of the survey and understanding of the questions. Some respondents questioned the survey in a way that showcased their lack of understanding of crisis communication strategies albeit their answers highlighted the use of some strategies without knowing the conceptual connection.

An additional goal for future research is to delve deeper into the lack of knowledge concerning crisis communication strategies and Situational Crisis Communication Theory as their connections to emergency management practice is evident. Is the lack of literature connecting emergency managers and public administrators to SCCT and crisis communication strategies the reason for being unaware or are there other reasons for the lack of integration?

Moreover, the knowledge of these strategies and this theory is ideally suitable for practice and lead to more effective policies and procedures, but can this become a reality?

Another future research area is to understand the role and value of emergency managers once more. Although they are theorized to be the experts, in practice the decision-making falls to public administrators or policy makers and does not always include the voice and knowledge of the emergency management practitioners. Are they valued? Are they sought after for their advice? Or as they not as valued as they should be? How can emergency management related tasks and activities achieve full integration into the administrator's role and responsibilities?

Regarding the difference between perceived resilience scores and the quantitative, arguably more objective, indicators of the BRIC analysis, future research will be conducted to provide more direct connections between the indicators and integration of quantitative and qualitative measures to determine whether perceived resilience is always higher than the objective counterpart. The researcher is interested to determine why perception is higher than reality. Is this due to social desirability bias? Is it due to lack of complete understanding of their community when taking into consideration aspects of crisis communication strategies that integrate crisis typology and local community needs?

APPENDIX A: WEB BASED SURVEY INSTRUMENT INFORMED CONSENT

You are invited to participate in a study entitled "The Use of Crisis Communication Strategies to Build Community Resilience." The purpose of the study is to examine the connections between crisis communication strategies, local community needs and resilience. The survey also includes demographic questions about you. The survey will take between 20 to 30 minutes to complete.

The principal investigator for this study is doctoral student Brittany Haupt under the faculty supervision of Prof. Naim Kapucu. If you have questions about this survey, you may contact Brittany Haupt at brittany.haupt@ucf.edu.

Please note: You must be 18 years of age or older to participate in this research. There are no anticipated risks in completing this survey. Although there are no direct benefits to you, there are potential benefits for emergency managers as a whole. This includes receiving valuable information from this dissertation for county level practitioners regarding crisis communication strategies and the impact on community resilience.

In addition, you are asked **NOT** to type your name anywhere **in** the survey. You have the right to withdraw consent at any time without any consequence. In addition, you do not have to answer any questions that you are not comfortable answering.

Research at the University of Central Florida is conducted under the oversight of the UCF Institutional Review Board. Questions or concerns about research participants' rights may be directed to the IRB office, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246. The telephone number is 407-823-2901.

APPENDIX B: WEB BASED SURVEY INSTRUMENT

The Use of Crisis Communication Strategies to Build Community Resilience

This survey investigates the connections between crisis communication strategies and community resilience. This survey will be used to assist emergency management practitioners that are trying to improve their current plans and procedures. The survey takes between 20 to 30 minutes to complete. Your responses are confidential and will not be revealed without your consent; only aggregate results will be made available. We would be happy to make a copy of final results available to you. If you would prefer a hardcopy of this survey, please email Brittany Haupt at Brittany.haupt@ucf.edu with your name, the county in which you work, and your preferred address.

Thank you very much for your cooperation

Brittany Haupt
Doctoral Candidate
(407) 717-4040
brittany.haupt@ucf.edu

Please tell us about yourself:

1) Are you the addressee?
   [ ] Yes
   [ ] No → Please state your position/title here: _____
2) Which state are you located in?_____ Please name your County:_____
3) Which best describes your community? [ ] Urban [ ] Rural [ ] Other (please specify)_____

Section 1: Crisis Communication Strategies: This section focuses on strategies used for communicating about a crisis with your community.

Please note how recently your community has experienced the following crisis types:

1. Natural disaster (earthquakes, tornadoes, floods, hurricanes) [ ] 1 to 3 years [ ] 4 to 6 years [ ] 7 to 10 years [ ] 11 or more years
2. Health epidemic [ ] 1 to 3 years [ ] 4 to 6 years [ ] 7 to 10 years [ ] 11 or more years
3. Community violence [ ] 1 to 3 years [ ] 4 to 6 years [ ] 7 to 10 years [ ] 11 or more years

Please state your agreement or disagreement for each of the following statements based upon the scale provided below.

Strongly Agree	*Agree*	*Neither Agree nor Disagree*	*Disagree*	*Strongly Disagree*
5	*4*	*3*	*2*	*1*

[ ] My department is mainly responsible for creating crisis communication plans and strategies
[ ] My department exercises crisis communication strategies regularly
[ ] My department exercises crisis communication strategies with community partners
[ ] My department adapts information for natural disasters
[ ] My department adapts information for health concerns
[ ] My department adapts information for community violence
[ ] My department focuses on information sharing between different community departments
[ ] My department markets our plans on our websites
[ ] My department markets our plans on other community partner's websites
[ ] My department markets our plans on flyers and posters
[ ] My department markets our plans via social media
[ ] My department provides updated information at least every hour during the event
[ ] My department provides updated information at least once every three hours during the event
[ ] My department assesses our crisis communication plan at least once a year
[ ] My department assesses our crisis communication plan with community partners

[ ] My department assesses our crisis communication plan with different community departments

How important are the following avenues for disseminating information about crises? Please assess the importance of the following utilizing the scale below:

Very Important	*Important*	*Don't Know/ Can't Say*	*Unimportant*	*Not Applicable*
5	*4*	*3*	*2*	*1*

[ ] Telephone notification
[ ] National Oceanic and Atmospheric Association Radios
[ ] Email
[ ] Social networking
[ ] Text messaging system
[ ] Commercial radio stations
[ ] Local television stations
[ ] Outdoor Warning Sirens
[ ] Distributing flyers where/when needed
[ ] Community website (e.g. surge zone, evacuation route maps, shelters)
[ ] Daily situation reports made available online and through mass emails
[ ] Press conferences
[ ] Electronic signage

Section 2: Local Community Needs: This section focuses on the needs of your community that may affect building resiliency.

Please state your agreement or disagreement for each of the following statements based upon the scale provided below.

Strongly Agree	*Agree*	*Neither Agree nor Disagree*	*Disagree*	*Strongly Disagree*
5	*4*	*3*	*2*	*1*

[ ] My department has a positive relationship with the community
[ ] My department identifies what is most important for the community to know
[ ] My department provides tailored messages for different cultures within the community
[ ] My department provides communications in different languages for the community
[ ] My department provides community outreach campaigns for vulnerable populations
[ ] My department uses (easy-to-understand) language to explain what is going on
[ ] My department uses visual images such as maps to help explain what is going on
[ ] My department identifies the most important topics and highlights these in communication
[ ] My department uses a spokesperson with whom the community is familiar
[ ] My department includes specific action to be taken by the community in each warning message

Section 3: Community Resilience: This section focuses on elements a community may require for building resiliency.

Please assess the importance of the following crisis communication strategies for your community. Please use the following scale for all parts of the question:

Very Important	*Important*	*Don't Know/ Can't Say*	*Unimportant*	*Not Applicable*
5	*4*	*3*	*2*	*1*

[ ] Leadership support from the state emergency management practitioner(s)
[ ] Leadership support from surrounding local emergency management practitioner(s)
[ ] Trust with the community
[ ] Providing emergency management training and certification opportunities for administrators
[ ] Conducting routine assessments to update plans and procedures
[ ] Conducting routine needs assessments
[ ] Conducting comprehensive vulnerability assessments
[ ] Collaborating with community partners for support, expertise, etc.
[ ] Personally participating in training and certification opportunities focused on emergency management
[ ] In the absence of a crisis, sustaining relationships with other organizations
[ ] In the absence of a crisis, being involved in collaborative strategies (such as exercises, and meetings) with organizations you collaborate with during a crisis

Section 4: Open-Ended Questions

1. How would you describe your level of expertise?
2. Is there anything you would like to add that you believe is critical for crisis communication?
3. Is there anything you would like to add that you believe is critical to building community resilience?
4. Are there any documents or reports you would like to share that connects the concepts of crisis communication and community resilience? If so, how can the copies be obtained?

Section 5: Demographics

1) How many years have you worked in your position? _____
2) How many years have you worked in your current jurisdiction? _____
3) How many years have you worked in public administration? _____
4) Approximately, how many full-time employees work in your department? (Please check one) [ ] 1-5 [ ] 6-15 [ ] 16-25 [ ] 26-50 [ ] over 50
5) What is your gender? [ ] Male [ ] Female [ ] Prefer not to respond
6) What is your age? [ ] under 35 [ ] 35-44 [ ] 45-54 [ ] over 54

7) What is your highest degree? [ ] High school graduate, diploma or the equivalent [ ] Trade/technical/vocational training [ ] Associate Degree [ ] Bachelor's Degree [ ] Master's Degree [ ] Doctorate degree
8) In which field is your highest degree? Public Administration, Engineering, Emergency management, Sociology, Political Science, management, Others (please specify)_____
9) Are you interested in a follow-up conversation about crisis communication strategies and your community? If yes, please state your name and contact information.

Thank you very much for your participation!

Follow-Up Survey Questions

1) Please describe your role and the county in which you serve

2) What are some aspects that support or hinder your crisis communication efforts?

3) What do you feel positively or negatively impacts your county's resilience?

4) Anything else you would like to add when thinking of communication and your county?

APPENDIX C: APPROVAL FORM INSTITUTIONAL REVIEW BOARD

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Brittany Haupt**

Date: **July 11, 2017**

Dear Researcher:

On 07/11/2017, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review:	Exempt Determination
Project Title:	THE USE OF CRISIS COMMUNICATION STRATEGIES TO BUILD COMMUNITY RESILIENCE: EVIDENCE FROM EMERGENCY MANAGERS
Investigator:	Brittany Haupt
IRB Number:	SBE-17-13257
Research ID:	N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Renea C Carver on 07/11/2017 03:00:53 PM EDT

IRB Coordinator

APPENDIX D: NORMALITY ANALYSIS

Table 30. Skewness and Kurtosis Values for Study Indicators.

Descriptive Statistics				
	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Responsible for creating crisis communication plans	-.757	-4.039	-.022	-.058
Exercises crisis communication strategies regularly	-.742	-3.963	.135	.360
Exercises with community partners	-1.049	-5.598	1.574	4.202
Adapts information for natural disasters	-.245	-1.310	-.537	-1.434
Adapts information for health concerns	-.780	-4.162	.281	.751
Adapts information for community violence	-1.057	-5.642	3.329	8.886
Focuses on information sharing between community departments	-.777	-4.147	.361	.965
Markets our plans on website	-.171	-.913	-.805	-2.149
Markets our plans on other community partner's websites	.254	1.354	-.714	-1.906
Markets our plans on flyers and posters	.246	1.314	-.810	-2.161
Markets our plans on social media	-.221	-1.178	-.997	-2.661
Provides updated information at least every hour during event	.184	.983	-.609	-1.626
Provides updated information at least once every three hours during event	-.695	-3.708	-.090	-.240
Assesses our crisis communication plan at least once a year	-.997	-5.320	.582	1.554
Assesses our crisis communication plan with community partners	-1.051	-5.613	1.859	4.962
Has positive relationship with community	-.663	-3.537	-.585	-1.561
Identifies what is most important for community to know	-.525	-2.803	.173	.461
Provides tailored messages for different cultures	-.065	-.345	-.578	-1.542
Provides communications in different languages	-.233	-1.244	-.655	-1.748
Provides community outreach campaigns for vulnerable populations	-.607	-3.240	.297	.792
Uses easy-to-understand language	-.427	-2.281	.928	2.477
Uses visual images	-.726	-3.876	.973	2.597
Identifies the most important topics	-.547	-2.922	.326	.870
Uses a spokesperson community is familiar with	-1.068	-5.701	1.557	4.155
Includes specific action for community to take	-.586	-3.130	.433	1.156

Leadership support from state emergency management practitioners	1.313	7.010	1.451	3.874
Leadership support from surrounding local emergency management practitioners	1.132	6.043	.997	2.661
Trust with the community	1.889	10.082	2.764	7.379
Providing emergency management training and certification opportunities	.797	4.255	.816	2.177
Conducting routine assessments to update plans and procedures	.710	3.792	-.522	-1.392
Conducting routine needs assessments	.586	3.126	-.586	-1.564
Conducting comprehensive vulnerability assessments	.583	3.112	-.593	-1.583
Collaborating with community partners for support	1.007	5.377	-.030	-.081
Personally, participating in training and certification opportunities	1.196	6.383	.438	1.170
In the absence of a crisis, sustaining relationships with other organizations	1.125	6.007	.242	.647
In the absence of a crisis, being involved in collaborative strategies	1.339	7.146	.784	2.092

APPENDIX E: RESPONDANTS BY STATE

Table 31. Respondents by State.

State	*Frequency*	*Percent*
Alabama	6	3.5
Arkansas	2	1.2
California	1	.6
Colorado	2	1.2
Florida	11	6.4
Georgia	7	4.1
Idaho	3	1.8
Illinois	3	1.8
Indiana	5	2.9
Iowa	6	3.5
Kansas	5	2.9
Kentucky	9	5.3
Maine	1	.6
Maryland	1	.6
Michigan	8	4.7
Minnesota	4	2.3
Mississippi	5	2.9
Missouri	10	5.8
Montana	3	1.8
Nebraska	5	2.9
New Jersey	4	2.3
New Mexico	2	1.2
New York	2	1.2
North Carolina	5	2.9
North Dakota	6	3.5
Ohio	6	3.5
Oklahoma	3	1.8
Oregon	1	.6
Pennsylvania	4	2.3
South Carolina	4	2.3
South Dakota	5	2.9
Tennessee	6	3.5
Texas	12	7.0
Utah	2	1.2
Virginia	2	1.2

Washington	1	.6
West Virginia	1	.6
Wisconsin	4	2.3
Wyoming	4	2.3
Total	171	100.0

Table 32. Cross-Tabulation of State and County and equivalents Type.

State	*Urban*	*Rural*	*Other*	*Total*
Alabama	1	5	0	6
Arkansas	0	2	0	2
California	0	1	0	1
Colorado	0	2	0	2
Florida	7	0	4	11
Georgia	1	5	1	7
Idaho	1	2	0	3
Illinois	0	2	1	3
Indiana	0	5	0	5
Iowa	1	5	0	6
Kansas	0	5	0	5
Kentucky	1	5	3	9
Maine	0	1	0	1
Maryland	0	1	0	1
Michigan	0	7	1	8
Minnesota	0	4	0	4
Mississippi	1	4	0	5
Missouri	3	6	1	10
Montana	0	3	0	3
Nebraska	1	4	0	5
New Jersey	0	3	1	4
New Mexico	0	2	0	2
New York	0	0	2	2
North Carolina	2	3	0	5
North Dakota	0	6	0	6
Ohio	0	6	0	6
Oklahoma	0	2	1	3
Oregon	0	1	0	1
Pennsylvania	1	3	0	4
South Carolina	0	4	0	4
South Dakota	0	5	0	5
Tennessee	0	6	0	6
Texas	0	10	2	12

Utah	0	2	0	2
Virginia	0	2	0	2
Washington	0	1	0	1
West Virginia	0	1	0	1
Wisconsin	0	2	2	4
Wyoming	0	4	0	4
Total	20	132	19	171

APPENDIX F: CORRELATION ANALYSIS

Table 33. Correlation Analysis of Crisis Communication Strategies Indicators.

			Q1	*Q2*	*Q3*	*Q4*	*Q5*	*Q6*	*Q7*	Q8	Q9	Q10	Q11	Q12
Spearman's rho	Q1	Correlation Co.	1.000	.469**	.372**	.247**	.211**	.193*	.153*	.254**	.116	.152*	.328**	.323**
		Sig. (2-tailed)	.	.000	.000	.001	.006	.012	.045	.001	.131	.047	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171	171
	Q2	Correlation Co.	.469**	1.000	.713**	.275**	.154*	.095	.160*	.176*	.177*	.285**	.455**	.494**
		Sig. (2-tailed)	.000	.	.000	.000	.044	.216	.036	.021	.020	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171	171
	Q3	Correlation Co.	.372**	.713**	1.000	.348**	.189*	.162*	.235**	.258**	.233**	.322**	.488**	.551**
		Sig. (2-tailed)	.000	.000	.	.000	.013	.035	.002	.001	.002	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171	171
	Q4	Correlation Co.	.247**	.275**	.348**	1.000	.187*	.189*	.165*	.205**	.128	.180*	.323**	.356**
		Sig. (2-tailed)	.001	.000	.000	.	.014	.013	.031	.007	.095	.018	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171	171
	Q5	Correlation Co.	.211**	.154*	.189*	.187*	1.000	.705**	.553**	.596**	.245**	.244**	.243**	.202**
		Sig. (2-tailed)	.006	.044	.013	.014	.	.000	.000	.000	.001	.001	.001	.008
		N	171	171	171	171	171	171	171	171	171	171	171	171
	Q6	Correlation Co.	.193*	.095	.162*	.189*	.705**	1.000	.712**	.607**	.269**	.153*	.218**	.214**
		Sig. (2-tailed)	.012	.216	.035	.013	.000	.	.000	.000	.000	.046	.004	.005
		N	171	171	171	171	171	171	171	171	171	171	171	171
	Q7	Correlation Co.	.153*	.160*	.235**	.165*	.553**	.712**	1.000	.655**	.417**	.211**	.211**	.215**
		Sig. (2-tailed)	.045	.036	.002	.031	.000	.000	.	.000	.000	.006	.006	.005
		N	171	171	171	171	171	171	171	171	171	171	171	171
	Q8	Correlation Co.	.254**	.176*	.258**	.205**	.596**	.607**	.655**	1.000	.250**	.171*	.157*	.163*
		Sig. (2-tailed)	.001	.021	.001	.007	.000	.000	.000	.	.001	.026	.040	.033
		N	171	171	171	171	171	171	171	171	171	171	171	171
	Q9	Correlation Co.	.116	.177*	.233**	.128	.245**	.269**	.417**	.250**	1.000	.507**	.272**	.245**
		Sig. (2-tailed)	.131	.020	.002	.095	.001	.000	.000	.001	.	.000	.000	.001
		N	171	171	171	171	171	171	171	171	171	171	171	171
	Q10	Correlation Co.	.152*	.285**	.322**	.180*	.244**	.153*	.211**	.171*	.507**	1.000	.359**	.374**
		Sig. (2-tailed)	.047	.000	.000	.018	.001	.046	.006	.026	.000	.	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171	171
	Q11	Correlation Co.	.328**	.455**	.488**	.323**	.243**	.218**	.211**	.157*	.272**	.359**	1.000	.695**
		Sig. (2-tailed)	.000	.000	.000	.000	.001	.004	.006	.040	.000	.000	.	.000
		N	171	171	171	171	171	171	171	171	171	171	171	171
	Q12	Correlation Co.	.323**	.494**	.551**	.356**	.202**	.214**	.215**	.163*	.245**	.374**	.695**	1.000
		Sig. (2-tailed)	.000	.000	.000	.000	.008	.005	.005	.033	.001	.000	.000	.
		N	171	171	171	171	171	171	171	171	171	171	171	171

**. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed).

Table 34. Correlation Analysis of Local Community Needs Indicators.

			Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22
Spearman's rho	Q13	Correlation Co.	1.000	.499**	.234**	.030	.200**	.375**	.288**	.367**	.346**	.459**
		Sig. (2-tailed)	.	.000	.002	.698	.009	.000	.000	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171
	Q14	Correlation Co.	.499**	1.000	.340**	.232**	.290**	.467**	.314**	.483**	.369**	.532**
		Sig. (2-tailed)	.000	.	.000	.002	.000	.000	.000	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171
	Q15	Correlation Co.	.234**	.340**	1.000	.570**	.408**	.273**	.232**	.254**	.280**	.233**
		Sig. (2-tailed)	.002	.000	.	.000	.000	.000	.002	.001	.000	.002
		N	171	171	171	171	171	171	171	171	171	171
	Q16	Correlation Co.	.030	.232**	.570**	1.000	.398**	.240**	.165*	.141	.253**	.101
		Sig. (2-tailed)	.698	.002	.000	.	.000	.002	.031	.065	.001	.188
		N	171	171	171	171	171	171	171	171	171	171
	Q17	Correlation Co.	.200**	.290**	.408**	.398**	1.000	.408**	.569**	.398**	.277**	.315**
		Sig. (2-tailed)	.009	.000	.000	.000	.	.000	.000	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171
	Q18	Correlation Co.	.375**	.467**	.273**	.240**	.408**	1.000	.673**	.769**	.530**	.580**
		Sig. (2-tailed)	.000	.000	.000	.002	.000	.	.000	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171
	Q19	Correlation Co.	.288**	.314**	.232**	.165*	.569**	.673**	1.000	.610**	.386**	.422**
		Sig. (2-tailed)	.000	.000	.002	.031	.000	.000	.	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171
	Q20	Correlation Co.	.367**	.483**	.254**	.141	.398**	.769**	.610**	1.000	.478**	.573**
		Sig. (2-tailed)	.000	.000	.001	.065	.000	.000	.000	.	.000	.000
		N	171	171	171	171	171	171	171	171	171	171
	Q21	Correlation Co.	.346**	.369**	.280**	.253**	.277**	.530**	.386**	.478**	1.000	.516**
		Sig. (2-tailed)	.000	.000	.000	.001	.000	.000	.000	.000	.	.000
		N	171	171	171	171	171	171	171	171	171	171
	Q22	Correlation Co.	.459**	.532**	.233**	.101	.315**	.580**	.422**	.573**	.516**	1.000
		Sig. (2-tailed)	.000	.000	.002	.188	.000	.000	.000	.000	.000	.
		N	171	171	171	171	171	171	171	171	171	171

**. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed).

Table 35. Correlation Analysis of Crisis Type Indicators.

			Q23	Q24	Q25
Spearman's rho	Q23	Correlation Co.	1.000	.490**	.431**
		Sig. (2-tailed)	.	.000	.000
		N	171	171	171
	Q24	Correlation Co.	.490**	1.000	.588**
		Sig. (2-tailed)	.000	.	.000
		N	171	171	171
	Q25	Correlation Co.	.431**	.588**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	171	171	171

**. Correlation is significant at the 0.01 level (2-tailed).

Table 36. Correlation of Community Resilience Indicators.

			Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36
Spearman's rho	Q26	Correlation Co.	1.000	.426**	.275**	.465**	.378**	.331**	.321**	.205**	.401**	.259**	.258**
		Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000	.007	.000	.001	.001
		N	171	171	171	171	171	171	171	171	171	171	171
	Q27	Correlation Co.	.426**	1.000	.471**	.367**	.476**	.409**	.412**	.448**	.390**	.376**	.277**
		Sig. (2-tailed)	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171
	Q28	Correlation Co.	.275**	.471**	1.000	.398**	.534**	.492**	.467**	.545**	.558**	.568**	.615**
		Sig. (2-tailed)	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171
	Q29	Correlation Co.	.465**	.367**	.398**	1.000	.533**	.505**	.560**	.460**	.516**	.396**	.399**
		Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171
	Q30	Correlation Co.	.378**	.476**	.534**	.533**	1.000	.713**	.694**	.523**	.539**	.454**	.419**
		Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171
	Q31	Correlation Co.	.331**	.409**	.492**	.505**	.713**	1.000	.823**	.586**	.586**	.553**	.496**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171
	Q32	Correlation Co.	.321**	.412**	.467**	.560**	.694**	.823**	1.000	.529**	.545**	.461**	.471**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171
	Q33	Correlation Co.	.205**	.448**	.545**	.460**	.523**	.586**	.529**	1.000	.510**	.650**	.605**
		Sig. (2-tailed)	.007	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171
	Q34	Correlation Co.	.401**	.390**	.558**	.516**	.539**	.586**	.545**	.510**	1.000	.663**	.662**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000
		N	171	171	171	171	171	171	171	171	171	171	171
	Q35	Correlation Co.	.259**	.376**	.568**	.396**	.454**	.553**	.461**	.650**	.663**	1.000	.825**
		Sig. (2-tailed)	.001	.000	.000	.000	.000	.000	.000	.000	.000	.	.000
		N	171	171	171	171	171	171	171	171	171	171	171
	Q36	Correlation Co.	.258**	.277**	.615**	.399**	.419**	.496**	.471**	.605**	.662**	.825**	1.000
		Sig. (2-tailed)	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.
		N	171	171	171	171	171	171	171	171	171	171	171

**. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed).

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