January 2019

"i Was Prepared To Stay Here And Die With My Animals": Pet Owners, Hurricane Harvey, And The Role Of Communication In Disaster Sense-Making

Ashleigh Day
Wayne State University, amd443@gmail.com

"I WAS PREPARED TO STAY HERE AND DIE WITH MY ANIMALS": PET OWNERS, HURRICANE HARVEY, AND THE ROLE OF COMMUNICATION IN DISASTER SENSE-MAKING

by

ASHLEIGH M. DAY

DISSERTATION

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

2019

MAJOR: COMMUNICATION

Approved By:

_____
Advisor   Date

_____

_____

_____

DEDICATION

For Addie, Fifi, and Molly, my best friends. You are sources of inspiration, motivation, self-

reflection, support, and, above all, joy.

To all the participants and Hurricane Harvey survivors that shared their stories and struggles,

thank you.

ACKNOWLEDGEMENTS

independent, and to be yourself—even when your environment or other people may not support it. Thanks for hanging in there with me and for your support. And to my Dad, thanks for your generosity and support throughout this journey. Through having you in my life, I have come to value work ethic, independence, critical self-reflection, and speaking my mind.

My dissertation exists in its current form due to feedback and input from my committee members. Specifically, Dr. Julie Novak afforded me her knowledge and guidance since the very beginning of our relationship. She openly listens/ed to my ideas and concerns, providing nothing but constructive feedback and enthusiastic support. Dr. Novak truly embraced and encouraged my passion and interest in human-animal relationships, just when I was beginning to feel like there was no space for these ideas in my research or within the discipline. Dr. Matt Seeger also served a foundational role throughout my doctoral studies. Dr. Seeger not only provided me with mentorship and numerous research experiences, but he made me feel as though I was a full member of the team—not "just" a graduate student or research assistant. To my committee members, Dr. Pradeep Sopory, Dr. Rahul Mitra, and Dr. Wanda Gibson-Scipio, I value your mentorship and feedback throughout my graduate studies and throughout the composition of my dissertation. Your questions and advice have strengthened this project and my scholarship. Thank you for investing your time into this project and my scholarly growth.

I would also like to acknowledge a handful of friends that have helped me along the way. Sydney, going through this process with you as my friend has made it bearable; well, actually, it's made it hilarious. Jaclyn, your kindness, support, and friendship have had such an impact my experience. Your positiveness is unwavering and truly inspirational. Scott M. and Jake, thank you for always answering my questions, for providing me with countless example documents and tips, and so much more. Agustina, Jessi, and Shanelle, thank you for understanding. Graduate school

made me feel selfish; like I was not a good friend because I had to say "no" so much. I feel like I missed out on a lot, but your empathy and support over the last four years has been second to none.

Lastly, but definitely not least, thank you to my husband, Kenny, and our four-legged companions Fifi, Addie, and Molly. You four have been my daily support system throughout this process. On my toughest days, you all reminded me of my strengths and why this "stuff" is important to me. Thanks for celebrating me and making the countless sacrifices so that I could pursue my doctorate. You four were (and still are) what I looked forward to coming home to each day. There were many times that I felt like I failed the four of you, or did not contribute adequately to our relationship because I was dedicating my time and energy to my studies, research, conferences, workshops, meetings, teaching, grading, departmental events, job interviews, etc. Yet, none of you allowed me to think that I was failing you; instead, you consistently reminded me of my capabilities and skills. For that, I am forever grateful. Thank you for always being on my team, even when I was not. Kenny, you especially helped make this process bearable. You have sacrificed so much to join me on this journey. Not only do I appreciate you, but I freaking love you! I love all of the meals and snacks that you made for me to help make my days easier, the hand-written notes that you'd leave on the front door or in my bookbag to remind me that I am loved as I started my day, the daily texts that you'd send to remind me that I am a "rock star", your willingness to take your "vacation" to attend academic conferences with me, your sense of adventure in all things, your ability to be content and satisfied in the present moment, and I love that we got married during all of this! The last four years have felt like a roller coaster ride. Sometimes it was fun and exciting. Sometimes it was scary and anxiety-inducing. With you by my side, however, I was always reminded that I was capable of finishing the ride. In fact, you

encouraged me to throw my hands up ☺ Kenny, thank you for being you and for choosing to share

this journey with me.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1 INTRODUCTION, LITERATURE REVIEW, AND RESEARCH QUESTIONS

Introduction

Over two-thirds of households in the United States (U.S.) have a companion animal (i.e., commonly referred to as a "pet") (American Pet Products Association [APPA], 2013; American Society for the Prevention of Cruelty to Animals [ASPCA], n.d.; American Veterinary Medical Association [AVMA], 2012). Three-fourths of U.S. Millennials, whom are the largest population group in the U.S. by age, have a dog or cat and are more likely to have a companion animal than have a child, own a home, or own a car (Bhattarai, 2016; Fry, 2016). Perhaps not surprisingly, there are more dogs and cats in some U.S. cities than there are children, like in San Francisco, California (e.g., Fuller, 2017). In the entire country of Japan, there are more registered companion dogs and cats than children under the age of 15 (Wile, 2014). People are spending more than ever before on their animals—over $70 billion—and many animals are considered to be members of the family unit (APPA, n.d.; AVMA, 2016).

Although companion animals are growing in their prevalence and are often thought of as members of the family, they are rarely included in official, governmental, or organizational crisis plans, preparedness, or communication efforts. This lack of inclusion and planning for animals and their owners/guardians is problematic due to the value that individuals place on their animals and the potential impact that animals have on their owners'/guardians' decision-making. It is important to understand that failure to include animals in crisis planning and communication efforts at the official, governmental, organizational, and even at the individual-level can result in mitigatable threats to health and safety. Therefore, I aim to better understand the disaster experience(s) and sense-making process(es) of pet owners (POs) and animal guardians (AGs) that were affected by Hurricane Harvey. Specifically, this examination will pay close attention to

PO/AG identity, crisis and risk communication, and sense-making. Of particular focus is how received and/or sought-out crisis and risk communication (or lack thereof) surrounding Hurricane Harvey influenced POs'/AGs' decisions and, hence, sense-making about experiencing Harvey as a PO/AG.

The purpose of this chapter is to provide an overview of extant knowledge surrounding the phenomena of interest. First, background on Hurricane Harvey is provided, followed by a review of crisis communication literature. Next, an explication of micro-level sense-making is provided along with relevant research about micro-level sense-making. This section is superseded by a review of extant knowledge about humans and animals in disaster contexts, which largely originates from disciplines outside of communication. Lastly, the research questions are presented to conclude the chapter.

Hurricane Harvey

Hurricane Harvey was the first tropical storm to reach Category 4 status (130 miles per hour sustained winds) *and* make landfall in the 2017 Atlantic hurricane season in the U.S. (National Weather Service, n.d.; National Oceanic and Atmospheric Administration [NOAA], 2017b). Harvey was the first major hurricane to make landfall along the middle Texas Gulf Coast since Hurricane Cecelia in 1970 and Harvey was the first Category 4 hurricane to make landfall along the Texas Gulf Coast since Hurricane Carla in 1961 (National Weather Service, n.d.). In national scope, Harvey was the first Category 4 hurricane to make landfall in the U.S. since Hurricane Charley in 2004 (CNN Library, 2017). One reason that Harvey was a complicated and difficult system to predict and forecast was due to its rapid evolution from a tropical depression to a major hurricane, which occurred in approximately 40 hours (National Weather Service, n.d.). As the National Hurricane Center's Tropical Cyclone Report on Hurricane Harvey stated, "the rapid

intensification (RI) of Harvey after its re-formation [in the Gulf of Mexico] was not well-anticipated" (Blake & Zelinsky, 2018, p. 13).

Hurricane Harvey formed as a Tropical Storm on August 17, 2017 near Barbados and made its *first* U.S. landfall as a Category 4 hurricane on August 25, 2017 over San Jose Island, Texas and then moved onto Rockport and Fulton, Texas (National Weather Service, n.d.). Harvey made its final landfall on August 30, 2017 in Cameron, Louisiana. According to the National Weather Service (n.d.), Rockport and Fulton were the hardest-hit areas since they took a direct hit from the eyewall. Other coastal cities in south Texas that were severely damaged from Harvey included Port Lavaca, Port Aransas, Aransas Pass, Ingelside, and Copano Village (National Weather Service, n.d.). Harvey remained a named storm system for roughly 117 hours, making it one of the longest-lasting storm systems to ever hit the state of Texas (The Weather Channel, 2017). Thus, rainfall and storm surge were major issues surrounding Harvey. Storm surge is "the abnormal rise of water generated by a storm, over and above the predicted astronomical tide, and is expressed in terms of height above normal tide levels" (Blake & Zelinsky, 2018, p. 5).

Hurricane Harvey's storm surge increased water and tide levels, of which the highest was observed at the Aransas Wildlife Refuge (Texas) at 12 feet above ground level (National Weather Service, n.d.). Port Lavaca (Texas) received more than 10 feet of storm surge, six feet in Port Aransas, and between three to six feet above ground level storm tides were recorded in the communities of Seadrift, Port O'Connor, Holiday Beach, Copano Bay, Port Aransas, and Bob Hall Pier. In addition,

> Besides wind and storm surge, hurricanes and tropical storms are notorious for producing torrential rainfall and flash flooding. Unfortunately, Harvey was unique. Instead of moving inland and farther away from the coast, Harvey stalled over South and Southeast Texas for days, producing catastrophic, devastating and deadly flash and river flooding. Southeast Texas beared [sic] the brunt of the heavy rainfall, with some areas receiving more than 40 inches of rain in less than 48 hours! Cedar Bayou in Houston received a storm total of

51.88 inches of rainfall which is a new North American record. However, South Texas residents were not spared from this impact from Harvey, as heavy rainfall and flash flooding were observed over the eastern portions of the area. (National Weather Service, n.d., para. 8).

Harvey drenched Texas (and parts of Louisiana) with over 27 trillion gallons of rain between August 25 to August 30, 2017, totaling over 60 inches of rain in some areas of southeastern Texas (Federal Emergency Management Agency [FEMA], 2017; Griggs & Cai, 2017; The Weather Channel, 2017). Other measurements reported 65 to 70 inches of rainfall in southeastern Texas (Blake & Zelinsky, 2018). Harvey is now considered the most significant tropical cyclone rainfall event in U.S. history—in terms of scope as well as peak rainfall amounts (Blake & Zelinsky, 2018). NOAA has analyzed the annual exceedance probabilities of rainfall and flooding in southeastern Texas after Harvey, with most of the area having a flood event,

> with less than a 1-in-1000 (0.1%) chance of occurring in any given year (e.g., a 1000-year or greater flood)…it is unlikely the United States has ever seen such a sizable area of excessive tropical cyclone rainfall totals as it did from Harvey. (Blake & Zelinsky, 2018, p. 7).

Hurricane Harvey moved slowly over the state of Texas, which contributed to the record-breaking rainfall and flooding. Harvey's slow movement is not characteristic of most drifting cyclones (National Weather Service, n.d.). Harvey is the second-most costly hurricane in U.S. history and at least 68 people died from direct effects of Harvey in Texas, which is the largest number of direct human deaths from a tropical cyclone in Texas since 1919 (Blake & Zelinsky, 2018). Tornados were also a serious concern during Harvey.

There were 52 tornados reported during Hurricane Harvey, making the storm "a prolific tornado producer" (Blake & Zelinsky, 2018, p. 8). Half of these tornados occurred around and just south of the Houston, Texas area. Harvey-produced tornadoes were also reported in Louisiana, Mississippi, Alabama, and Tennessee. Although most of these tornados were ranked as a one or

lower on the Enhanced Fujita Scale (EF-1) (i.e., relatively weak tornados), they still caused damage (Blake & Zelinsky, 2018). The accumulation of risks and threats that Harvey produced led *some* leaders in Texas to take action.

Over 65 counties in Texas received a disaster declaration by Texas Governor Greg Abbott and approximately 43 counties in Texas received FEMA assistance (Office of the Texas Governor, 2017a, 2017b, 2017c). The governmental response leading up to Harvey's landfall was controversial due to the lack of mandatory evacuations. In particular, the Mayor of Houston, Sylvester Turner, did not issue a mandatory evacuation order for the city (Andone, 2017; Cochrane & Fernandez, 2017). To make this disaster an even more uncertain event for residents, Texas Governor Greg Abbott told Houston residents that even though a mandatory evacuation order was not issued by local or regional officials, that they should "strongly consider evacuating" (Kragie & Zelinski, 2017, n.p.). After Harvey dissipated, Houston Mayor Sylvester Turner did issue a voluntary evacuation order for Houston residents that sheltered-in-place during Harvey. Mayor Turner issued the voluntary order due to flooding concerns and subsequent risks, such as electrocution from down power lines being exposed in floodwaters (Ehling, 2017). There were also flooding threats that emerged from water release operations into the Buffalo Bayou watershed by the U.S. Army Corps of Engineers (Ehling, 2017).

Storm surge, rainfall, and other water-related threats surrounding disasters cause the greatest loss of lives and property and produce the highest probability of risk (Rappaport, 2014; Tufty, 1978). More specifically, water is the deadliest factor associated with U.S. hurricanes and tropical storms (Rappaport, 2014). Approximately 90% of deaths from tropical cyclones between 1963 to 2012 in the U.S. were attributed to water-related incidents, most of which were due to drowning (Rappaport, 2014). As Harvey was considered a "major" hurricane, its categorization on

the Saffir-Simpson Hurricane Windscale did not account for or represent Harvey's storm surge, rainfall, flooding, or high surf-producing potential. Thus, misunderstandings about how U.S. tropical cyclones are categorized and the complex nature of communicating the science of hurricanes to the public further complicated and intensified the impacts of Harvey. Due to the complexities and destruction associated with Harvey, there is a need for inquiry directed at the micro-level.

Crisis Communication

Crises and risks perpetually surround us. They present threats, often in a surprising manner, and disrupt our routines, evoke uncertainty, and threaten our goals and wellbeing (Sellnow & Seeger, 2013). These characteristics of crises can cause serious damage when they clash with our social systems. As such, crisis and risk communication are indispensable resources that should attend to the needs of affected and at-risk individuals. However, depending on the type of crisis or risk, the specificities of crisis and risk communication will vary.

There are many typologies of crisis. To best meet the communicative exigencies of affected populations as well as deduce possible public health risks, the type of crisis must be taken into consideration. Seeger, Sellnow, and Ulmer (2003) propose a typology of crisis that includes public perception crises, natural disasters, product or service crises, terrorist attacks, economic crises, human resource crises, industrial crises, spills, transportation disasters, and crises from environmental factors. Differentiating a crisis from other types of events is important, too.

The term "crisis" most often refers to an organization's experience of a high consequence event (Ulmer, Sellnow, & Seeger, 2019). A "disaster" is experienced by a community and typically involves governmental response and management—such as a hurricane—and an "emergency" is a much smaller-scale crisis that is more controlled and contained (Ulmer et al., 2019). Throughout

this manuscript, the term "crisis" is used to reference broader implications within the discipline and relevant research, whereas "disaster" is used when referencing the context of study (i.e., Hurricane Harvey). In addition to the differences among crises, disasters, and emergencies, there are differences between crisis communication and risk communication that are important to distinguish.

Crisis communication is an ongoing process that aims to create shared meaning with and between impacted individuals, groups, communities, and organizations within the context of a crisis (Sellnow & Seeger, 2013). Crisis communication's purpose is to prepare individuals, groups, communities, and organizations for threats presented by a crisis and reduce exposure to harm. Ultimately, crisis communication aims to facilitate informed decision-making and planning, preparedness, response, and recovery capabilities (Sellnow & Seeger, 2013; Ulmer, Sellnow, & Seeger, 2015). It is based on what is known and unknown. In contrast, risk communication explains probabilities of harm occurring at a future date with the goal being to influence individual behaviors to mitigate harms and exposure to risks (Sellnow, Ulmer, Seeger, & Littlefield, 2010). Although distinct, crisis communication often includes risk communication because most crises present risks that emerge throughout the crisis lifecycle (i.e., pre-crisis, crisis, and post-crisis). However, both crisis and risk communication privilege expert knowledge. Crisis communication tends to originate from authority figures and government officials and risk communication tends to originate from technical experts and scientists (Ulmer et al., 2019).

Practice and research within crisis and risk communication are highly organization-centric and query meso- and macro-level communicative phenomena. The focus on organizing/organizations and meso/macro phenomena can be seen by the overwhelming focus and privilege given to authority figures, expert, and governmental and organizational knowledge in

research, practice, and recommendations (e.g., Coombs, 1999; Reynolds, 2007; Reynolds & Seeger, 2005). Although such focus and privilege have justifications and benefits, primary focus on expert knowledge and organizational operations and processes in research and practice can reify power structures and particular ideologies. By doing this, it is possible to miss important elements/perspectives that are required to meet the needs of various publics. Further, the focus and privilege given to expert knowledge and organizing/organizations can diminish the possibility for (new) understanding and hinder advancements in crisis and risk communication research and practices. Now that there is extensional research on expert-driven topics and *meso-* and *macro-*level phenomena (e.g., Reynolds & Seeger, 2005; Seeger, 2006), we must begin to understand the various publics also enmeshed in the context of disasters and explicitly query *micro*-level phenomena and experiences (e.g., Spialek & Houston, 2017). However, the presence of expert privilege and anthropocentrism within crisis and risk communication can be viewed as barriers to better understanding the population of POs and AGs.

Anthropocentrism is an ideology that places the human being at the center of the universe. Privilege is given to humans and human values and experiences are prioritized over other entities', such as (nonhuman) animals (e.g., Crist & Kopnina, 2014; Plumwood, 1993, 2001). This communicatively constructed perspective views humans as separate from and superior to other entities. With deep Western roots, anthropocentrism systematically permeates public policy approaches, which I suggest are present within current crisis and risk communication practices *and* research (Thompson et al., 2014; Schutten, 2008; Schutten & Rogers, 2011). Unfortunately, harmful and negative consequences arise out of such ideologically-driven (in)actions surrounding disasters, as was observed during the 2005 Hurricane Katrina.

The presence of anthropocentrism was apparent during Hurricane Katrina. Many families that were impacted by Katrina had no transportation for evacuating with their animals. This was further complicated by the restriction of animals in government evacuation boats, helicopters, and vehicles as well as in evacuation shelters due to policies that were animal-exclusive (Akhtar, 2012; Irvine, 2009; Lowe et al., 2009). Researchers, such as Irvine (2009), speculate that these restrictive policies and the lack of consideration for the population of POs/AGs are reasons why many POs/AGs failed to evacuate before Katrina's landfall. The restrictive policies also led many POs/AGs in the New Orleans area to abandon their animals; approximately 104,000 animals were abandoned (Louisiana SPCA, n.d.; Taylor, Lynch, Burns, & Eustace, 2015). Only 15,500 were rescued and of those rescued less, than 20% were reunited with their humans (Louisiana SPCA, n.d.). Such a low rate of reunion has the potential to become a burden on communities, which are tasked with the responsibility to care for abandoned, lost, and/or injured animals following a disaster. Or, the animals that are not reunited with their PO/AG can become stray or feral, presenting additional issues regarding health, safety, care, and responsibility. This issue is further complicated by the lack of micro-level research within the crisis communication field.

There is minimal micro-level research within the field of crisis communication. Micro-level communication phenomena are smaller than meso- and macro-level phenomena. Micro-level phenomenon focus on citizens/individuals, intra/interpersonal forms of communication, local perspective(s), and individuals and/or local communication resources (Barbour, 2017; Spialek & Houston, 2017). The micro-level research gap within the crisis and risk communication field has been identified by communication scholars, such as Spialek and Houston (2017). Such a gap is worrisome when we review Quarantelli's (1982, 1988) revered axiom that "all disasters are local." The local perspective is important and best understood through inquiry that is situated among

publics; among individuals. Not only is it a matter of public health and safety to heed this need for further research, but it can also contribute to enhanced organizational processes by (de)constructing knowledge so that it is more inclusive to various publics; not only the publics that experts and organizations deem as relevant or as priority/majority populations.

Crisis and risk communication are not effective if they do not reach the intended audience, which is why empirical, micro-level inquiry is so important. Some extant research has focused on querying publics' informational source preferences and media uses, mostly from a descriptive, quantified perspective. For example, individuals impacted by Hurricane Katrina had different levels of crisis preparedness and information seeking behaviors, which varied among races (Spence et al., 2007). African American survivors sought out information about shelters and evacuation more than other races. Overall, racial minorities valued interpersonal networks more than non-minority populations (Spence et al., 2007). As social media is a part of daily life for most individuals, they have become primary ways in which publics access their interpersonal networks (Spence, Lachlan, & Griffin, 2007). Social media have also served as a useful tools in crisis and risk communication efforts, such as during the 2014 California drought (Tang, Zhang, Xu, & Vo, 2015). However, certain publics trust some informational sources more than others, which is important for crisis communicators to consider.

Local experts are typically preferred information sources during crises, especially for minority groups (Spence, Lachlan, Westerman, & Spates, 2013; Tardy & Hale, 1998). Based on extant research, it is suggested that crisis and risk communicators identify, partner with, and utilize knowledgeable, credible, and trustworthy community-based informational sources to reach minority groups (Clarke & McComas, 2012; Liu, Bartz, & Duke, 2016). Furthermore, certain identities can influence an individual's information-seeking and media use behaviors during crises.

Gender identity and identifying as a caretaker of a children have been reported as variables that impact information-seeking and media use. Women may be more inclined to seek-out information during crises because staying informed can serve as a coping strategy (Seeger, Vennette, Ulmer, & Sellnow , 2002; Spence et al., 2006; Spence et al., 2007; Spence, Lachlan, & Burke, 2011). Spence et al. (2006) reported that women view television and radio as useful media during crises, whereas men view internet sources as more useful. As women typically take on the role of principle caregivers to children, they may be more sensitive and attuned to risks and, therefore, engage in more information-seeking during crises (Gustafson, 1998; Hipper et al., 2018). Based on extant research and variation among publics' information-seeking and media use, it is crucial to expand our knowledge about the various publics that are present within disaster contexts and strive to better understand *their* needs, processes, struggles, perceptions, and sense-making process(es) (de Chesnay & Anderson, 2016; Spence & Lachlan, 2016; Nsiah-Kumi, 2008).

Micro-Level Sense-Making

There are many conceptualizations of sense-making that have been applied to study crises. Two of the most well-known conceptualizations of sense-making in communication literature emerge from Karl Weick and Brenda Dervin. Weick's (1995) "sensemaking" theory focuses on the act of organizing and how meanings are (co)created in organizational settings. Weick's conceptualization has been widely applied and theorized as related to crises and organizations (e.g., Broekema, Kleef, & Steen, 2017; Nilsson & Eriksson, 2008; Strandberg & Vigsø, 2016). Although there is minimal research within the communication discipline surrounding micro-level sense-making during crises—such as through applying Dervin's approach to sense-making—there is research about micro-level sense-making in other contexts. This knowledge is useful for grounding the current research.

Better understanding micro-level sense-making processes and outcomes in crisis contexts is a matter of public health and safety. Micro-level sense-making focuses on citizens/individuals, intra/interpersonal forms of communication, local perspective(s), and individuals and/or local communication resources and how meaning is created and attributed to experiences (Dervin, 2003a; Spialek & Houston, 2017). Through understanding individuals' sense-making process and what they considered a "help" or "hindrance" during the sense-making process (Dervin, 1992), crisis communicators can craft more relevant and useful crisis communication. Such knowledge could also contribute to enhanced organizational processes by (de)constructing knowledge so that it is more publics centered. Further, as suggested by the best practices for crisis communication (Seeger, 2006), organizations must listen to and understand their publics as well as develop and maintain partnerships with the public. To accommodate these best practices, micro-level inquiry is necessary. Understanding micro-level sense-making processes and outcomes, in particular, would provide insight about what information and media individuals find useful, what information gaps exist for publics, how previous experiences and identity/ies impact individual decision- and sense-making, among many other insights.

Sense-making can be thought of as a process by which individuals attempt to understand and give meaning to experiences. It is more than just the interpretation of events because individuals contribute to the situations that they attempt to make sense of through actions, behaviors, ideas and beliefs, past experiences, interactions with others, etc. (Dervin, 1992, 1999; Weick, Sutcliffe, & Obstfeld, 2005). Sense-making is essential surrounding a crisis because these events are low probability/high consequence events that threaten fundamental goals and "because of their low probability, these events defy interpretations and impose severe demands on sense-making. The less adequate the sense-making process directed at a crisis, the more likely it is that

the crisis will get out of control" (Weick, 1988, p. 305). Some level of improvisation is needed within the sense-making process to adjust for possible shortcomings of routine procedures. When people fail to communicate relevant information and coordinate their activities with other individuals or organizations, the process of sense-making is tarnished. Therefore, the possibility of improvisation is also tarnished in these instances, which is typically needed for sense-making during crises (Roux-Dufort & Vidaillet, 2003). These shortcoming can be installed as habits or behaviors if crisis-induced learning does not occur.

Learning from a crisis experience is important because it helps individuals identify and correct errors for the future, which contributes to their larger sense-making process (Dwyer & Hardy, 2016; Weick, 1995). However, focus on individuals' crisis-induced learning and the function of communication surrounding this phenomenon is understudied. Most research about crisis-induced learning focuses on organizations, or individuals *as a part of* organizing/organization (e.g., Nilsson & Eriksson, 2008). Just as post-crisis reflection is essential for organizational learning (Borodzicz & Van Hapere, 2002; Weick, 1995), it is likely important to individual crisis-induced learning, too. This lack of knowledge about micro-level, crisis-related learning is further complicated by the larger lack of micro-level research surrounding sense-making and crises.

Although micro-level sense-making in crisis contexts is largely understudied within the communication discipline, there are some applications of Dervin's (1992) micro-level sense-making framework in crisis contexts. Heverin and Zach (2012), for example, examined microblogging communications in response to three violent crises at U.S. universities. During the critical onset stage of each crisis, the authors found that information-related messages on Twitter were the most populous of all types of messages. Specifically, there were eight sense-making themes that emerged in their analysis of the Tweets: information sharing, information negotiation,

information seeking, sharing individual actions, understanding "why," contemplating awareness outside of the local setting, questioning the outcomes of the crisis, and the "talking cure."

The "talking cure" occurs when "individuals may communicate their inner feelings or thoughts without the expectation of receiving a response from others" (Heverin & Zach, 2012, p. 43). While this type of communication does not necessarily add to the collective understanding of the crisis, it allows affected individuals to express their feelings, thoughts, and add to the collective *conversation*, which does play a role in the sense-making process of individuals (Dervin & Frenette, 2003). Thus, the "talking cure" can be considered a sense-making communicative micro-practice (Schaefer & Dervin, 2009). Not only did this research illuminate the importance of information sharing for individuals' sense-making process, but it also demonstrates that individuals used social media to connect to a larger collectivity surrounding the crises. According to Dervin (1999, 2003f), this notion is supported because individuals cannot have complete understanding of reality alone; instead, people must work together to make sense. As Dervin's sense-making has been narrowly applied in crisis contexts, there are applications of Dervin's sense-making framework in other contexts, which provide useful insights for this research.

Dervin's (1992, 1998) sense-making has been employed to query phenomena surrounding health, which is relevant to crises as most crises have health implications. Not only has sense-making proven useful in better understanding how people move to make sense of health topics and experiences, but through such inquiry, insights have also been gained for praxis. For example, through applying Dervin's sense-making, Betts et al. (1989) discovered differences in adolescents' approach to personal nutrition concerns and questions. Such findings illustrate how individuals can take an action-oriented approach to their nutrition concerns and questions, while others experience barriers and, therefore, desire different levels of help from practitioners (Betts et al.,

1989). Such information better informs healthcare practices and approaches to care, but the potential for change across time and space is an important facet of sense-making.

Dervin's (1998, 1999) sense-making prioritizes the influence of time and space in individual sense-making. As such, individuals' conceptualization(s) of health are likely to change and develop over time. Experiential information and social contexts are also central to individual sense-making, according to Dervin's conceptualization of sense-making. Individual (re)constructions of "normality" can emerge through the sense-making process. (Dervin, 2003a, 2003f). These (re)constructions are important elements for individuals' sense-making about health challenges, for example, as individuals must reconstruct the meaning of self when faced with a health challenge (Genuis & Bronstein, 2017). In ways, (re)constructions of "normality" can help individuals move on with life and accept their personal circumstances/challenges. Through understanding individual experiences with health challenges, Dervin's sense-making provides researchers with strategies and tools to better understand *how* individuals use information, extant knowledge, past experiences, attitudes, the influence of power structures and cultures, and the role of context in the sense-making process. An important emphasis within Dervin's sense-making is the influence that individual characteristics have on the overall process.

Individual identity/ies influence the sense-making process but can also be (re)affirmed through sense-making. Once sense-making is evoked, individuals begin a cycle of "continual compromise and re-negotiation, in relation to managing, regulating, or concealing certain aspects of self," in hopes that their constructed identity is acknowledged by others (Bowen, 2018, p. 1149). For example, students preparing to enter the workforce have tried to make sense of what it means "to be a professional" and how they can be enact professionalism. The primary ways students made sense of the concept "professionalism" was through observation, evaluation, and experimentation

(Bowen, 2018). In the context of experiencing art, applications of Dervin's sense-making have demonstrated how personal and social identities move with individuals across art experiences and do have an impact on the individuals' overall sense-making of art (Foreman-Wernet & Dervin, 2017; Foreman-Wernet & Dervin, 2011). The sense-making activities that occur in these situations are grounded in personal background and experiences, conceptualizations of self (i.e., identity), interpretation of information/knowledge, individual social constructions of the world, and experiential effects of observation (Foreman-Wernet & Dervin, 2016).

Identity is important to consider as related to crises. Crises can challenge, change, or affirm an individual's identity. These impacts on identity may occur due to the feeling that order and rationality are lost and, hence, an inability to make sense of what is occurring. Weick (1993) refers to this inability to make sense during crises as a cosmology episode, which is the feeling as though rationality is lost and a sense of what is happening and how to rebuild that sense have diminished. Individuals are partially informed by contexts, cultures, institutions, and structures; yet, there is never complete isomorphism between the individual mind and contexts, cultures, institutions, and structures (Dervin & Clark, 1993). Hence, it is important to recall that sense-making is a *process* that is constructed out of continuous cycles that (re)generate self-identity/ies (Weick et al., 2005). During crises, "when people are confronted with a contradiction between reality and identity, they will be forced to manipulate either their identity or their perception of the world" (Klein & Eckhaus, 2017, p. 230).

Crises may evoke the reconstitution of identity/ies. For example, after experiencing the 2010 Chile earthquake, there were higher levels of national identity and motivation to help others, suggesting that in the midst of a disaster people unite under a common, national identity (Maki et al., 2019). Further, proximity to the epicenter of the earthquake was related to higher levels of

national identity and individual participation in reconstruction (Maki et al., 2019). Shared, social

identities are often evoked by a disaster, which can motivate people to participate in recovery

efforts and may heighten their engagement with prosocial behaviors (Drury, Brown, González, &

Miranda, 2016). Emergent, shared social identities occur among individuals impacted by disaster

and can be unique to the disaster context (Drury et al., 2016). This phenomenon has also been

observed during flooding disasters (Ntontis, Drury, Amlôt, Rubin, & Williams, 2018). Although

it is clear to see the function of and implications of identity in disaster contexts, it is unclear how

crisis and risk communication function as related to identities, decision-making, and sense-making

at the micro-level.

Shared, collective identity in disaster contexts is correlated to willingness to help and

engage in prosocial behaviors. Individuals are typically more willing to help other disaster-affected

individuals that they share a common identity with (Dalton, Madden, Chamberlain, Carr, & Lyons,

2018; Stevenson & Manning, 2010). Having a strong sense of identity and awareness of and

adherence to a particular social identity, such national citizenship, may provide disaster-affected

individuals with "a source of self-esteem and protection against perceived threat to self and

society" (Maki et al., 2019, p. 81). As disasters are events that threaten health and safety as well

as one's sense of self, there are numerous implications for crisis and risk communicators to

consider—especially as one's sense of self (identity) influences meaning-making (Dervin, 2003a;

Dervin & Clark, 1993). However, there is a lack of empirical research about the influence of crisis

and risk communication on identity/ies.

Empirical investigation about the relationship among crisis/risk communication, identity,

and sense-making processes is needed. Inquiry directed at this gap in empirical research is needed

because:

> Self, identity, and culture are intertwined in how individuals feel about themselves and how they feel about living in a particular social context. The natural or human-initiated disaster has potential to seriously disrupt the life and social networks of individuals, groups, and communities. It is reasonable, therefore, to suggest that a disaster may result in changes related to self, identity, and culture. (Deeny & McFetridge, 2005, p. 433).

It is possible that such disruptions be lessened or mitigated through identity-affirming crisis and risk communication, which requires micro-level inquiry to achieve a better understanding of these phenomena, how they function, and their relationship(s) to one another. Such an understanding is particularly relevant to crises as certain identities and group identifications can influence the overall process(es) of micro-level sense-making (Dervin & Clark, 1993; Heverin & Zach, 2012), especially since crises are unique, non-routine, uncertain, and threatening (Sellnow & Seeger, 2013). However, as previously stated, this is a current gap in extant crisis communication research, one that is particularly pervasive surrounding the population of POs and AGs.

Humans, Animals, and Disasters

Despite the growing number of companion animals and pets in our world and their elevated status as family members in many (human) families, POs'/AGs' inclusion in crisis planning, preparedness, response, recovery, and mitigation is minimal to nonexistent. The knowledge gap is even more pervasive within crisis and risk communication research. Scholars in other disciplines have acknowledged this gap. For example, Farmer, DeYoung, and Wachtendorf (2016) note that it remains unclear which media outlets would be best to disseminate information to POs/AGs, which is further compounded by disconnects between state-level and local-level planning for animals in disasters. Much of this can be viewed as an issue of dichotomization.

The issue of POs/AGs and their animals in disaster contexts should not be dichotomized as an "either/or" issue (e.g., "either" humans "or" animals are prioritized). Such dichotomization fails to acknowledge the realities of POs/AGs who value companion animals/pets as family

members, friends, relation partners, forms of support/care, sentient beings, etc. This dichotomization can also become problematic in regard to health and safety (e.g., Brackenridge, Zottarelli, Rider, & Carlsen-Landy, 2012; Day, 2017), because as Heath and Linnabary (2015) point out that, "There is no other factor contributing as much to human evacuation failure in disasters that is under the control of emergency management when a threat is imminent as pet ownership" (p. 184-185).

The lack of inclusion of POs/AGs in crisis and risk communication practices and research should be considered a mitigatable issue that threatens public health and safety. For example, in addition to negative effects and outcomes that disaster-affected individuals experience in the acute crisis stage, there are also many negative effects for POs/AGs that can last into the post-crisis stage, such as high levels of grief, posttraumatic stress disorder (PTSD), and psychological trauma. These negative effects often result from the loss, separation, and/or death of a companion animal or pet and this is in addition to the negative health effects and emotions produced by the disaster event (e.g., Goto, Wilson, Kahana, & Slane, 2006; Hunt, Al-Awadi, & Johnson, 2008; Lowe, Rhodes, Zwiebach, & Chan, 2009; Zottarelli, 2010). There are four prominent risks that are specific to POs/AGs in disaster contexts.

Experiencing a disaster as a PO/AG presents unique and specific risks. First, most POs/AGs plan to evacuate with their animals during a disaster, but these plans are not always executed (Brackenridge et al., 2012; Brown, Fankhauser, Roth, & Victoroff, 2012; Hesterberg, Huertas, & Appleby, 2012; Kusenbach, Simms, & Tobin, 2010). Second, having animals can influence a person's decision to evacuate or not during a disaster (Blendon et al., 2007; Brackenridge et al., 2012; Brown et al., 2012; Hunt, Bogue, & Rohrbaugh, 2012). If a PO/AG evacuates without their animal(s), they often return to the disaster site to search for their animal(s)

even if the site is deemed unsafe (Faas, Jones, Whiteford, Tobin, & Murphy, 2014; Mei et al.,

2013). Third, as mentioned earlier, the loss of an animal as a result of a disaster can be traumatizing

for POs/AGs, resulting in high levels of negative psychological symptoms (Goto et al., 2006; Hunt

et al., 2008; John et al., 2007; Lowe et al., 2009; Zottarelli, 2010). This trauma is linked to the

strong emotional bonds that POs/AGs develop with their animal(s) as many are considered family

(Coombs, Eberlein, Mantata, Turnhout, & Smith, 2015; Davidson et al., 2009). Lastly, caring for

an animal can also impact hospital staffs' decisions to go to work during a disaster due to concerns

about leaving their animals alone during the disaster (Davidson et al., 2009; Ogedegbe, Nyirenda,

Del Moro, Yamin, & Feldman, 2012). As may be apparent, "there is clear evidence that the safety

of humans and animals is intertwined during disasters" (Thompson et al., 2014, p. 217). The

population of POs/AGs has yet to receive adequate inclusion in official crisis and risk

communication, planning, preparedness, response, and recovery efforts. This knowledge gap is

further problematized when coupled with another issue regarding extant research: it privileges

certain creators of crisis communication and knowledge and, thus, privileges and reifies particular

power structures.

The negative effects that disasters can have on POs/AGs is further complicated by the

widespread privileging of expert knowledge and meso- and macro-level foci in current crisis and

risk scholarship and practice. Although POs/AGs are not included in most crisis or risk

communication messages; crisis communication research, or; crisis communication practices,

officials and experts do make claims and suggestions for this population without evidence-based

knowledge about this population. There is a need for communication-centric research with this

population as it remains uncertain what media, message structure, content topics, informational

sources, etc. are salient for POs/AGs (Farmer et al., 2016). Moreover, the relationship

among/between POs'/AGs' identity/ies, sense-making, crisis and risk communication, and disaster experiences is unclear. This gap in knowledge is in need of evidence-based research.

As extant research about animals and POs/AGs in disasters is minimal, it is imperative that additional evidence-based research is pursued. Communication-centered research is needed so that crisis and risk communication is appropriate, decodable, and relevant for this population. It is needed to help POs/AGs make informed decisions and, ultimately, to ensure the health and safety of this population, response personnel, and other individuals embedded in the disaster context. Thus, research that focuses on disaster-affected POs/AGs is needed to identify their: informational sources, media uses, influence of perceptions/attitudes/values/experiences, interpretations and sense-making processes, the role of crisis and risk communication in their sense-making process, and *how* their identity as a PO/AG affects their sense-making process and overall disaster experience. To put simply, inquiry about micro-level communicative phenomena with disaster-affected POs/AGs is a current gap within the field of communication. To understand how to best communicate with this population during disasters, we must understand their experience(s) so, for example, we know what is missing in current crisis and risk communication practices and research *as explicated by* disaster-affected POs/AGs.

The purpose of this study is to better understand the disaster experience(s) and sense-making process(es) of POs and AGs that were affected by Hurricane Harvey. More specifically, examination will pay close attention to the role and function of PO/AG identity and crisis and risk communication in individuals' sense-making of their disaster experience. Sense-making is generally defined as the process of bridging communication gaps (Dervin, 1998, 1999). Focus on "how" POs/AGs connect, decode, and come to understand information, knowledge, and identity/ies surrounding their experience with Hurricane Harvey are central (Dervin & Frenette,

2003). I aim to illuminate how received and/or sought-out crisis and risk communication surrounding Hurricane Harvey played a role in POs'/AGs' sense-making about Harvey and communication.

Research Questions

To begin to fill the identified research gaps, three research questions are presented. My overarching research question is, "how do POs and AGs make sense of their experience in a disaster and what is the role(s) of crisis and risk communication in the sense-making process?" Hurricane Harvey is the context in which the following research questions (RQs) are addressed:

RQ1: How do individuals understand themselves, in the context of Hurricane Harvey, as it relates to their identity as a PO/AG?

> **RQ1a:** How did previous disaster experiences impact POs'/AGs' understandings of self in the context of Hurricane Harvey?

> **RQ1b:** What are the situational barriers, constraints, and/or facilitators to PO/AG identity in the context of Hurricane Harvey?

> **RQ1c:** How do situational barriers, constraints, and/or facilitators impact PO/AG identity?

RQ2: How does communication function to bridge gaps during POs'/AGs' sense-making in the context of Hurricane Harvey?

> **RQ2a:** What were the communication gaps that POs/AGs experienced surrounding Hurricane Harvey?

> **RQ2b:** How did POs/AGs bridge communication gaps and/or move to make decisions with the presence of communication gaps?

> **RQ2c:** What were the consequences and impacts of communication gaps for POs/AGs surrounding Hurricane Harvey?

RQ3: How does received and/or sought-out crisis and risk communication about Hurricane Harvey play a role in POs'/AGs' sense-making?

> **RQ3a**: What informational channels and media do POs/AGs see as most helpful surrounding their experience with Hurricane Harvey?

> **RQ3b**: What informational sources do POs/AGs see as most helpful surrounding their experience with Hurricane Harvey?

> **RQ3c**: What were the sense-making outcomes for POs/AGs that experienced Hurricane Harvey?

The research questions explicated above were developed based on extant research and current research gaps within the crisis and risk communication field. Specifically, my systematic review of empirical research surrounding animals and natural disasters served as a primary source to identify extant knowledge and research gaps (Day, 2017). Further, Spialek and Houston (2017) have asserted that there is a micro-level research gap within crisis and risk communication. Due to this micro-level gap, it is unclear how identity, crisis/risk communication, and communication gaps impact individuals' sense-making process(es) in disaster contexts and what influence these experiences have on individuals. Therefore, this research attempts to address the noted research gaps through multi-staged inquiry among Hurricane Harvey-affected POs/AGs.

CHAPTER 2 METHODS

This chapter discusses the methodology used to answer my research questions and provides justification for using my chosen methodological approach. Primarily, a qualitative approach was used to gather insights from pet owners (PO) and animal guardians (AG) about their experience surrounding the 2017 Hurricane Harvey, playing close attention to their process of sense-making and the role of crisis and risk communication. In what follows, I will explicate my epistemology and ontology and move onto provide justification for using qualitative methods to understand POs' and AGs' experiences surrounding Hurricane Harvey. Second, I detail my role as researcher. Third, I provide a rationale for using an online survey with open- and closed-ended questions, in-depth semi-structured interviews, and online follow-ups to gain understanding about participants' disaster experience and sense-making process. Next, an explanation of data collection is provided. Finally, data analysis, interpretation procedures, and quality measures are described.

Qualitative Methodology

In a general sense, qualitative methodology aims to gain deeper understanding about meanings and experiences. Explanations about "why" and "how" from multivocal viewpoints, contextual lived experiences, and meaning-making processes are key facets of qualitative methodology. Methodologies are "strategies for gathering, collecting, and analyzing data" and serve as the process or design that lies behind the use of a specific method (Tracy, 2013, p. 38). Focus on thick description, context, and self-reflexivity are hallmarks of qualitative methodologies (Tracy, 2013). The researcher is the instrument of inquiry, both in data collection and data interpretation (Patton, 2015). Additionally, it is important to be aware that,

> Reflection on how your [researcher] data collection and interpretation are affected by who you are, what's going on in your life, what you care about, how you view the world, and how you've chosen to study what interests you is a part of qualitative methodology. (Patton, 2015, p. 3).

My view of the world and how I approach qualitative methodology are best demonstrated through describing my ontology and epistemology.

Qualitative inquiry is rich with varying paradigmatic orientations and thus, epistemological and ontological beliefs. Paradigms are worldviews that encompass the ways researchers understand reality, knowledge, and collect information (Tracy, 2013). I identify with and draw from the paradigmatic orientation of interpretivism. As Tracy (2013) posits, interpretivists "make sense" of the research scene—from the participant's point of view—through examination of participant behaviors, intentions, and emotions. Reality, therefore, is not viewed as objective, singular, or controllable (Tracy, 2013). Instead, I see reality as constructed through social interactions and knowledge is (co)produced and interlaced with values. Additionally, reality is socially constructed, maintained, modified, and/or transformed through the social and dynamic process of communication and (co)creation of meaning (Patton, 2015; Tracy, 2013). Multiple realities and truths exist due to the varying prescriptions of meaning and experience. Therefore, the researcher is not objective. Instead, s/he/they interprets gathered knowledge.

In my epistemological view, knowledge is (co)created in social interactions and reality is connected and known via cultural and ideological categories (Patton, 2015). I see phenomena as defined by communicative social interaction, which occurs intersubjectively among people that are in a network of relationships (Patton, 2015). Knowledge and reality are socially (co)created. As interpretivism draw from hermeneutics, phenomena of interest are lived experiences, from the participants' point of view, and explicate how meanings are socially constructed and (co)created. Knowledge is subjective and relative to time and space. Subjectivist philosophy acknowledges that researchers do not display objective reality, but they interpret, socially construct, and (co)create

research findings (Tracy, 2013). This is a reason why I find Brenda Dervin's Sense-Making Methodology (SMM) as an applicable approach for this research.

Dervin's Sense-Making

The approach that guides my research is Brenda Dervin's Sense-Making Methodology (SMM). SMM is an appropriate approach for this research because it seeks to understand participant experiences and meanings on their terms—not terms translated by researchers to be comprehensible for institutions or experts (Foreman-Wernet & Dervin, 2005). SMM is inclusive to Dervin's (1984) sense-making theory and, thus, can be viewed as theory and methodology. SMM incorporates and acknowledges sense-making theory's assertions about how humans use and produce information and knowledge, seek-out information, and how individuals use such information to construct their world(s). Generally, sense-making within Dervin's (2003c) conceptualization is seen as "gap bridging" and acknowledges that:

> Individual humans are conceptualized metaphorically as moving across time and space by bridging gaps inherent in the human condition—between times, spaces, people, and events, self today and self yesterday, and so on. No amount of external information, prior instruction, or acculturation is sufficient to bridge a gap here and now. This is done by mind-body-heart-spirit step-takings of singular human entities, consciously or unconsciously, habitually or innovatively, and acting alone or in community. (p. 239).

Gaps are central to the evocation of sense-making.

Gaps and SMM

Reality is filled with fundamental and pervasive gaps that require the utilization of sense-making (Dervin, 2003a). Dervin (2003h) explains that,

> The terms—*knowledge gap, information gap, information inequity, information poor*, and, most recently, *communication gap*—all have been used by theorists who have observed that when it comes to information/communication availabilities in society, there are those who are rich and those who are poor. (p. 17).

To reiterate, gaps are pervasive in our lived experiences. Communication gaps, as related to individuals, describe the discrepancies or deficits between the cognitions they have about the topic at hand and the communication/information they need to make sense of the topic as related to their lives (Dervin, 2003h).

In Dervin's (1992, 2003h) conceptualization of communication gaps, she explicitly challenges the transmission model of communication. Dervin asserts that there is a dire need in communication research to merge how individual characteristics *and* societal and social systems impact individual sense-making—such as the individual characters of being a PO/AG and the societal and social systems that contribute to and create crisis communication during a disaster. It is imperative to explicate that the mere *availability* of information does not result in individual awareness of the topic at hand nor does it correlate/cause information gain for an individual (Dervin, 2003h). Thus, when a communication gap is encountered, individuals initiate information-seeking; however, this is only evoked when the individual deems that it is needed.

SMM suggests that individual information-seeking and information-using behaviors are not well predicted based on attributes of people (i.e., demographic characteristics) (Dervin, 2003b, p. 226). In attempting to make sense—which Dervin simply states is "gap bridging"—individuals' reach out to sources closest to them and judge the encountered information "in terms of how it helped them. They find it [information] useful because they can put it to use" (Dervin, 2003b, p. 226). In theorizing about individual information-seeking, SMM posits that this is best predicted based on how individuals view the situation that they are in, the constraints they face in the situation, and the gap(s) they need to bridge. Individual identity is also influential to the sense-making process.

Individual Identity and SMM

Identity plays a large role in sense-making. SMM's conceptualization of the individual is fundamental to its metatheoretical assumptions. The individual is seen as:

> a body-mind-heart-spirit living in a time-space, moving from a past, in a present, to a future, anchored in material conditions; yet at the same time with an assumed capacity to sense-make abstractions, dreams, memories, plans, ambitions, fantasies, stories, pretenses that can both transcend time-space and last beyond specific moments in time-space…It mandates simultaneous attention to both the inner and outer worlds of human beings and the ultimate impossibility of separating them. (Dervin, 2003a, p. 139).

A part of the "inner world" is the conceptualization of self, of identity/ies, while the "outer worlds" include group memberships, society, etc. By acknowledging the various, personal dimensions of the individual, Dervin's sense-making requires that attention is paid to the individual's past, present, and future and the interplay of history, past experiences, and context. I decipher that these elements impact individuals and their conceptualized identity/ies. Identity/ies can also influence how an individual's past, present, and future and the interplay of history, past experiences, and context are utilized to make sense.

Although Dervin's (1976, 1998) conceptualization of sense-making rarely uses the term "identity," it is embedded within the framework. Influence from individual's past experiences are assumed within SMM. Individuals' past lived experiences are "informed by their identity, and influences how they respond to stimuli" (Dwyer & Hardy, 2016, p. 46-47). Specifically, in Dervin's framework, individuals construct their self-concept(s) through emotions, spirituality, embodied unconscious, and collectivities (Dervin, 2003a). Ultimately, in practice, sense-making assumes that the individual is involved in their observations, which are understood from the individual's perspectives and horizons, which are impacted by identity/ies (Dervin 1999). The impact of identity is apparent within the framework because sense-making "assumes that the struggle to see self, others, reality, the social world is a struggle with moments of confusion and insight" (Dervin, 2003a, p. 143). Because individuals give meaning to their worlds based on their

terms and conceptualizations, there are numerous ways in which sense-making can be accomplished (Foreman-Wernet & Dervin, 2005).

Individuals are constantly changing and evolving across time-space in the SMM framework. In this, each individual movement and each moment can evoke sense-making that sparks repeat behaviors or habits, or sparks a need for change and innovation (Dervin, 1998, 1999; Foreman-Wernet, 2003). Even if a repetition of past behavior(s) is evoked, it is theoretically a new step within the SMM metaphor because it occurs at a new moment in time-space (Dervin & Frenette, 2003). When this movement is stopped because something is unfamiliar or novel, then there is a moment of discontinuity; thus, the reality of SMM's time-space continuum is partially ordered and partially chaotic (Dervin 2003f, 1992; Dervin & Frenette, 2003).

SMM views reality from an individualistic point of view, acknowledging that different individuals perceive reality from multiple, subjective viewpoints. Rather than examine these differences via demographics or other types of static categories, SMM focuses on *how* people attend to phenomena, *how* they connect information, *how* they make bridges, and *how* they make sense of reality (Dervin, 2003b; Foreman-Wernet, 2003). It is possible, however, for individuals to carry static, rigid characteristics/qualities/schema/thoughts across time and space. SMM mandates that researchers are aware of "the conditions which foster flexibility, fluidity, and change as well as those that foster rigidity, stability, and inflexibility" (Dervin, 2003a, p. 140). SMM is also mindful of the inability to separate our internal and external world, as both influence how we observe and experience reality; yet, SMM also pays attention to individuals' internal and external worlds, simultaneously (Dervin, 2003a). This is partially because humans move through time and space influenced by elements beyond ourselves, such as power structures and other individuals (Foreman-Wernet, 2003).

Propositions of SMM

It is important to note that there are many ways for an individual to make sense within SMM. To make sense, an individual utilizes "verbings", which are a person's ideas, cognitions, thoughts, conclusions, attitudes, beliefs, values, feelings, emotions, intuitions, memories, stories, and narratives. Verbings describe *how* individuals make facts that represent their "assumed to be real" standpoint (Dervin, 2003a). Verbings can be preconceived or they can be developed/evoked within a particular moment in time-space (Dervin, 1999, 2003c). Verbings impact an individual's information seeking and use, which cannot be understood outside the situated context (Dervin, 2003d). In addition to being a methodology, SMM can also be viewed as a theory (Dervin, 1992; Foreman-Wernet, 2003). The theory *and* methodology perspective are explicated in SMM's assumptions, propositions, and methods (Dervin, 1992; Foreman-Wernet, 2003).

SMM is a set of metatheoretic assumptions and propositions about information, human use of information, and human communication (Dervin, 1992). Information in SMM is not seen as independent of human beings, but as products of human observation (Foreman-Wernet, 2003). SMM's metatheoretical grounding sees the need to qualify "information" with "as defined by experts" because information is inherently structural and originates from experts (Dervin, 2003a). SMM proposes that in the dominant view of reality, information is conceptualized as portraying a natural depiction of reality and obscures the role of power (Dervin, 2003f). In contrast to the dominant view of reality, Dervin (2003f) asserts that "information is a human tool designed by human beings to make sense of a reality" (p. 328). SMM's perspective on information seeks to understand how individuals make their worlds, how individuals are flexible in their information use, and how individuals come to understand reality. The dominant view, on the other hand, focuses on *what* differences exist among humans and seeks to identify rigidities in individuals'

information use(s). SMM's approach to information asserts that it must "be subject to continuing deconstruction (i.e., constant analysis and reanalysis)…because it is designed without attention to design, it fits the needs, struggles, and resources of the designers. This puts all others at a disadvantage" (p. 330). As may be evident, SMM views information as communicative. Information is made and unmade through communication.

Information is not seen as an absolute, static, ontological category within SMM because use of any methodology involves interpretations by the researcher(s) implementing them. Furthermore, there are three additional hermeneutics within SMM that focus on the "interpretations of interpretations made by researched human beings (hermeneutic #2)…interpretings, those of researchers-interpreting interpretations (hermeneutic #3) of human-beings-interpreting interpretations (hermeneutic #4)" (Dervin, 2003a, p. 147). All observing is relevant to both physical time-space and psychological time-space, and from this, information-seeking, making, and using are not *solely* confined to the realm of cognitions (Foreman-Wernet, 2003). If we examine information as "things," then it is likely that communication systems are the phenomena of interests, rather than individuals and their communicative acts. In contrast, information and messages are "not things to be gotten," but SMM posits that they are constructions bound to specific times, places, and perspectives (Foreman-Wernet, 2003, p. 5). Differences in individual understanding, experience, and interpretation are assumed within SMM. As Dervin (2003f) reminds us, there is nothing natural about information because it is always designed.

SMM's assumptions and propositions provide methodological guidance in all areas of research, such as design, data collection, and data analysis. Further, SMM assumptions provide a set of theoretically derived methods for researchers. Most popularly, SMM's theoretically derived method has been thought of and referred to as a theory for conducting interviews and

acknowledges "that method is a residual of theoretic effort" (Dervin, 1992, p. 62). Such explication

from SMM demystifies coherence among/between its (metatheoretic) assumptions, propositions,

and method. Thus, SMM is practical for use in this research surrounding POs' and AGs' sense-

making of their experience with Hurricane Harvey and the role of crisis and risk communication

in the sense-making process(es).

Rationale

It is important to understand how and why specific populations make sense of their disaster

experiences and how this is impacted by crisis and risk communication. In fact, the National

Animal Disaster Summit reported that one of the largest issues during Hurricane Katrina was the

lack of communication, especially communication that discussed the availability of relevant

resources for POs and AGs (Beaver, Gros, Bailey, & Lovern, 2006). As related to my research and

SMM, there is a bidirectional relationship between experience and the processing of

communication such that received/sought-out communication can impact an individual's

experience. Aspects of an experience can also impact how an individual receives, seeks, uses,

and/or decodes communication (e.g., Dervin, 2003d). Therefore, in noting this, I take the

standpoint that understanding the relationship between experience and communication can lead to

a better understanding of contextual sense-making processes that can then lead to a better

understanding of POs' and AGs' communicative exigencies surrounding a disaster. Such

knowledge would help improve crisis and risk communication practices and future research. Put

simply, research such as this could help mitigate risks related to POs/AGs and their animals.

SMM was developed and has been used to help improve practice and praxis through its focus

on "how" and "why" individuals use information and move through the sense-making process.

Such knowledge can be gathered by prioritizing *how* and *why* disaster-affected POs/AGs

(co)create meaning about their disaster experience. Further, in method, sense-making attends to "specific situated events or moments in actor's lives so comparisons can be made within specific kinds of situations," (Dervin, 2003a, p. 151). Lastly, SMM advocates a "communication-as-dialogue" approach in which researcher and participants (co)create meaning by utilizing two-way communication over the course of the research inquiry (Dervin, 2003c).

As depicted in Figure 1, SMM is an appropriate framework for this research. Each of the central elements in SMM impact how an individual moves through life and how an individual comes to make sense of an experience, such as Hurricane Harvey. The *context* of a disaster impacts how an individual experiences it, which is largely influenced by structures outside of the individual, such as government organizations and policies. The *situation* impacts how an individual perceives and experiences the disaster, which is largely based on the individual's personal background and characteristics. Based on an individual's ideas, attitudes, feelings, memories, etc. that are activated in a situation, the way(s) in which they *bridge* communication gaps is done in a very personalized manner. How an individual constructs a bridge also impacts their overall *sense-making* process, because as Dervin (1998, 1999) proposes, sense-making is generally defined as the process of bridging communication gaps. *Relevances* are also important within the SMM metaphor.

SMM posits relevances as criteria attributes that as individual uses to evaluate inputs in the sense-making process, such as information, information systems and their design, etc. The inputs used can be garnered from an array of *sources,* such as from other individuals or on various media (Dervin, 1992; Dervin, 2003e Dervin & Frenette, 2003). Lastly, *outcomes in situations* are specific to the individual and their experience of the disaster. Once a communication gap has been bridged (i.e., made sense of), an individual is able to decipher what they considered to be helps/facilitations

in their experience; what they considered to be hurts/hindrances, and; what they considered to be consequences/impacts/effects in their experience. As Dervin's (2003a) rendition of sense-making accounts for how an individual's past *and* present influences their sense-making process, Dervin's framework has explanatory power for inquiry on how PO/AG identity impacts disaster experiences and sense-making processes.

While not explicitly asserted within SMM as a core element, identity is something that individuals carry with them into the *situation* (see Figure 1). Identity can influence individuals' movement through *space-time*, their verbings and relevances, what they considered to be a communication gap, which then may impact their (preferred/trusted) sources, informational needs, media uses, and, thus, sense-making outcomes about the experience they are making sense of. As such, SMM is well-suited for application with qualitative inquiry, especially within a disaster context like Hurricane Harvey. As derivable from Figure 1, the research questions and subquestions in this study tap the central elements of SMM, in effort to adequately query POs'/AGs' sense-making process(es) in the context of Hurricane Harvey.
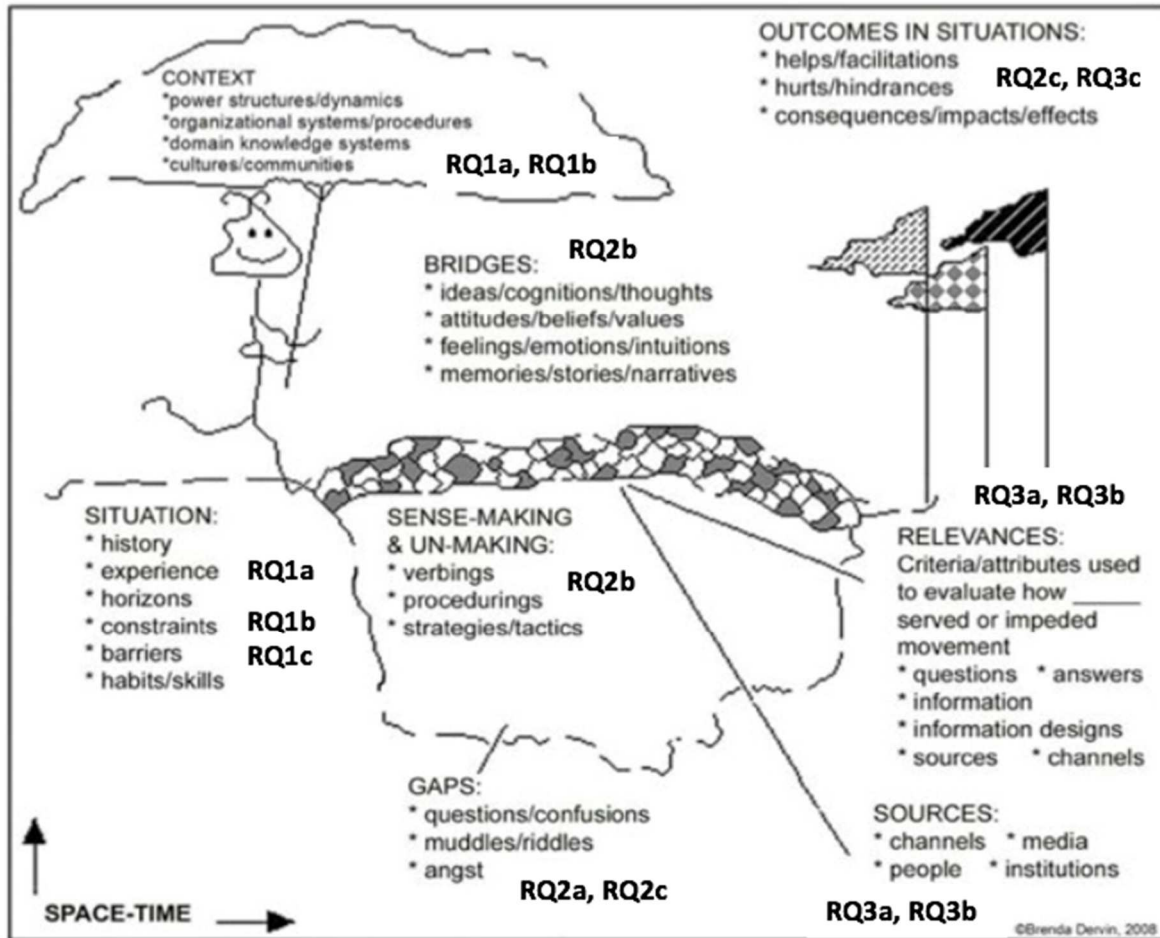
Figure 1. Research questions mapped onto the SMM metaphor (Foreman-Wernet & Dervin, 2016).

Qualitative Inquiry and SMM

Qualitative inquiry is the primary methodology in this research. Many qualitative approaches can be viewed as both theory and method, like SMM, as they aim to gain deeper insight about phenomena; aim to understand local and contextual meanings, and; aim to understand the "why" and "how" explanations of multivocal viewpoints, contextual lived experiences, and sense-making processes (Creswell, 2013; Tracy, 2013). Although some portions of this research have quantitative aspects (i.e., portions of the online survey), they are secondary to qualitative data. Through examining the phenomena of interest in multiple ways, I aim to engage crystallization.

Crystallization describes the methodological approach of combining multiple forms of data collection and analysis. Through representing data in multiple genres and piecing data together

into a coherent text, phenomena of interest can be better understood and the ways that they manifest can be better illuminated (Ellingson, 2009). Practicing crystallization requires researchers to problematize their construction of reality, highlight their own positionalities and how these may impact research, acknowledges that researchers make claims about socially constructed meanings, and mandates that researchers reveal the interdeterminacy of knowledge claims, even as such claims are being made by the researcher (Ellingson, 2009). At its core, crystallization is a form of sense-making within interpretive methodology and qualitative inquiry.

Context is a core component of qualitative inquiry (Tracy, 2013). A key assumption about context within SMM posits "that information seeking and use (i.e., the seeking and use of sense) cannot be understood outside the situated context" (Dervin, 2003d, p. 301). Thus, staples of qualitative inquiry are not only relevant for my research purpose and chosen theory/methodology (i.e., SMM), but they are also appropriate because each are cognizant of context and its importance. Such methodological staples are particularly useful for applied research, which is another characteristic of my research.

Many qualitative researchers implement phronetic research, which is action orientated and concerned with contextual knowledge that is (co)created between the participant and researcher (Tracy, 2013). Within SMM, (co)creation and privileging participants' insights (versus expert/researcher) are prioritized because SMM's conceptualization of sense-making is grounded in personal background and experiences, interpretation of information/knowledge, individual social constructions of the world, and experiential effects of observation (Foreman-Wernet & Dervin, 2016). As such, qualitative methodology is appropriate to employ in examining new phenomena (e.g., POs and AGs disaster experience from a communication perspective) and understudied populations (e.g., POs and AGs) as it provides space to illuminate multiple

perspectives and experiential interpretations of individuals. This is possible because qualitative methodologies do not necessitate strict etic or *a priori* research designs. They also allow for data to drive theoretical explanations and/or new theories, models, or conceptualizations (Creswell, 2013), which can be useful in informing practice and, thus, links research and practice as phronetic research aims to accomplish.

My Role as Researcher

Qualitative methodology mandates that researchers reflect on their positionality as related to the research. As previously stated, it is important to reflect,

> on how your data collection and interpretation are affected by who you are, what's going on in your life, what you care about, how you view the world, and how you've chosen to study what interests you is a part of qualitative methodology. (Patton, 2015, p. 3).

As such, transparency and reflection are key tenets of qualitative research (Tracy, 2013). An important part of my transparency and reflection is informed by SMM.

SMM is specific in detailing the role(s) of researchers. SMM mandates that researchers avoid imposing their expertise or credentials during the research processes, which is especially necessary when interacting with participants (Foreman-Wernet, 2003). Dervin and Frenette (2003) suggest that building trust with participants may be more important than precision in asking SMM interview questions. As the goal of SMM is to understand participants' experience and sense-making process(es)—from their perspective—researchers must reflect on their imposition, research design, actions, and interpretations throughout all portions of research. I have done this by testing my research instruments with colleagues before use; by assessing and reviewing initial survey responses and in-depth interviews to ensure the tools were querying identifying phenomena and research questions; by taking fieldnotes and post-interview notes; by sharing my goals and

background openly with participants when asked; by sharing initial findings with participants and asking for their input, and; by following Tracy's (2013) detailed process of iterative qualitative data analysis (e.g., writing analytic reflections, loose analysis outline).

Lastly, understanding how being a PO or AG impacts disaster-related decisions and sense-making processes interrogates power, access, and vulnerability. Crisis and risk communication are dominated by experts and *their* knowledge, which SMM critiques and challenges (Dervin, 2003g). Most research within crisis and risk communication is highly organization-centric as it focuses on expert knowledge and/or improving organizational processes. While this research has benefits and positive outcomes, primary focus on expert knowledge and organizational operations and processes in empirical research reifies power structures through centering on them and can (in)advertently miss important elements/perspectives that are required to meet the needs of the various publics impacted by disasters. Primary focus on experts and their knowledge can hinder publics' access to pertinent information.

A lack of information surrounding a disaster can create or worsen vulnerability (Spence & Lachlan, 2016). Now that there is extensional research on organizational and expert-driven topics and phenomena within crisis/risk communication, we must begin to understand the various micro-level publics also enmeshed in the context of disasters. Not only is it a matter of public health and safety, but it can also contribute to enhanced organizational processes and (de)construct knowledge so that it is more comprehensive and inclusive to various publics; not only the publics that experts and organizations deem as relevant. Therefore, I believe it is crucial to expand our knowledge about the different publics within the context of disasters and strive to better understand *their* needs, processes, struggles, and perceptions (de Chesnay & Anderson, 2016; Spence & Lachlan, 2016; Nsiah-Kumi, 2008).

Data Collection

After Institutional Review Board (IRB) approval was granted by Wayne State University, data collection began. It is important to note that the qualitative researcher is understood to be the instrument of inquiry, both in data collection and data interpretation (Patton, 2015; Tracy, 2013). In what follows, details about research participants, inclusion criteria, participant selection, sample size, recruitment, time in the field, survey format, interview format, follow-up format, and procedure are provided.

Participants

POs and AGs that experienced the 2017 Hurricane Harvey were the target population for my research. Over 450 people attempted to complete the online survey ($N = 461$). However, once data were cleaned and I checked that respondents met the inclusion criteria, the sample was reduced to 217. Survey responses were reviewed and used as the basis for inviting participants to complete a semi-structured, qualitative interview. Thirty participants completed an interview, of which 25 also completed a qualitative, online follow-up in August 2018. All identifying information has been changed to protect the identities of participants and pseudonyms are used to refer to all participants.

Survey respondents were 67.3% female, 4.6% male, and 28.1% preferred not to specify their gender identity (see Appendix F, Table F2). The largest majority of survey respondents were between the ages of 25 to 44 years of age (33.2%), with only 2.3% reporting their age between 18 to 24 years (see Table F2). Nearly 30% of respondents chose not to specify their annual household income (see Table F3). Most respondents lived in Texas (99.1%), did not have children living in their household during Harvey (43.3%), had a vehicle for transportation purposes (69.6%), and identified as White (62.2%) (see Appendix F).

When it came to respondents' animals, 70.5% had multiple animals of the same species (e.g., two dogs) and 46.1% had multiple animals of different species (e.g., one cat and one bird). The most popular species of animal that respondents had were dogs (88%), followed by cats (48.4%), "other" types of animals (e.g., rabbits, cattle, goats, ducks, pigs) (13.8%), birds (9.2%), and horses (7.8%) (see Appendix F, Table F1).

Interview participants were 83.3% female, 10% male, and 6.7% preferred not to specify their gender identity (see Table G2). The largest majority of interviewees were between the ages of 25 to 44 years of age (36.7%) (see Table G2). Most interviewees lived in Texas (96.7%), did not have children living in their household during Harvey (43.3%), had a vehicle for transportation purposes (80%), and identified as White (63.3%) (see Appendix G). When it came to interviewees' animals, 80% had multiple animals of the same species (e.g., two dogs) and 56.7% had multiple animals of different species (e.g., one cat and one bird). The most popular species of animal that interviewees had were dogs (90%), followed by cats (50%), horses (20%), "other" types of animals (e.g., rabbits, cattle, goats, ducks, pigs) (13.8%), and birds (9.2%) (see Table G1).

The following sections detail the criteria used for participant selection, followed by a justification for the sample size. Next, the recruitment process is outlined. Following this, the survey format is detailed, followed by the interview format and the follow-up interview format. Finally, the overall procedure for this research is explained.

Criteria. To participate in the study, participants needed to have or be caring for at least one animal during the time of Hurricane Harvey, live or be physically present in the geographical areas impacted by Harvey, and be at least 18 years of age. To ensure that participants were both a PO/AG and someone who was geographically located in an area impacted by Hurricane Harvey, they were asked to confirm these criteria. If they answered "no" to any of the screening criteria,

the survey ended and thanked them for their time. If the three screening criteria were confirmed with a "yes" answer, the survey unlocked in Qualtrics and the respondent could proceed to the survey questions (see Appendix C). Before beginning the survey, participants were also asked to confirm that they understood the IRB-approved information sheet.

Selection. Beyond the general criteria that respondents were required to meet to participate in the survey, maximum variation sampling was used to select participants for the semi-structured, qualitative interviews. A researcher employing maximum variation sampling strives to access "a wide range of data or participants who will represent wide variations of the phenomena under study" (Tracy, 2013, p.135). My justification for a purposive sample through the use of maximum variation sampling is due to the lack of empirical research about POs/AGs (in the context of disasters) in the communication discipline.

Survey respondents were asked about their willingness to participate in future research at the end of the online survey. If they indicated interest in participating in future research, they were asked to provide an email address so that I could contact them to schedule an interview. Of the 217 survey responses, 148 agreed to be contacted for an interview (see Appendix F, Table F8). Of the 148, I contacted a total of 80 respondents (from March to June 2018) to schedule an interview. Forty-nine respondents did not respond to my email request to schedule an interview. Due to the time constraints of data collection, additional participants were contacted to complete an interview and sampling continued until theoretical saturation was reached. A total of 30 interviews were scheduled and completed (see Appendix, G, Table G8). As may be evident, when sampling from survey respondents that were willing to participate in an interview, I sought to sample from a diverse range of participants—as maximum variation sampling explicates. For example, I sought to interview POs/AGs from different racial and ethnic backgrounds; different species of animals

in the home; different number of animals in the home; different indications regarding the level of importance of their animals, and; different evacuation decision(s).

Size. While sample size is a significant element in quantitative research, qualitative research focuses on multivocality (Tracy, 2013). Further, the more complex phenomena are, the larger the group of informants tends to be (Dahlberg, Dahlberg, & Nystrom, 2008). As explicated by Tracy (2010), multivocality can only be accessed when participants from more than one place, setting, group, etc. are included in the research study as this diversifies the sample demographic. Multivocality can manifest differently across studies depending on the research scene, researcher resources and time, scope of the research, and complexity of the phenomena (Lindlof & Taylor, 2011). Within qualitative research, multivocality is a core staple that serves as a form of credibility and supports "rich rigor."

"Rich rigor" is a core tenet of qualitative methodology. It implies that a study uses sufficient, abundant, appropriate, and complex: theory, data and time in the field, samples, context, and data collection and analysis processes (Tracy, 2010). Perhaps most importantly, the sample must be appropriate for the study and the research questions. Theoretical saturation is a prominent element in deeming that a sample is appropriate for a given study. Theoretical saturation is "the point at which no new insights are obtained, no new themes are identified, and no issues arise regarding a category of data" (Bowen, 2008, p. 140). For my research, over 200 online surveys, 30 interviews, and 25 follow-ups were deemed sufficient for theoretical saturation.

Interviewees were contacted based on their survey responses. Upon the 30th interview, there were not "new" topics or insights emerging from the data. Put differently, most of the topics and insights that were shared in the last few interviews were similar to the themes/categories/topics shared by previous interviewees. The participants that I contacted and interviewed in the month of

June (*n* = 6) were primarily "confirmation" cases to be able to deduce that theoretical saturation had been met. During the time that theoretical saturation was declared (June 2018), it was the beginning of the 2018 hurricane season in the southern U.S.; thus, I did not want to continue collecting data during this time due to possible recall issues and/or distraction from a new storm or emerging threat. However, participant recall is not an issue within SMM. The framework asserts that participants "may recollect things in whatever order is relevant to him or her at the telling [of their story]" (Dervin, 2003c, p. 224).

After the 30th interview was completed, I thoroughly checked and revisited all interview transcripts, first-level codes and second-level codes to confirm that there were no new data or themes. After completing these checks, I determined that my extant codes and categories were well-developed, demonstrated variation, and the relationship between and among categories was relevant and sufficient for the study (Tracy, 2010). This process was more extensively documented through my analytic reflections, memos, and methods journal (see Appendix H). Follow-ups with participants also contributed to confirming theoretical saturation and rigor (see Appendix E).

The average time that it took survey respondents (*N* = 461) to complete the online survey was 17 minutes. The 30 semi-structured, qualitative interviews lasted between 33 minutes to 85 minutes, with the average length being 56 minutes. Once transcribed, the interviews produced 345 pages of single-spaced transcriptions in Microsoft Word. As data was collected, transcribed, and analyzed, the follow-up survey was created and edited based on collected data and emergent insights that were relevant to the research questions. The online follow-ups (*n* = 25) took an average of 17 minutes for participants to complete.

Recruitment. To understand the experience and sense-making of POs and AGs in the context of disaster, it was important to recruit a diverse sample. To meet this requirement,

recruitment advertisements were posted on social media pages, snowball sampling, and posted on Wayne State University's online posting stream. To maintain confidentiality of participants, the names of the 11 social media pages/groups that were used for recruitment are not presented in the interest of protecting participants' identity and anonymity. Here, it is important to note that while 11 social media pages/groups provided access for recruitment purposes, many of the page/group administrators and members shared the recruitment post to their followers and other social media pages/groups (i.e., snowball sampling). All organizations and social media pages/groups that were used for recruitment provided consent and permission prior to recruitment advertisements being posted. Lastly, I also posted recruitment advertisements on Instagram and Twitter using the hashtags: #HurricaneHarveypets #HurricaneHarveypet #HurricaneHarveyanimals #HurricaneHarveyanimal #HurricaneHarveyDog #HurricaneHarveyCat. In all recruitment posts and advertisements, the same language was used, a link to the Qualtrics survey was provided, and my contact information was supplied (see Appendix B).

Respondents that completed the online survey could self-enter a drawing for one of four Amazon.com e-gift cards (each valued at $50 each). If they chose to opt-in, they were asked to provide contact information so that in the event they were chosen to receive one of the e-gift cards, they could be notified. For participants that completed an interview, they were compensated with an Amazon.com e-gift card valued at $25. Of the 30 interviewees, four participants did not want to be compensated. For participants that completed the online follow-up, they were compensated with an Amazon.com e-gift card valued at $10. Of the 25 participants that completed a follow-up, six did not want to be compensated. Participants were offered alternative formats for receiving the Amazon.com gift cards (e.g., a plastic gift card sent in the mail), but all participants that opted to receive compensation preferred to receive it via email.

Time in the field. Over the course of research conceptualization and data collection and analysis, I visited Texas three times. All three times were post-Harvey (November 2017, April 2018, and October 2018). Each trip to Texas lasted between one to two weeks. The cities that I visited and spent time in include Houston, Katy, Galveston, Victoria, Port Lavaca, Refugio, Lamar, Fulton, Rockport, Aransas Pass, Port Aransas, Portland, Corpus Christi, Beaumont, Port Arthur, and Dallas. While in Texas, I met and/or spoke with a public information officer, an emergency manger, two animal control officers, members of various city councils, various business owners, and animal shelters/organizations in cities severely impacted by Harvey (names and locations are omitted for confidentiality). Additionally, I was able to meet face-to-face with six participants who showed me damages to their homes and community, and took time to explain additional insights about their Hurricane Harvey experience. Being physically present in the research scene seemed to facilitate rapport with participants. As crises are unpredictable, non-routine, potentially life-altering events that evoke high levels of uncertainty, I felt that it was necessary to "witness" the impact of Hurricane Harvey versus querying the topic from afar. Thus, being in the field was necessary for multiple reasons.

While I cannot ever comprehend what *experiencing* Hurricane Harvey was like, I attempted to do my due-diligence in trying to understand and empathize with participants that did. Traveling to Texas helped with this as well as helped me get close to the data, and aligned with my paradigmatic orientation and methodological approach. As Tracy (2013) notes, "more interpretive, critical, and poststructural approaches suggest that a position of sympathy and identification with those under study is not categorically problematic and, in many cases, is necessary for understanding the emotionality of the scene" (p. 106). For example, physically seeing entire communities that were demolished from Harvey is qualitatively different than seeing the

demolition via media portrayals. Standing in the exact space where a participant's family home *used to be* is incomparable to a media portrayal. Being "in place" as a researcher is also important to participants.

Over half of the participants in this research asked me during the interviews if I had ever been to south Texas. When sharing with participants that I had made various trips to the south Texas area, participants expressed positive sentiments, such as Arwa (and her sister Ella) who remarked,

> It was great to help your studies and it's great to know that people actually remember us here on the Island [Port Aransas] and come. Times are still hard but getting better each day thanks to people like you, that don't forget that we're here.

Survey format. A non-representative, cross-sectional, self-reported survey was used in part of my research. The survey was administered electronically using Wayne State University's subscription to Qualtrics. A non-random sampling procedure (previously described) was applied. The survey did not require a passcode. The three screening questions that began the survey were to ensure that participants met inclusion criteria. These three questions were followed by presentation of an IRB information sheet. Once participants read the information sheet, they are asked if they understood the information that was presented to them and if they consented to participation. If they chose the option "No, I do not understand the information above and do not consent to participation," the survey automatically ended and thanked them for their time. Once the screening questions and IRB information sheet were presented and confirmed by the respondent, the first survey question was presented.

The survey was adapted and compiled from multiple sources, which was done because there are not communication-centered instruments in existence surrounding the phenomena of

inquiry. Therefore, questions were adapted and compiled from extant surveys, interview protocol (e.g., SMM), and some questions were created specifically for this research. First, three questions from Taylor, Lynch, Burns, and Eustace's (2015) survey about pet ownership and disaster evacuation decisions were used (see Appendix C, Q8, Q9, Q25). Taylor and colleagues' original implementation of the survey served a much broader purpose than this research, as the authors' sought information from pet owners on how they responded or *might* have responded to a disaster. As this research sought to sample from POs/AGs affected by Hurricane Harvey, some adjustments were needed, and only certain questions from Taylor and colleagues' survey were deemed appropriate.

Questions were added to the survey to make crisis and risk communication and sense-making primary phenomena. Specifically, I added four adapted, open-ended SMM interview questions to tap participant experiences, information uses, communication gaps, verbings, and evaluations/relevances (see Appendix C, Q10, Q11, Q12, Q13, Q14). These SMM questions mirror the questions that were asked in the interviews (see Appendix C & D) and their repetition in the interviews not only allowed for comparison but it also "circled" participants' moments of sense-making to achieve in-depth understanding, which SMM requires (Dervin, 2003b).

The online survey incorporated six questions from the Media Uses and Informational Sources survey (see Appendix C, Q16 to Q21). This survey has been used in several other disasters including the September 11, 2001 attacks, Red River floods in North Dakota, Hurricane Katrina, and the Flint, Michigan water crisis (e.g., Spence et al., 2006; Spence, Lachlan, & Griffin, 2007; Day, O'Shay-Wallace, Seeger, & McElmurry, 2019). Six matrix questions asked participants about their informational sources and media uses surrounding Hurricane Harvey. They were modified slightly to fit application in this research. Specifically, the questions address the context

(i.e., Hurricane Harvey) and I added additional columns to each question's matrix selection options. For example, in each of the six questions I added the options "other" and "I did not get information from [specific source/media being queried]" to account for participants who may not have used the specified informational source or media. In each of the six matrix questions, participants could select multiple sources/media (e.g., "check all that apply"). Not only did these questions serve as a form of replication and validation of responses, but they also provided descriptive data to support the largely qualitative portions of this research.

Lastly, I created additional questions for the survey that were specific to the phenomena of inquiry. These questions asked participants to describe their relationship with their animal(s); to describe their Hurricane Harvey experience as it related to them and their animals; to describe information that was missing surrounding Harvey (if any), and; to describe if they specifically sought-out information about animals in disasters, such as animal-friendly evacuation options. The survey ended with seven demographic questions: state of residence, sex, age, household income, race or Hispanic origin, presence of children in the home, household transportation. No questions in the survey were mandatory to answer (per IRB mandate).

In total, the survey was 37 questions. Of these 37 questions, three were display-logic questions, which means that they were only presented if respondents answered "yes" to the previous question. The first three screening questions and the IRB consent were skip-logic questions, which means that if "yes" was chosen, then the subsequent survey question was presented. If "no" was chosen, the survey ended and the respondent was thanked for their time. Within the full 37 survey questions, this included questions that asked respondents about their willingness to participate in future research (i.e., the semi-structured, qualitative interviews) and

if they wanted to be entered in a drawing to potentially receive participation compensation (see Recruitment section).

Interview format. Methodologically, this study employed semi-structured, in-depth, qualitative interviews. The objective of this type of interview process was to query the experiences participants had as a PO/AG surrounding Hurricane Harvey and how such experience was shaped by received or sought-out crisis and risk communication and how this contributed to their sense-making process(es). It is crucial, however, to discuss the inherent issues of power that can surface in interviews between researcher and participant.

An interview is not an everyday conversation. Interviews are contextualized by researcher motives and purpose(s) (Patton, 2015; Tracy, 2013). As research interviews involve one-direction questioning by the researcher, the researcher holds interpretative power over the content. However, the participant can choose not to disclose certain information and can withdraw from the interview at any point in time. I reflected on this power structure throughout the data collection process, which is also advocated by SMM.

As a way to combat the power structure of research and to support rich rigor, participants were sent initial findings to review. In doing this, my hope was to minimize the power discrepancy and foster a space for (co)created interpretation and meaning-making. In acknowledging the possibility that research and researcher interpretations can create/reify power structures, SMM primes researchers to be aware of these possibilities. SMM's framework attempts to guide researchers throughout the process of research design, data collection, and data analysis to be more participatory and phronetic in approach, aiming to limit the (re)production of knowledge that privileges those in power—the "experts" (Dervin, 2003a, 2003c).

After responses from the survey were received, I purposively sampled from the responses, following maximum variation sampling procedures. Participant selection for the interviews aimed for diversity and multivocality, which was determined by reviewing respondents' self-disclosed demographic information, disaster experience(s), types of animals, relationship with animals, and evacuation decisions. As previously described, maximum variation sampling strives to accesses "a wide range of data or participants who will represent wide variations of the phenomena under study" (Tracy, 2013, p.135).

 All 30 interviews took place via telephone at a mutually agreed upon time. These times were setup via email communications between myself and the participant. Telephone was the most affordable option due to the geographical distance between myself and participants. Telephone conversations with participants also made audio-recording less obtrusive and seemed to facilitate higher levels of comfort for participants because they could be at home when completing the interview. For many participants, being at home during the interview was preferred. Although Skype and FaceTime were offered as options to complete the interview, all 30 participants chose to complete the interview via (audio-only) telephone.

Before beginning interviews, participants were emailed an IRB-approved information sheet to further explicate the goals of my research. Also, before beginning the interview with participants, I read the IRB-approved oral consent document to them to receive verbal consent for their participation and for audio-recording the interview. No participant objected to audio-recording the interview.

Interview questions were based on SMM's Micro-Moment Time-Line interview protocol (Dervin, 1992; Dervin & Dewdney, 1986) (see Appendix D). This type of interview asks participants to reconstruct a situation that they have experienced (i.e., Hurricane Harvey), striving

to have participants explicate the steps as to what happened in that situation (i.e., time-line steps), relationships and impacts of power (from their perspective), the value of formal information, and how they bridged any gaps—making connections between their past, present, and future throughout this process (Dervin, 2003c). Participants were asked to describe the steps involved in their Hurricane Harvey experience. This directly corresponds to the Sense-Making metaphor (see Figure 1), as it circles the micro-moments in their experience, of the situation, how they saw the situation, the role of information and communication, the communication gaps they faced, the uses/outcomes they experienced, and if they were able to bridge the communication gaps that they experienced. Identified gaps were discussed and further questioned, using probes as necessary (Dervin, 1984; Dervin & Dewdney, 1986). The SMM's Micro-Moment Time-Line interview protocol used in this study is considered semi-structured in nature.

Semi-structured interview guides for qualitative research "offer a more informal, flexible approach" (Lindlof & Taylor, 2011, p. 200). However, this type of interview does grant the researcher some structure across interviews as to the questions that are asked. Flexibility is also granted as to how the questions are asked and what/when probes are employed. I used survey responses as an introductory description about participants' Hurricane Harvey experience so that interview time could be effectively utilized to achieve more in-depth understanding and obtain higher-order insights. Additionally, reading participants' survey responses before the interview helped establish rapport as I was able to begin the interview by, for example, asking about their animals by name.

At the end of the SMM interviews, I offered to keep the lines of communication open between myself and the participant. Specifically, participants were invited to email me with any additional comments, insights, or photographs about their Hurricane Harvey experience that may

not have been discussed in the initial interview. Keeping the lines of communication open after the initial interview was a way to strengthen the rigor and quality of my data via (co)created, in-depth understanding garnered from multiple interactions with participants (i.e., survey responses, interview, open email communication, and follow-ups). At the end of the interview, participants were also asked if they would be willing to participate in a follow-up.

Follow-up format. All 30 participants that completed an interview agreed to complete a follow-up interview. Follow-ups were important for this research because they served as a way to enhance the data's credibility, rich rigor, and ethics (Tracy, 2010). Follow-ups help enhance data credibility in that they check on previously disclosed insights for any variation and/or change(s) over time. In addition, follow-ups contribute to thick description as data are collected across multiple points in time, versus single-shot data collection. Follow-ups also contribute to a study's rich rigor by collecting data in multiple ways via multiple data collection processes, supporting requisite variety (Tracy, 2013; Weick, 2007). Tracy (2010) further details requisite variety as a researcher's ability to see and support nuance and complexity within the data. Rich rigor is further supported by my decision to include follow-ups as they support the study's face validity by gathering additional data to support findings, elongate the time dedicated to querying and investigating phenomena and building relationships with participants, and exploring how context and temporality may impact data (Tracy, 2010).

Lastly, I found the inclusion of follow-ups to be an ethical requirement, especially as related to the context of disaster. As crises are unpredictable, non-routine, potentially life-altering events that evoke high levels of uncertainty and often have emergent information well after the "crisis stage" has passed, I found it necessary to follow-up with participants after the interviews. I also found follow-ups to be an ethical requirement because as Miles and Huberman (1994) state,

"We must consider the rightness or wrongness of our actions as qualitative researchers in relation to the people whose lives we are studying, to our colleagues, and to those who sponsor our work" (p. 288). Effects from a crisis last well beyond the "crisis stage" and, thus, sense-making of such an experience is likely not complete and/or fully developed until much later in the post-crisis stage.

Due to time and convenience, follow-ups were completed via Qualtrics from August 1, 2018 to August 31, 2018 (approximately one-year, post-Harvey). There were seven open-ended questions that asked participants if their thoughts about their experience with Hurricane Harvey had changed since the initial interview as well as if their experience with Harvey has prompted them to change or create (new) plans for future disasters and if their animals were included in the plans (see Appendix E). The last two questions of the follow-up asked participants about their willingness to participate in a disaster preparedness event and what would entice them to participate in such an event. Follow-up questions were informed by analysis of the initial interviews and the guiding research questions. The last question in the follow-up asked participants if they wanted to receive participation compensation and if so, to provide their email address (see Recruitment section).

Procedure. Once survey respondents passed the three screening questions and consented to the IRB-approved information sheet, they were able to move forward with completing the online survey. At the end of the online survey, respondents were asked if they wanted to be placed in a drawing for one of four $50 Amazon.com e-gift cards. They were also asked to indicate their willingness to be contacted to complete an interview at a future date. If interested, they were asked to provide an email address or telephone number. As the online surveys were completed, I read through responses and began initial primary-cycle coding and sampling for the semi-structure, qualitative interviews using a maximum variation approach. Participants that were willing to be

contacted for an interview were emailed to ask about their availability and they were supplied an IRB-approved information sheet to review. Before beginning the interview, I introduced myself and read participants an IRB-approved oral consent script via telephone. Once participants consented to participation and audio-recording of the interview, the interview began.

Throughout the interviews, probes and follow-up questions were used to clarify experiences and meaning. At the end of the interviews, participants were provided the opportunity to discuss any additional insights or concerns that did not surface in the interview. Next, participants were asked about their willingness to participate in a follow-up. Before ending the interview, participants were offered a $25 Amazon.com e-gift card as compensation and their email address was confirmed for receipt of the e-gift card. Primary-cycle and initial secondary-cycle coding helped inform creation of the follow-up survey, which was electrotonically sent to all 30 participants on August 1, 2018 using Qualtrics. At the end of the follow-up, participants were asked if they wanted to receive a $10 Amazon.com e-gift card as compensation for completing the follow-up. Over the course of data analysis and formal writing, participants were sent drafts of each research question's findings, synopses of my interpretations, and they were asked to provide feedback (if willing).

Data Analysis

The iterative approach to qualitative data analysis was used in this research. Although some descriptive, quantitative data were collected for contextual purposes, the goal of this research is not to generalize findings or minimize findings to numerical representations. Rather, I aim to exemplify a multitude of voices/interpretations and display differing levels of intensity and significance surrounding the phenomena of interest (Tracy, 2013). Such aims do not rely on quantitative frequency counts for demonstration. Finally, I find it important to explicate that

throughout this research, I attempted to be systematic. The use of "systematic" as applied to qualitative methodology refers to the documentation of my research processes so that readers can understand the methodological choices I made, why I made such choices, and how those choices influence my research—parts and whole.

Data Management

Data management is the process through which a researcher attempts to gain some control over data in a project (Lindlof & Taylor, 2011). There were multiple ways in which I managed data. First, I used Qualtrics to record survey responses, which could easily be downloaded from the web-based platform into individual PDFs. Next, I used Microsoft Excel to keep a log of survey respondents that were chosen as part of the maximum variation sample for the semi-structured, qualitative interviews. Once interviews were scheduled with participants, I audio recorded the interviews using a personal recording device. The last 14 interviews were recorded using the app "Otter," which transcribes the interview as it is recording. However, based on my experience, it is not completely accurate and, thus, required that I listen to the audio while reading and revising the Otter-transcribed text. Once interview data were transcribed in a Microsoft Word document, I used ATLAS.ti version 8.1.3 (522) for Macintosh to analyze the data. ATLAS.ti was also used to analyze follow-ups, analytic reflections, and memos. My analytic reflections and memos were created using Microsoft Word documents. These helped me keep track of my thoughts, literature to be (re)visited, and ideas that emerged during data collection and analysis. All data, recordings, and documents were stored on my personal password-protected laptop computer.

For the small portion of quantitative data that was included in the online survey, SPSS version 24 was used to analyze descriptive statistics of the data, such as frequencies, means, and

stand deviations. Qualtrics and SPSS are compatible with one another in that Qualtrics has a function to download data in a way that it can be directly imported to SPSS.

Iterative Approach to Data Analysis

An iterative approach to data analysis alternates between emergent (emic) readings of data and theory-based (etic) readings of data that use extant models, explanations, and/or theories to interpret data (Tracy, 2013). This approach does not ground meaning solely in emergent data or insights, but "encourages reflection upon the active interests, current literature, granted priorities, and various theories that research brings to the data" (Tracy, 2013, p. 184). It is a reflexive process that mandates visiting and revisiting one's data, before and during data analysis. Simply, the iterative approach to data analysis involves: data immersion, primary-cycle coding, creating a list of codes and definitions, writing analytic reflections and memos, secondary-cycle coding, creating loose analysis outlines, writing additional analytic reflections and memos, and then revisiting codes using the loose analysis outline to help focus analysis by using "the corresponding codes in a more etic, top-down manner" (p. 199) (see Appendix H). From here, an analysis breakdown document is created that lists each theme and relevant exemplars from participants. Specific detail about each phase of analysis, as related to my research, is provided below.

After each initial, phone interview was completed I immediately took notes detailing the interview, my feelings/insights, interview length, and if the participant agreed to be contacted for a follow-up interview. Following these notes, I moved onto transcribe the interview. Once the interview was transcribed, I reread the transcription and began primary-cycle coding because data collection and analysis are done simultaneously with the iterative approach (Tracy, 2013).

Primary-cycle coding strives to open up meaning in the data and these coding activities occur more than just once. First-level codes, which are the prominent coding activity in primary-

cycle coding, are descriptive and focus on "what" is present in data. First-level coding of the interviews (*n* = 30) began at the first interview on March 17, 2018 and continued until primary-cycle coding was completed on August 10, 2018.

Throughout this phase in data analysis, I actively attempted to stay connected to emergent insights, which helped refine my focus and understandings as they related to the research questions. Thus, I frequently wrote analytic reflections and memos to keep my ideas sorted and I started to revisit and revise the initial research questions. Analytic reflections document researcher insecurities, fears, ideas, possible theoretical connections, and initial interpretations related to the research questions and topic (Tracy, 2013). "Analytic reflection," according to Tracy (2013), is an umbrella terms that encapsulates, "analytic asides," "commentaries," and "in-process memos." Analytic memos in the iterative approach are a part of the process as well as an outcome of analysis. Analytic memos are places where I could write my thoughts, focus on the meaning of codes, and connections between/among codes. At the end of first-level coding, I had written seven analytic reflections and seven in-process memos. Through data immersion and first-level coding, I read and reread participant surveys and transcripts which helped me identify and define first-level codes with more accuracy. As first-level codes are descriptive and account for activities that occur more than one time, they should require little interpretation. For example, a first-level code used multiple times throughout analysis was "searching for pet-friendly hotels online."

Throughout the process of coding, iterative analysis implements interpretive constant comparative method to compare data to each first-level code and modify any code definitions to fit newly collected data (Tracy, 2013). It is vital to note that this approach to data analysis does not require that the entire data set be put through a detailed primary-coding cycle; however, all interview and follow-up data were put through a detailed primary-coding cycle in the research due

to the exploratory nature of the research (Tracy, 2013). Once I had read through data multiple times during the initial primary-cycle coding, I moved onto focusing activities, which included creating a list of codes. I used ATLAS.ti to help manage this process and details were recorded in my personal "methods journal." Once primary-cycle coding was complete (August 10, 2018), I reviewed my initial, guiding research questions to ensure that they accurately represented collected data and primary-level codes. During this time, I further refined my guiding research questions and created sub-research questions that were more specific as informed by data.

Online follow-ups via Qualtrics were sent to all 30 interview participants on August 1, 2018, approximately one year after Harvey's impact. All 30 interview participants had agreed during the phone interview to be contacted for a follow-up. Follow-ups were collected through August 31, 2018. Participants that did not complete the follow-up by August 15 were sent one reminder (via email), inviting them to participate. Once follow-ups were completed ($n = 25$), they were coded following the iterative approach. From here, I began to review the first-level codes for all qualitative data (i.e., initial interviews and follow-ups) and sorting them into second-level code groups. During this time, I was also re-reading first-level codes and transcripts and seeking out relevant literature that emergent data was pointing me towards. Literature relevant to emergent data included topics on specific social media platforms used in crises (e.g., Facebook), information curation, communication-based theories of identity, and emergent groups. This literature informed secondary-cycle coding.

Secondary-cycle coding critically examines first-level codes and organizes, synthesizes, and categorizes them into concepts (Tracy, 2013). Second-level codes are similar to constant comparative method's "focused coding" in that it they should explain, theorize, and synthesize data. During this cycle, applying disciplinary or theoretical concepts as second-level codes can be

implemented. Different from my generated first-level codes, second-level codes are generated through use of my theoretical knowledge, interpretive creativity, and familiarity with my first-level codes. During second-level coding I was also mindful of patterns as well as any hierarchical codes. In creating second-level codes I looked for similarities and first-level codes that could possibly be grouped into relevant categories corresponding to my research questions. For example, the first level codes of "feeling angry," "feeling stress," and "feeling scared," were added into the larger second-level code category of "Disaster-Induced Emotions." Categories are created through grouping similar, yet distinct, concepts together to detail a pattern or group of related codes (Tracy, 2013).

Second-level coding for all data was completed in September 2018, resulting in 36 second-level code categories. By the end of second-level coding I had written one additional analytical reflection and two formal memos, while also keeping methodological notes and documentation in my "methods journal" and screenshots of data analysis (Appendix H).

Interpretation

The last step in data analysis was interpretation. The qualitative researcher is understood to be the instrument of inquiry, both in data collection and data interpretation (Patton, 2015; Tracy, 2013). During data interpretation, the researcher moves data from description to frames of meaning (Lindlof & Taylor, 2011). At this stage, extant literature and theory are critical in helping the researcher make sense of the data and to position findings so that they are a part of the larger scholarly conversation. Data interpretation can be exemplified through the use of exemplars, which are examples taken from data that serve to illustrate theme(s), concept(s), or facet(s) of emerging analysis (Tracy, 2013). Throughout data analysis, exemplars from participants were pulled and tagged for potential use in the formal write-up. These exemplars were tagged in ATLAS.ti as well

as documented in my analytic reflections, memos, and loose analysis outline so that they were placed in conversation with my thoughts, research questions, as well as extant literature and theory (i.e., the "analysis breakdown document" as asserted by the iterative approach).

Quality Measures

I incorporated various quality measures in this research as ways to support rigor and accurate readings and interpretations of data. First, all participants were invited to send me additional insights, photographs, links to informational sources, etc. This invitation was presented to all participants at the end of each data collection method (e.g., survey, interview, and follow-up). Through extending an open line of communication to participants, I aimed to foster an environment that placed value on *their* lived experience. Moreover, I wanted to be mindful that perceptions of experience can evolve over time—which SMM also proposes. Follow-ups were utilized as a way to enhance rigor and credibility of findings in this way.

Follow-up interviews helped me assess the appropriateness and accuracy of my initial coding and analysis. All 30 interview participants agreed to be contacted for a follow-up, of which 25 completed a follow-up. In the follow-ups, I asked similar questions to those asked in the semi-structured interviews as a way to verify participant stories, support rigor, and see if participants' perspective and sense-making about their experience with Hurricane Harvey changed over time (see Appendix E). Third, member reflections "allow participants to give an opinion and shape the emerging analysis" and provide participants with opportunities to ask questions, offer critique and feedback, and affirm findings (Tracy, 2013, p. 150). Over the course of writing up the findings, participants also received drafts and summaries and were asked to offer their critique and feedback. Member reflections differ from other types of "member checks" because these "suggest that participant feedback is valuable not as a measure of validity, but as a space for additional insight

and credibility" (Tracy, 2013, p. 238). Additionally, member reflections also help researchers understand whether their interpreted findings are comprehensible and meaningful to participants who donated their time and shared their experiences for the research. Participants were sent drafts of each research question's findings and synopses of my interpretations, which occurred via email between May 2018 through January 2019. Participants received approximately three member reflection emails.

In writing up the findings, it was vital that multivocality was reflected upon especially as a maximum variation sampling technique was employed. Fundamental to qualitative method(ology), multivocality highlights the importance of including multiple voices and perspectives, which can mean that divergent or disagreeable viewpoints may arise (Tracy, 2013). Therefore, while I was able to synthesize data to unearth some commonalities of POs'/AGs' experience with Hurricane Harvey, it was important to include the instances where their experiences and sense-making outcomes clashed, or where alternatives to commonalities emerged.

Summary

In summary, this chapter provided an overview of this study's design, data collection methods, data analysis, interpretation, procedures, and quality measures. Although this research is mixed-method, qualitative data compose the majority. Quantitative data were only collected in the online survey portion of this research. A total of 217 respondents completed the online survey, 30 participants completed semi-structured qualitative interviews, and 25 of the 30 interviewees completed an online follow-up. In the next chapter, findings for the first research question are presented.

CHAPTER 3 FINDINGS CENTERED ON IDENTITY AS A PET OWNER/ANIMAL GUARDIAN

This chapter describes findings related to research question (RQ) one. The overarching premise of RQ1 centers on how individuals understand themselves, in the context of a disaster, as it relates to their identity as a pet owner (PO) or animal guardian (AG). Based on survey responses and interview and follow-up data, being a PO/AG was a primary identity for most participants. Survey respondents reported very high levels of a sense of responsibility and commitment to their animals ($M = 9.8$, $SD = 0.65$) as well as very high levels of attachment and bond to their animals ($M = 9.72$, $SD = 0. 95$) (see Appendix F, Table F9). Survey respondents also reported very high levels of feeling that their animals are a part of their family ($M = 1.28$, $SD = 1.33$), a strong sense of obligation to care for their animals during Hurricane Harvey ($M = 1.21$, $SD = 0.99$), and a substantial amount of respondents believed that their animals helped relieve their stress during Harvey ($M = 2.53$, $SD = 2.14$) (see Appendix F, Table F10). Findings for these survey items were similar among interviewees.

Interviewees reported very high levels of a sense of responsibility and commitment to their animals ($M = 9.85$, $SD = 0.53$) as well as very high levels of attachment and bond to their animals ($M = 9.41$, $SD = 1.89$) (see Appendix F, Table F9). Interviewees also reported very high levels of feeling that their animals are a part of their family ($M = 1.44$, $SD = 1.76$), a strong sense of obligation to care for their animals during Hurricane Harvey ($M = 1.08$, $SD = 0.39$), and a substantial amount of interviewees believed that their animals helped relieve their stress during Harvey ($M = 2.26$, $SD = 2.35$) (see Appendix F, Table F10).

Based on participants' answers to the aforementioned questions, it is appropriate to deduce that their animals are a significant part of their life. To further query how participants understand themselves, in the context of Hurricane Harvey, as it relates to their identity as a PO/AG, the following sub-questions aim to address:

RQ1a: How did previous disaster experiences impact POs'/AGs' understandings of self in the context of Hurricane Harvey?

RQ1b: What are the situational barriers, constraints, and/or facilitators to PO/AG identity in the context of Hurricane Harvey?

RQ1c: How do situational barriers, constraints, and/or facilitators impact PO/AG identity? According to SMM, situational barriers can halt movement within the sense-making process and situational constraints make movement within the sense-making process more difficult (Dervin, 1992, 2003f). As previous research suggests, POs/AGs face many challenges in disasters (Day, 2017). Therefore, the aforementioned RQs strive to query this topic further.

Below, participant stories and exemplars are provided to illuminate categories relevant to RQ1. First, RQ1a categories are presented, which center on ways participants utilized "lessons learned" from previous disaster experiences within their experience with Hurricane Harvey. In some cases, previous disaster experiences prompted participants to make special purchases and accommodations for their animals, which were facilitators during Harvey. Next, RQ1b categories are discussed as related to barriers and constraints associated with PO/AG identity, such as evacuation logistics, evacuation shelter options, post-Harvey housing issues, families being separated, material barriers, and a lack of veterinary services. PO/AG identity also positively facilitated enactment of protective actions in some instances. Animals also provided comfort and a sense of normalcy for some POs/AGs. Finally, RQ1c illuminates the impact of barriers, constraints, and facilitators on PO/AG identity. Categories include feeling (re)victimized due to identity as a PO/AG, feeling excluded, misperceptions and stereotypes, and how deception was employed as a strategy to respond to situational barriers.

Previous Disaster Experiences

A prominent way that POs/AGs understood "self" in the context of Hurricane Harvey was by comparing their experience to previous disaster experiences they had survived (RQ1a). These comparisons provided POs/AGs with a frame of reference for interpreting and giving meaning to their Harvey experience. Comparisons also functioned as facilitators to protecting and maintaining PO/AG identity. SMM acknowledges the role of previous experiences in the sense-making process and how individual ideas, attitudes, beliefs, values, emotions, and memories (i.e., verbings) impact how sense is made (Dervin, 2003a; Dervin & Frenette, 2003). Individual ideas, attitudes, beliefs, values, emotions, and memories are derived from identity/ies, but they also impact conceptualizations of identity/ies (Dervin 2010a, 2010b; Hecht & Choi, 2012). Individuals can utilize "lessons learned" from previous disaster experiences to make informed decisions when they encounter similar experiences in the future, such as another hurricane. By doing this, salient identities can be protected and maintained. For POs/AGs living along the Gulf Coast, drawing on previous hurricane experiences was one way that they were able to protect and maintain PO/AG identity. In doing this, the sense-making process was also supported. Edna exemplified this theme, stating,

> Events like Hurricane Katrina really, really changed things as far as people getting animals out…I'll tell ya, to be perfectly honest, we [Edna and her family] just knew what to do. But, we have lived on the Gulf Coast. This has primarily been my home since 1970.

Lupita had experienced Hurricanes Alicia (1983) and Katrina (2005). When comparing her previous disaster experiences to being a PO during Harvey, she stated,

> I think it [Hurricane Harvey] was more traumatizing this time because we did have pets. Actually, I really think it was. When I saw that water rising up and getting ready to come into the house, I did not know what we were going to do…There was not enough information out there about pets and being in the hurricane. Absolutely not. We relied on Facebook and each other, text messaging, like literally [with] strangers.

Contrary to Lupita's view that there was not enough information for POs/AGs surrounding Harvey, Sable felt as though the topic was improving when compared to previous disasters that she had experienced. Sable experienced Hurricane Ike (2008) and had pets during that time. Sable said, "One thing that I noticed about this disaster [Hurricane Harvey] was that it was a lot more pet friendly than any of the other past disasters. In Ike, that wasn't even brought up, about pets."

Moira compared her Harvey experience to previous experiences she had responding to disasters as a firefighter. Moira recalled,

> See, I come from California and I've worked with [the] San Bernardino sheriff's department and we have a setup for disasters there. If there's a fire or an earthquake, you have a fire it's so different than a hurricane. You've got to get the animals out and if you've got a herd of cattle you have to have people that can respond and just put the cattle in stock pens and the horses in stock pens and then you travel them to a safe place and unload 'em. You paint them with their address and you unload. The owners' come and get 'em when the dangers done. Well, nothing like that is setup here [Rockport, Texas]. They don't care about the animal life.

Some participants had never experienced a previous disaster, such as Jessalyn who remarked,

> None of us had lived through a hurricane that hit down here [Aransas Pass, Texas]…before you've lived through it yourself, you can't even imagine what it [pauses], how you feel and the fear. And what to expect. I don't care what anyone says, you can't imagine what anyone is sayin' about it until you've lived through it and been here, you can't, you cannot even fathom the destruction [sighs].

"Lessons Learned" from Previous Experiences

As 25 of the 30 interviewees had experienced previous disasters. Some POs/AGs applied "lessons learned" from previous disaster experiences and made animal-specific purchases and preparations for the future. Many of the changes that were inspired by previous disaster experiences manifested as "helps/facilitations" in the sense-making process surrounding Hurricane Harvey (see Dervin, 2003a, 2010a, 2010b). Learning from previous experiences and enacting "lessons learned" functioned as a way for POs/AGs to protect and maintain their identity as a caring, responsible, and committed PO or AG. Conceptualizing PO/AG identity with core values

of responsibility, commitment, attachment, and bond to one's animal(s) prompted participants to make changes. Survey data indicate that, overall, participants had high levels of responsibility, commitment, attachment, and bond with their animal(s) (see Appendix F, Tables F9, F10). Making changes via learning from previous experiences was one way that POs/AGs were able to enact their conceptualization(s) of PO/AG identity. Kailani and her husband, for example, had experienced Hurricane Rita (2005) and explained that,

> after Rita we actually got a van because part of the reason is because my husband is a big guy, but just as important a reason to us was we knew we had evacuated with a four-door car [during Rita] and at that point in time we had had three dogs because we had Decker and Dawg and Joey and it was hard to evacuated two people and three dogs in a little four-door Ford; so, since then we've always made sure that the vehicle is big enough for us to be able to evacuate the animals along with us. It's just too hard to evacuate animals in a small vehicle, we wanted a vehicle where we could take their kennels, if we needed to take their kennels…The van gives them enough room where they can also sort of pace a little bit if they need to do that, move around. And that's just significantly easier for them. And they're not so on top of each other that they get snappy with one another they can each have their own little spot, and I think it lowers the stress for them. So, yeah, we definitely thought about that when we decided to go with a van.

Marcie exemplified this theme as she also purchased a specific type of vehicle to accommodate her animals and, thus, enacted and affirmed her PO identity in the process. Marcie explained,

> Since I live where I live in Texas, on the [Gulf] coast, I have always driven a minivan and my reasoning behind that, I don't have children or anything, but my reasoning for driving a minivan was so that when the hurricane hit I'd be able and have enough room to put the two big dogs in, and evacuate…So, that's what we [Marcie and her husband] did. We packed up the van and put the two big dogs in, with me driving the van. And then my husband because he wanted to take his car, we put the Spaniel, his name is BoBo, we put him in with my husband just because I didn't have a way to restrain him in the minivan.

> In lieu of buying a new vehicle, Arwa and Ella (sisters) decided to make specific changes

to their current vehicle for their dog, Trout. In preparation for Hurricane Harvey, Arwa and Ella decided that they would,

> pad the backseat up nice 'n tall where he [Trout] can see out the window and so he's comfortable and he doesn't get thrown around. It's kinda like a crib back there [laughs]. Well, the whole back seat is his. We had made it into a crib, you know, with bumpers,

pillows for bumpers; so, nothin' happens to him; so, he can see out the windows; so, he doesn't feel like he's left out of everything. We made that up for Harvey; so, he could travel, yep. And afterwards we just kept it made up…It [having pets] changes everything. It does. Everything. It's like having a child changes everything. You have to focus on them [during the disaster]. They're your responsibility.

Situational Barriers, Constraints, and Facilitators

Participants described various situational barriers, constraints, and/or facilitators related to PO/AG identity in the context of Hurricane Harvey (RQ1b). As related to SMM, barriers, constraints, and facilitators are inherent to the "situation," which in this case is Hurricane Harvey (Dervin, 1992, 2003d). Barriers, constraints, and facilitators impact the sense-making process and outcomes (Dervin, 2010a, 2010b; Dervin & Frenette, 2003). Many POs/AGs saw evacuation and the lack of animal-friendly evacuation options as a barrier or a constraint. In some cases, the issue of trying to evacuate *with* one's animal(s) caused a delay in evacuation (constraint) and/or halted it altogether (barrier). Both are problematic as they threaten health and safety. Lack of animal-friendly housing, being separated from family, material barriers, and lack of veterinarian services were cited as a barriers and constraints. However, in some cases, PO/AG identity served as a positive facilitator to taking proactive, protective actions.

Evacuation Logistics

Hurricane Harvey presented familiar and nuanced situational barriers and constraints for POs/AGs. Logistics with evacuation were viewed as barriers and/or constraints by a large majority of POs/AGs. Due to the lack of animal-friendly options for evacuation, Riley made a drastic decision so that her dog, Sophia, could evacuate with her:

> At one point, I parked my car and got a U-Haul and was using the U-Haul. I've got pictures of Sophia riding up in the cab…I had never driven a truck before. I had to drive that U-Haul. The very first night I had to drive it at night, which was terrifying to drive a great, big U-Haul, 27-foot. Then it rained; so, there was rain and wind knocking that thing around.

Honour noted that "there is an extreme cost factor with planning and evacuation…there are a lot of people who don't have the money or resources." Stacey spoke about similar issues surrounding evacuation, stating,

> the part of it [evacuation] being difficult was having a place to go, that was the main problem. We needed accommodations. We don't have small dogs. A Doberman and an Australian Shepherd are decent size animals and a bird cage takes up a fair amount [of space].

Some participants did not evacuate because they did not want to abandon their animals and could not find animal-friendly evacuation shelters, hotels, etc. Thus, PO/AG identity became a barrier to evacuation in these instances. Ariel decided not to evacuate during Harvey. She explained,

> I told my son that I am not going anywhere without my dog. I have a very big dog. She's about 90 pounds and there's really no place that you can take dogs that size. People won't take them, you know, if you want to like leave and go to Dallas or someplace where you are inland, you can't. Well, they'll [hotels] take little dogs but they won't take a big dog. And so, I couldn't leave her! So, we had to stay together.

Jerica, her son, two dogs, four parrots, and cat planned on evacuating, but due to the rising flood waters, they were unable to. Jerica's situation was further complicated by animal-exclusive evacuation practices. She explained,

> the cops come by, I don't remember what day it was, but they were releasing the dams or the reservoirs and they were told that they run the mandatory evacuation. I just looked at him and I said, 'I'm not going anywhere!' Because I couldn't go anywhere with the water everywhere. I was stuck and he told me that he could take me and my son out to safety and I said, 'No! I'm not leaving my animals.' I was informed that that was my decision, but to know that they would not come get me if it got really bad. And I said 'Ok,' and I stayed. I didn't evacuate. They told me that they could only evacuate me and my son; that I couldn't bring the animals wherever we were being taken to or where the meeting spot was didn't have room for all the animals; that they were only evacuating humans.

Lupita's voice trembled as she recalled,

If I didn't have animals I would have absolutely evacuated. I don't care what my job would have said, I literally would have evacuated…we didn't think it was going to be as bad because the [Houston] Mayor was saying 'stay put' and 'no need to evacuate.'

Trying to secure animal-friendly evacuation options was a constraint to timely evacuation for many POs/AGs. Other POs/AGs prolonged evacuation due to trying to ensure the safety of animals that would be left behind to weather Hurricane Harvey. Moira had two mares and two foals at the time of Harvey; however, she did not have a way to transport her horses (i.e., a horse trailer):

> I had an Arabian mare with an eight-month old foal at her side, was born at Christmas. And then I had a Mustang with a half Arabian, half Mustang foal by her side. Those animals were killed during the hurricane 'cause I was unable to get them outta here. The man that said he'd come and take all the mares and foals just never showed up [long pause]. There's nothing in this town set up for removing animals. Nothin'...Some of them [horses] were hit by flying debris [long pause]. You know, they were hit by trees [voice starts to tremble]. They were turned loose so they could fend for themselves, but you know, within a certain confined area. Within three acres. The storm was so vicious and then when the wave came in [storm surge], it just, there was nowhere for them to go…I will never own another horse unless I have a trailer here.

Moira's situation was further complicated by her fixed income, which limited her access to informational sources and media channels (to be expanded on in the following chapters). Moira explained,

> I don't pay for cable. I'm on a fixed income and it just wasn't in the budget at that time and it isn't still [laughs]…I didn't even know about it [the evacuation orders]. My daughter called me and she says, 'Mom, what are you doing at the house?!' I said, 'What else would I be doing? You know, it's a tropical storm, I can get through that.' [daughter says] 'No, Mom. It's not. It's a Cat. 5!' And I said, 'What are you talking about?' and she said, 'It's a Category 5. It's all over the news!' Well, I don't get TV and it doesn't show up on the radio like that. So, I called the fire department and they told me, 'God, Moira! Get outta here! Get your stuff, grab what you can and get out!' Well, I grabbed clothes that I can wear and shoved the dogs in the car and I left. I opened the gate between all the horses and threw out as much food as I could and I left Thursday afternoon.

To be able to enact her identity as a PO, Moira needed timely, relevant information. However, her lack of access to such information served as a barrier and constrained her enactment of protective actions for herself and her animals and, thus, constrained her PO identity.

Kenzie owned an animal boarding facility and she had two dogs of her own during Hurricane Harvey. Although Kenzie's boarding facility had a hurricane policy that required customers to pick up their animal(s) under evacuation conditions, some customers could not make it to the boarding facility before Harvey's expected landfall. Other customers asked Kenzie to wait for them to arrive, which served as a barrier to Kenzie's evacuation. Kenzie recalled,

> We had a poor man that was just, bless his heart, he called us and we finally got ahold of him like the afternoon before we left. He was in Florida and he had three dogs there [at Kenzie's boarding facility] and he said', 'I am leaving right not and I am going to drive through the night and I will be there in the morning to pick them up.' Well, we had made the decision to leave; so, we needed to be gone. We had everything packed and were literally waiting for him to show up and he did. He made it at like 9 o'clock that morning. We had already been there since 5:30 a.m. that morning…we really pushed it, almost too far time-wise. We got really lucky in leaving when we did. If we woulda left any later I know we woulda got caught up in a mess because the traffic woulda been worse and the weather woulda been worse.

Axel and his wife decided to separate during Harvey, with Axel staying behind to care for their horses while his wife evacuated to a friend's home with their two dogs, three turtles, and two rabbits. Axel moved his two horses and a friend's two horses and miniature horse to a nearby equestrian center to weather Harvey (see Figure 2). The availability of gasoline was a barrier to evacuation for Axel, as many gas stations were running out of gas reserves. Axel summarized:

> gas stations were running outta gas. No one and no tankers were coming in to replenish the gas stations…So, my wife went to stay with some friends a little bit further in town that was safer. I wound up living at the Equestrian Center. I went to the VIP section and I had an actual pop-up tent and popped it up there in the VIP section. And in case the flood waters came up, and with one of the horses being a miniature horse…I found some 10-foot long fence line for portable fences and made an area up for that little guy [miniature horse]. So, if I had to, if the waters came up, I could bring him up through the stairs or whatever I had to do and put him up there with me. I was actually prepared in case the waters came in and

the horses were standing in 6-inches of water that at least I could get him outta the water. The others could survive the water if they had to stand in it.

Figure 2. Evacuating with a friend's miniature horse in the backseat of Axel's truck.

Evacuation Sheltering and Post-Harvey Housing

Participants discussed the barriers and constraints surrounding evacuation shelter options and post-Harvey housing. Many POs/AGs reported difficulty finding animal-friendly, affordable evacuation shelters. Most public evacuation shelters do not allow animals, or they house animals in a separate areas or separate building. Hotels, staying in a vehicle, or not evacuating were the remaining options for many POs/AGs. The expense of evacuation was also cited as a barrier and constraint which is one reason why Dede said, "People [with pets/animals] don't like to evacuate." Jessalyn discussed this when she said, "We couldn't find a place to stay with dogs. If there was

room [at a hotel], they didn't take dogs. And if they took dogs, there wasn't a spot." Due to the damage that Harvey reaped on Jessalyn's home, she and her husband ended up living in a hotel,

> for almost a month before we were able to find an apartment that would take two dogs and had an opening. That's why we are now in Corpus Christi instead of San Pat [Patricio] County because everything out there was either destroyed, not ready, or not available…We're living in an apartment for the first time in 30 years.

 "Pet deposits" for hotel rooms or house rentals were discussed as major financial constraints for many POs/AGs. Aster recalled, "I was willing to pay the $25 [pet] deposit fee or whatever [for a hotel room]. There was one hotel manager that told me that if I had any pets with me that I would have to leave and I would not get a refund." Kailani also experienced a similar issue with post-Harvey housing, noting that,

> housing down here [Beaumont/Port Arthur area] right now is just crazy. The apartments are all full and everything. It's harder to find housing if you have an animal and there are plenty of people who are willing to charge you an extra $100, $150 a month if you have any animal.

> The majority of POs/AGs incurred damages to their property that required extensive clean-up efforts post-Harvey. While cleaning and repairing their property and homes, most POs/AGs rented temporary housing. Most housing options were not animal-friendly, or charged extra fees for having animals. Due to this, some participants, like Hayden and her spouse, put their animals in a temporary boarding facility. Hayden stated,

> We were in a small hotel room after Harvey and we were spending 12 hours a day over in Port Aransas working on the damage [to our house] and it was just, I just couldn't figure it out...it wasn't safe for Lucky [dog] to go with us 'cause there was so much nasty stuff and she would have been so incredibly miserable spending 12 hours a day by herself in a hotel room where she couldn't even walk five feet and then she has to turn around to walk the other five feet. So, we put her in boarding in Corpus Christi at a place, I mean, we've put her in boarding there before but we've never left her more than like three or four days when we go on vacation…We ended up leaving her there a little bit over a month, which I hated but we went and took her out. We'd go over there once a week or so and take her out and take her to a different dog park, let her run around, but I felt really bad about it.

Although Hayden did not prefer to be separated from Lucky, she was still able to enact her PO identity by doing what she believed was the "best" for Lucky, which was boarding her.

Lack of access to a safe outdoor area for their animals was a constraint to PO/AG identity surrounding Hurricane Harvey, especially for participants that were living in hotels or temporary housing. This constraint hindered enactment of PO/AG identity because it stripped participants of materials that they needed to provide care for their animals. However, they were able to enact PO/AG identity by "protecting" their animals from going outdoors in unsafe areas or choosing to board their animals, like Hayden. April, an emergency manager for a county in south Texas, noted how the lack of fencing post-Harvey was a health and safety issue because,

> people can't keep their animals in their yard when they don't have a fence. The animal control groups throughout our county have been working together and have been trying to figure out how to deal with that.

Families Separated

The lack of relevant crisis and risk communication for POs/AGs was considered a barrier and/or constraint. The lack of crisis and risk communication resulted in some families being separated during Hurricane Harvey. Here, it is important to note that most POs/AGs conceptualized "family" as multispecies in nature, meaning that their animals were included in their conceptualization of "family" (see Appendix F, Tables, F9, F10). Axel provided an exemplar of this theme. During Harvey, Axel and his wife had two horses, two dogs, three turtles, and two rabbits. Due to living in a city setting, just outside of Houston, Axel and his wife boarded their horses at a nearby facility. When specifically discussing his horses' Axel expressively said,

> We have two horses, one for each of us. The horses are our lives; the horses have been the focus of our lives. Our friends, our activities, our social system all really revolves around those horses, it all does.

Later in the interview, Axel described his horse as his "best friend." The boarding facility for their horses was located just outside of Houston, which put the horses at-risk during Harvey. Axel explained how he and his wife decided to separate during Harvey so that he could stay with their horses. His wife evacuated to a friend's house in a more secure area, taking their dogs, turtles, and rabbits. Axel explained,

> So, these horse friends of ours, the people that took us in, they are horse people. Very often, they've always boarded horses at the same facility. We go on trail rides together; they are very good friends. And when we had fires, many years ago, they took people in too…Well, they took my wife in and that next day they took my mother and father-in-law in. And my mother and father-in-law were actually rescued by either National Guardsmen or Coast Guard, I'm not quite sure. So, they [friends] took them in; so, they had two dogs as well, my mother and father-in-law did. So, this house was full of dogs and animals and rabbits. So, I stayed at the Equestrian Center, just so I could be there to take care of the horses.

POs/AGs that had young (human) children at the time of Harvey also detailed how they were upset by being separated from their family pets. Heather, her spouse, daughter, and their dog Maximo were able to evacuate from Rockport, Texas before Harvey made landfall; however, Heather's daughter,

> was very angry with me [Heather] that I didn't have the cats when we evacuated and that I didn't make sure that the cats were here. She couldn't understand that it wasn't my fault that I couldn't find them. She put a lot of that blame on me; that they were left behind and they were scared and by themselves and it was all my fault…We just searched the whole property. We searched under the house, we called the neighbors, we went to the neighbors. I couldn't find them. We have a two-acre property and I don't know if they were in the woods somewhere or had gone to another neighbor's house that we didn't check. They were just nowhere to be found.

Material Barriers

POs/AGs described numerous material barriers that they faced surrounding Hurricane Harvey. Within SMM, a material barrier would be bound to SMM metaphor's "situation" component. It became apparent that the material barriers impacted participants conceptualizations and enactments of PO/AG identity. In some cases, material barriers that participants faced were worsened or unearthed due to a lack of available information. For example, Rooni was trapped in her home with rising flood water and although she

> did have a disaster kit, [pauses] with flashlights and drinking water and food you can eat. We had a hurricane preparedness kit, but it got wet [laughs]. You know? We didn't have a good one. It wasn't waterproof…I did have dry cat food, but it got wet. Everything in my hurricane preparedness kit got wet.

In other situations, finances were a material barrier for participants. Having an animal during a disaster often requires additional money, such as for paying pet deposits at hotels, rental home, or taking an animal to a veterinarian post-disaster. For some participants, the material barriers that they faced were worsened because their insurance would not cover the entire cost of rebuilding their home. Many POs/AGs had to find temporary or long-term, animal-friendly housing. Edna discussed this, saying

> We lost our home and had severe damage to all three of our rental properties one of which was my mother's home, but now it's going to be a rental property because she's moved into senior living [since Harvey]. What we got for insurance was about half of what it cost us to repair these three properties and our home was demolished. It was a total loss and we had to demo it and rather than buy another home to get flooded again and we would not be able to attach it to the room that the insurance company requires that we fix [laughs] we bought a Class-A motor home. I am living in the motor home until my husband and I can finally retire. So, my dogs have gone from running rampant in a huge home with access through dog doors to go into a 400 square foot screen room and 240 square foot outdoor kennel to, now, sharing a home with my daughter's pets and then to a 26-foot fifth wheel camper and fenced carport to where we are now, in a 40-foot Class A motorhome that is under a 26 by 50 foot fenced canopy.

Some participants did not evacuate or delayed evacuation because, as Kailani explained, "Evacuation is really expensive!" When evacuating with animals, it tends to be more expensive which Riley elaborated on:

> A lot of the people that go to shelters do so because they don't have the financial wherewithal to get a hotel room. A lot of the people that are going to shelters are going because of financial constraints, those same financial constraints keep them from keeping their animals current on vaccines. So, you've got a situation where a lot of people can't evacuate their animals because they are either too large, or they're not current on their vaccines; so, the shelters won't accept them. Shelters usually have about a 30-pound weight limit and it's a real bad situation.

In addition to financial barriers, some participants experienced other material barriers that hindered their enactment of PO/AG identity.

There were some POs/AGs that did not have the necessary supplies to care for their animals during a disaster. Dede exemplified this, saying, "I can't take my miniature horse anywhere. I don't have a horse trailer. My friends have a huge horse trailer. I depend on them for transportation [for the miniature horse]." Moira experienced a similar situation, which she explained,

> The man that said he'd come and take all my mares and foals just never showed up [long pauses]…He has a large stock-trailer. Plus, he had a stock trailed with a truck and he had another driver, but they never showed up! So, the advent of that was we lost my two mares and their two foals and seven other horses…I will never own another horse unless I have a trailer here.

Francis also discussed material barriers that hindered her ability to make timely decisions for herself and her animals,

> As I was going through your questions [in the online survey] I thought about how I wasn't prepared. I didn't have disposable litter boxes, you know, we have our crates, but we only have three crates because we just got the youngest one [cat] in July [2017]. So, we hadn't gotten a crate for her yet…If we would have evacuated and go somewhere, I wouldn't had been ready. I know that now. So, I'll be prepared next time. In fact, hurricane season is upon us again. So, I'm gonna go get disposable litter boxes to take with us and actual leashes because if we go someplace else, I can't just let them out…Victoria [Texas] finally did become mandatory evacuation, but it was too late by then for us to go. And so, we stayed where we were.

Sable also experienced a material barrier to evacuation because she did not have enough supplies to leave with her seven, large dogs:

> We might have been able to get people with a boat over here [to rescue us], but, I mean, it would have been very difficult to have gotten all of the dogs out at once. We didn't have the chains or the leashes that we needed. It would have been pretty hard.

> Some material barriers that participants experienced were due to losing supplies or having limited/unstable access to supplies. In a few experiences, some participants lost supplies because other people wrongfully took them. Taylor explained:

> We were taken to dry ground by boat and walked to a nearby school that was made into a temporary shelter. We were separated from other people: all dog people had to sit in a hallway. So that's what we did. We sat in wet clothes all day. Made a pallet on the floor with donated blankets and hunkered down together. I was proud of my pack. The dogs behaved and laid down with us being quiet and good. My nerves were shot and being all together there was a great relief. We were bussed that night to a National Guard outpost where they had cots with tent-like covers. I made a u-shape next to wall with 3 cots. I put our donated blankets from the first shelter on floor in middle of" U". The dogs laid down there and stayed put…I hated being put in hallway at the school shelter with other dog owners like a leper. We even had to take a separate rescue bus [because we had animals]. I get it but still…We had gotten supplies of peanut butter, water, trash bags and dog food from a shelter. I felt like I had to guard this stuff, which was outside on a pallet, which left the dogs inside by themselves. They were in the "U" BETWEEN our cots and were ok. I kept checking on them. I eventually had to abandon the supplies to go sit with dogs. Some of our supplies were taken by other people.

Mack is the owner of an animal rescue as well as an AG to his own animals. In total, Mack cared for 17 dogs, five cats, and six birds during Harvey and was concerned about the "lack of food and water for my dogs…this was my first storm and I was not ready for all of the damage and lack of food and water," which was further complicated by Mack's uncertainty as to where the food and water supplies would come from post-Harvey. Furthermore, Mack did not have the material resources needed to evacuate with all 28 animals, "there would be nowhere to go that I could take

all my animals." Mack did not evacuate due to this and decided to shelter-in-place with the animals in his care because abandoning them was not an option.

  Lack of veterinary services. Veterinary services post-Harvey were sparse according to many POs/AGs. Affordability of services, access and availability of services, access to communication technologies to seek-out information about services, and transportation to service providers were considered barriers and constraints for POs/AGs. These barriers and constraints conflicted with personal conceptualizations of PO/AG identity and its enactment. When I asked Lupita "what stood in your way as a PO during Harvey," she replied,

> No availability for vets. One of my dogs is sick. She's on medication for her allergies and she has a thyroid condition. I mean, I did make sure that I had medication [previous to Harvey's landfall], but then also, I was just scared if they [dogs] got hurt even just going out in the yard when the water receded. 'Cause it was a mess everywhere. I was scared that my dogs would step on a nail or get cut or something. Then the availability for vet care was a concern, because everyone was flooded.

Moira, who lives on a fixed-income, discussed how she wished that there were more post-Harvey veterinary services,

> We need vets that come and check the animals if they thought they were hurt or if they were traumatized; so, they'd have a vet, for free, come and look at 'em…They take this thing for granted, going to the vet. After a disaster, who has money to take a dog to a vet or a horse to a vet?

Kenzie discussed the same issue, especially as related to the socioeconomic status (SES) of the Rockport, Texas area,

> The vets were overwhelmed. We have five vets in Rockport, they weren't open. They didn't have electricity and if you have no car and you don't have the money to afford a tank of gas to go to Corpus Christi to get your animal looked at, what do you do? …Down here, there is no middle class here. There is no middle class in Rockport! You either have money or you don't, for things like that.

Greta, who was visiting Houston during Harvey, noted that POs and AGs in Houston also "need a low-cost vet, [I've] looking for a reasonably priced vet." Jerica is also from Houston and noted,

once the storm passed, I couldn't get the help that I needed. I couldn't get to a vet; I couldn't

get to some of the sites that they had set up for people with the animals. I couldn't get to

them to have my animals checked out, to make sure that they were okay.

Dede was in a small, rural southeast Texas town and experienced difficulties accessing veterinary

services,

> There was no vet care [after Harvey]. One of the vets in town, water went over the roof of his place and he lost everything…There was somebody at one vet clinic tryin' to do things and they just had to stop. They were exhausted. If you needed emergency care for your animals, more than likely, it wasn't gonna happen.

PO/AG Identity as Facilitator to Protective Actions

In some cases, identity as a PO/AG served as a positive facilitator to enacting protective

actions during Harvey. For example, Cleo explained,

> We did it [evacuation] on our own. And it was more for our dog than it was for us actually…like I said she [dog] was my priority. Get her out of there because she wouldn't be able to survive. And I didn't want to see her suffer or unfortunately drown if I couldn't get her out of there. So, she [dog] is the one that led us to make that decision, to leave.

Similarly, Arwa explained how her dog positively influenced her proactive decisions, ahead of

receiving a mandatory evacuation order:

> 'Cause he's [dog] my little boy! Basically, our life revolves around him! [Laughs]. So, you know, whatever he needed, we had to do it 'cause he can't fend for himself. We had to fend for him…The biggest thing is that they [pets] can't take care of themselves, so we need to take care of 'em. And they get stressed, too! …It [being a PO] changes everything. It does. Everything. It's like having child, changes everything. You have to focus on them [pets]…So, we went online, like I said, we were at least a week before everybody else, preparing. Three days before evacuating, we went online and found the [hotel] room and went ahead and saved that room before anybody was even looking. It was like, we had to. We have a dog. We have traveling to do.

Similarly, Cameron noted that:

It is extra work and planning when you have animals during emergency situations; however, I strongly feel that it was my responsibility to ensure they were safe, for like any other member of the family.

Only 36.9% of respondents evacuated with all of their animals (see Appendix F, Table F19). Kenzie noted how caring for animals, especially her customer's animals at her boarding facility, positively impacted her enactment of protective actions surrounding Harvey. Kenzie said, "I would have been more complacent if I didn't have the responsibility of taking care of somebody else's animals." Identity as a PO/AG also impacted participants' protective actions and decisions post-Harvey.

Star discussed how her animals helped her cope with the trauma that she experienced surrounding Harvey, saying, "[If I didn't have my pets] I would not have had their companionship, which helped me endure the trauma of the hurricane altogether." Although coping with trauma from a disaster experience is not a concrete protective action like evacuation, it did serve a type of protective *function* for the PO/AG and their identity. Support and comfort from one's animals can be a source of motivation that helps a PO/AG navigate a disaster experience and helps them maintain their conceptualized identity as a PO/AG in doing so.

Animals as facilitator. For most participants, being with their animals was a form of companionship and stress-relief surrounding Hurricane Harvey. Respondents considered their animals to be great companions ($M = 1.27$, $SD = 0.79$) and for some respondents, their animals helped relieve stress during Hurricane Harvey ($M = 2.53$, $SD = 2.14$) (see Appendix F, Table F10). For example, Riley said, "And having that dog with me [during Harvey] brought me so much solace…to have her [dog] in there with me [while evacuating] brought me so much comfort." Similarly, Moira noted how having her dogs with her:

was more helpful in that it kept me from falling into depression and they [dogs] still do. I mean, there are days here, like they're outside now cleaning up [workers] on the back of my property there is still stuff [debris]. You know, I go out there and I wanna cry because it's just like is this ever gonna be done? And then people are bringing up how this coming season for hurricanes is gonna be the worst ever. I'm thinking, "Why am I staying here?" You know, so, I cuddle up with the dogs…my animals gave us a lot of comfort during a disaster like this. Be them larger animals, be them small animals.

Vivian discussed how "having the dogs around provided some sense of normalcy and comfort," especially for her children. Edna also discussed how her pets provided a sense of normalcy surrounding Hurricane Harvey (see Figure 3):

It changes you for life [going through a disaster]. It takes a long time to get over it. When you lose your home and basically everything you own, having my dogs with me is therapeutic because it's something that is a continuation. People need their pets and when they are rescued from situations like this, they need their pets and they need them to be with them.

Figure 3. Bonita, one of Edna's cats.

Other participants explained how having their animals with them was a comfort because it was one less contingency to worry about. Ariel, for instance, explained, "I would have been worried sick if I was not with my pets." Ariel also stated:

> I talked to her [dog], mostly just to vent. I would be like, 'Zona [dog], I don't know what we're gonna do.' Cuz I mean, she doesn't like wearin' that little swimmy thing [life vest due to the flooding]. She didn't like it. I remember talking to her telling her that she had to wear it anyway and she could just forget about complaining. You know, you try to make a joke. I think it was just like, just conversation things that I think I didn't necessarily want to go out and have a breakdown with my son and my daughter-in-law 'cause they were already kinda having their own issues. I mean, we all had our own issues. So, when we would sit there, we would all try to be like 'Ok, here's the next plan,' you know what I mean? And 'here's the next plan,' but sometimes, you just walk away and you just think 'I don't really have any plans.' And you just wonder, 'now what?' [long pause] 'And now what do we do?' Those are good times to talk to her [dog] cuz I didn't really want to go out and say that I didn't have any more ideas to my son [voice quivers].

In the online survey, Mayumi wrote that "They [animals] are my companions and my comfort, especially during Harvey." Kathleen also mentioned a similar effect in her online survey, writing, "I believe that caring for them [animals] shifted my focus from worrying about material things and they entertained us which distracted us and gave us something to focus on. They were very comforting." Moses remarked, "They also helped comfort us [Moses and his spouse] when we were evacuated." Edna described how experiencing a disaster like Harvey,

> changes you for life. It takes a long time to get over it. When you lose your home and basically everything you own, having my dogs with me is therapeutic because it's something that is a continuation. People need their pets and when they are rescued from situations like this, they need their pets and they need them to be with them.

Stacey, her husband, and their four sons lost their home to Harvey-induced flooding. They had over 8.5 feet of water in their house. Upon hearing the news that their home was destroyed while they were staying in a hotel that they evacuated to, Stacey noted the importance of having their two dogs and two parrots with them—especially for her two sons:

> I didn't want my animals taken from me and put in a shelter 'cause that'd be too much for my kids. They needed their animals with them. They [the family pets] were there with them

particularly when they heard the news that it was all gone [the family house]. My sons went outside and they just sat with their dogs, crying.

Barriers and Constraints Impact PO/AG Identity

Many of the barriers and constraints that POs/AGs faced throughout their Hurricane Harvey experience evoked feelings of exclusion and feeling misunderstood by others, which complicated their sense-making (RQ1c). Most POs/AGs deduced this based on the lack of crisis and risk communication for POs/AGs, which was considered the largest barrier for most POs/AGs (discussed further in Chapter 4). Overall, the barriers and constraints that participants experienced impacted their conceptualized identity as a PO/AG and, at times, evoked "identity gaps" (Hecht, 1993; Jung & Hecht, 2004). Identity gaps require an individual to communicatively negotiate tensions between conflicting frames of identity in hopes to (re)conceptualize their ascribed identity as a PO/AG (Hecht, 1993). For POs/AGs, identity gaps were evoked due to situational barriers and constraints, such as the lack of identity-affirming communication surrounding Hurricane Harvey. Ariel, for example, explained how officials' and organizations' lack of consideration for POs/AGs surrounding Hurricane Harvey impacted her:

> It makes me feel like they [officials and organizations] don't understand that Zona [dog] is as important to me as other human people. I know people get angry when they think that you put animals on the same place as a family member, but her presence and her support is as important to me as my other [human] family members. I couldn't have survived without her. I couldn't have left her…they're [animals/pets] very important and they're not expendable. I think that's the one thing that I want people to understand; they are not expendable and provisions need to be made for them and they need to be made for their guardians, together.

Feeling (Re)Victimized

Many POs/AGs felt (re)victimized after Hurricane Harvey due to their identity as a PO/AG. For example, Hayden remarked, "we got hit by the hurricane and then everything else in the world has been trying to keep us from recovering." Participants described various issues that evoked

feeling (re)victimized, such as the lack of inclusion of POs/AGs in official and governmental planning and communication efforts surrounding Harvey and misperceptions and stereotyping.

Lack of inclusion. The general lack of inclusion of POs/AGs and their animals in most NGO and governmental communications, response, and recovery efforts evoked feelings of (re)victimization. Through their exclusion, POs/AGs felt that their identity and sense of self were denied and left unaffirmed. In ways, exclusion seemed to delegitimize their identity as a PO/AG. Ariel exemplified this, saying:

> I think people who are not pet owners don't understand that they are not just livestock. And I know some people who were really upset about their livestock, but the point that I'm making is that they [pets] are not nothing. They are not just nothing. I mean, I know that they [officials] are only worried about saving the people, but they have to understand that they are not nothing to me. Ok? …I want somebody to actually put understanding to the concept that in a disaster officials have to have plans for animals, too. Or more people will die.

Jessalyn noted how her dogs were a prominent part of her life and that they provided her with support surrounding Harvey:

> The dogs are everything for me as far as support and unconditional love. I mean, honestly, since we're [Jessalyn and her husband] having empty-nest syndrome and the hurricane, the dogs have even become even more important to us. I mean, they are our lives. We get up and we feed them before we shower and we walk them and let them out in the backyard. They are everything.

Aster remarked, "my life will not be complete without the three of them [pets]…we [family unit] are not complete unless we're all together." In regard to experiencing Harvey, Cleo explained how her relationship with her animals made her view disasters differently than individuals without animals, "I think anybody that has a pet like Sassy [dog], you know, they're like a child, they are your first priority; get them out of there [disaster]!" Demarcus also noted,

> I consider each one of them [pets] a substantial part of my family…As a pet owner, I would do anything for my animals. No one gets left behind and even in a situation as bad as Hurricane Harvey, I will take them anywhere even if it means losing some of my most

valuable stuff…I didn't have any informational sources about caring for animals in a disaster. I just cared for my animals.

Misperceptions and stereotyping. Many participants felt that they were judged due to misperceptions or stereotypes that others held about POs/AGs and their animals. Such misperceptions and stereotyping led many participants to feel as though their PO/AG identity was delegitimized, denied, or challenged, which added an additional layer of stress to their Harvey experience, and for some, it even halted evacuation. Jerica said,

I own birds and two Pitbulls, I would be turned away or judged [at an evacuation shelter or hotel]. I'm judged. It's a big thing here in Houston and we don't have a Pitbull ban but they're not liked because of these idiots that do the dog fighting. People are afraid of them and mine aren't small. They are big. I just got back from the vet and my blue-nose Pit weighs 120 pounds, you know, and she's the sweetest little thing. My other one weighs 100 pounds, but we are judged because they're Pitbulls. The one is judged 'cause he's Pitbull-Chow, you know, Chows don't have a good reputation and then I'm also judged because I have tattoos all over the place.

Jerica went onto to explain how misperceptions about POs/AGs and their animals added to feeling (re)victimized:

We were forgotten, everybody was like 'Okay, the rain is gone, they are under water. Okay, they'll survive.'…We were forgotten after that storm [Harvey]. Once it was over, that was it. We were done…When people ask me how many kids I have and I tell them eight [includes her pets as kids], they look at me like I am crazy. But the ones that know me, know exactly what I am talking about. It makes it, especially during a storm like Harvey or maybe another disaster like the wildfires, a lot of people don't understand so they criticize those people and judge those people [POs/AGs]. If everybody could just understand and even if you don't agree with it, don't make rude comments. Everybody's life is different. If we were all the same, life would be boring, but you don't have to hate while living a different lifestyle.

Greta self-identifies as a "traveler," meaning that she does not have a "permanent" home, but rather travels across the country by train, bus, and hitch-hiking with her service dog, Franky. Like Jerica, Greta also felt judged and, thus, perceived stigmatization due to her PO identity,

I am judged so much for my lifestyle, for my tattoos, by having a Pitbull out here with me... all these places that they set up where people were bringing animals [for evacuation], like

at Katy Mills Mall on the southeast side of town [in Texas], and animal shelters who were very rude to me 'cause they're not Pitbull friendly there.

Deception as Strategy to Barriers

Some POs/AGs could not afford to pay a "pet deposit" for a hotel room or long-term, post-Harvey housing. A few POs/AGs refused to pay a "pet deposit" because they felt as though these fees were discriminatory and failed to respect their conceptualization of family and PO/AG identity. Deception was a strategy that some POs/AGs employed in response to "pet deposit" barriers. Demarcus provided an exemplar for this theme:

> They [hotel employees] didn't know the magnitude of animals we had [11 cats, five dogs, one rabbit]. We did what we had to do to make sure that we had a place to stay, for our pets and us. I have no problem in saying that. I know it was the wrong thing, but we had to do what we had to do…I consider each one of them [animals] a substantial part of my family.

In other cases, some POs/AGs hid or lied about their animals so that they could stay with them. Raj explained his situation:

> When we got the news that a hurricane may be on the way, my wife and I had to go into work with the expectation of being at work for the next two to three weeks due to the nature of our jobs…When my job evacuates for hurricanes we allow staff families and pets to travel and live with us in the contracted shelter that my employer has set up for these kinds of situations. My wife's job, of course, does not. So that was easy to figure out that the dog was going with me…During prep to evacuate, I made it clear to my work that I was to evacuate in my own vehicle (which is frowned upon), because all pets evacuating in work vans were to be caged the whole time. This ends up being a key decision that works in my favor later on. When we got to the location, pets were to be kenneled outside only, per the retreat staff. I was not ok with this due to having a pet with a double coat and it being 90 plus degrees during the day. I ended up hiding my dog in the cabins for the first week.

POs/AGs that utilized deception as a strategy to respond to the barriers they faced were able to protect and enact their PO/AG identity.

Summary

Identity as a PO or AG impacted participants' experience of Hurricane Harvey. Previous disaster experience(s) contributed to their understandings of self surrounding Harvey as many

participants utilized "lessons learned" from previous disaster experiences as ways to enact and maintain their conceptualized identity as a PO or AG. However, there were many barriers and constraints in POs'/AGs' Harvey experience, many of which centered around logistics of evacuating with animals, evacuation shelter options, post-Harvey housing that was animal-friendly, material barriers, and lack of veterinarian services. Further, these barriers and constraints negatively impacted PO/AG identity. In some instances, PO/AG identity positively facilitated the enactment of protective actions. There were also many stories that exemplified how identity as a PO/AG was negatively impacted through families being separated. Here, it is important to note that most POs/AGs conceptualized "family" as multispecies, which included their animals/pets as members of the family unit. Lastly, for many participants, the lack of inclusion of POs/AGs in governmental planning, response, recovery, and communication efforts was decoded as a lack of inclusion that functioned to delegitimize their identity. These feelings of (re)victimization were also worsened by perceived stereotyping and misperceptions of the participant and/or their animal(s). To put simply, participants felt that their PO/AG identity was delegitimized, denied, or challenge throughout their experience with Hurricane Harvey.

Discussion

Identity/ies impact personal experiences in various ways (RQ1). Disasters like Hurricane Harvey bring forward our identities and, in turn, our identities influence how we perceive, interpret, and use information within a disaster context. Therefore, our identities impact how we experience and come to understand such events, as Dervin's (1992, 2003a) SMM framework implies. The findings from RQ1 contribute to expanding SMM through explicating the role that salient identity/ies have in the sense-making process. Just as sense-making processes can change across time-space, so too can our identity/ies. According to Dervin (2003a), humans are seen as

anchored to material reality in time-space, moving from their past, in a present, to a future, and their verbings "can both transcend time-space and last beyond specific moments in time-space" (p. 139). The same can be posited about identity/ies. Therefore, I am asserting that identity is a central variable in the sense-making process and that this assertion configures with Dervin's model, assumptions, and propositions. Hecht's (1993) Communication Theory of Identity (CTI) provides theoretical grounding for discussing identity, bringing nuance to identity's role in the sense-making process surrounding disaster experiences.

According to CTI, identity is inherently a communication process, where messages and values are exchanged, which influences identity (Hecht, Jackson, & Ribeau, 2003). Put differently, "identity is both a sense of self and communication or enactment of self, resulting in the articulation of four different levels or frames of identity that merge the individual with the society around him/her" (Wadsworth, Hecht, & Jung, 2008, p. 67). Identity is formed in social interaction through symbolic meanings that are communicatively exchanged and taken on by individuals, which are then confirmed or validated through communication (Hecht & Yu, 2014). Identity is internalized from and externalized to social interaction. In fact, CTI asserts that communication can be understood as identity (Hecht & Yu, 2014). Within CTI, identity is layered and experienced through four frames of identity: personal, enacted, relational, and communal.

According to CTI, *personal identity* describes how individuals define themselves through thoughts, feelings, values, etc. (Hecht, 1993; Hecht, Jackson, & Ribeau, 2003). Simply, personal identity is one's self-concept or self-image (Hecht & Yu, 2014). *Enacted identity* encapsulates how "self" is expressed through communication and social behavior; people ultimately perform identity. These interactions with others often encompass and/or intersect with the third frame: *relational identity*. Oftentimes, personal identity is influenced by our relationships with others and

(co)created through interactions with others. Due to the dynamic and porous nature of relationships and relational interactions, CTI's *relational identity frame* has four sublevels (Jung & Hecht, 2004). First, by internalizing how others view oneself, an individual partially develops their *ascribed relational identity*. Second, a person identifies her/his/their self through relationships with others, such as a friend or a pet/animal. Third, since people have multiple identities, they exist in relation to each other. Fourth, a relationship can be a unit of identity. The fourth and final frame of CTI is *communal identity*, which is composed of group memberships where particular community values tie individuals together via rituals, histories, specific practices, place, etc.

Using SMM and CTI as explanatory, theoretical lens, I will discuss findings from this research. Using elements from SMM, I will illuminate how POs/AGs drew on past disaster experiences and utilized "lessons learned" as a way to maintain and protect PO/AG identity, how identity gaps emerged for POs/AGs in their Hurricane Harvey experience, how and why identity gaps were negotiated, how PO/AG identity can function to elicit protective actions surrounding disasters, how PO/AG identity can lead to feeling (re)victimized in a disaster context, and the implications of these findings for crisis and risk communication. Extant research is used to situate the discussion.

Learning from Past Experiences to Maintain Identity

Some participants were inspired by their identity as a PO/AG to apply "lessons learned" from previous disaster experiences. Applying "lessons learned," manifested as "helps/facilitations" during Hurricane Harvey (see Dervin, 2003a, 2010a, 2010b). "Helps/facilitations" are associated with sense-making outcomes and assigning meaning to an experience within Dervin's (2003a, 2010a, 2010b) SMM framework. For example, being a PO/AG in previous disasters prompted some participants to purchase larger vehicles so that they could

easily evacuate with their animals in future disasters, which was useful during Harvey. Purchasing a larger vehicle also functioned as a temporary shelter since most evacuation shelters are not animal-friendly and hotels vary in their acceptance of animals (Heath et al., 2001). Having a mobile, temporary shelter enabled participants to enact important aspects of their PO/AG identity, such as providing safety for their animals, protecting their animals, and staying together with their animals. In these cases, PO/AG identity supported individual resilience through prompting POs/AGs to enact preparedness (e.g., purchasing a larger vehicle for evacuation) via learning from past disaster experiences (Berkes, Colding, & Folke, 2000). Put simply, applying "lessons learned" from previous disaster experiences positively facilitated the maintenance and reification of personal and enacted frames of PO/AG identity for some participants (Hecht, 1993; Jung & Hecht, 2004). Not only was sense-making occurring in these instances, but so too was "identity work."

Engaging in "identity work" enables individuals to formulate, maintain, evaluate, revise self-narratives, and craft coherent and distinctive notions of "self" (Brown & Toyoki, 2013; Watson, 2008). This process of "identity work" can be evoked by non-routine experiences, such as a hurricane. To navigate a non-routine experience, individuals may draw from previous experiences. These previous experiences supply individuals with "lessons learned," which function in new experiences as guides that help protect and maintain salient identities, like being a PO/AG. As related to SMM, previous experiences can help individuals understand their current situation. Additionally, previous experiences inform our ideas, attitudes, beliefs, values, feelings, memories, stories, and narratives (i.e., verbings), of which are primary elements applied to build "bridges" across communication gaps within SMM.

Bridges can be built in a multitude of ways, which are conceptualized as and linked to verbings in SMM. "Verbings" involve making use of ideas, cognitions, attitudes, beliefs, values,

feelings and emotions, memories, and stories and narratives for sense-making (Dervin & Frenette, 2003; Foreman-Wernet & Dervin, 2005). Verbings are central to constructing bridges within SMM. Based on PO/AG insights, identity influences verbings in that identity impacts cognitions, attitudes, what/how memories, stories, and narratives are catalogued and remembered, etc. As verbings are central to constructing bridges *and* verbings are influenced by identity/ies, the sense-making process is also influenced by frames of identity. Utilizing "lessons learned" from previous experiences—which are stored as a part of an individual's verbings—engages "identity work" and can function to help protect and maintain salient identities during the sense-making process of non-routine experiences, like being a PO/AG during a disaster. However, some participants experienced identity gaps due to situational barriers and constraints related to PO/AG identity.

Identity Gaps in Disaster

Within CTI, "communication not only causes and is caused by identity, but is identity itself" (Hecht & Yu, 2014, p. 226). Just as communication is essential to identity, communication is essential to making sense. According to SMM, individuals define the situation that they are in through relating to oneself, others, and collectivities (Dervin & Clark, 1993). Therefore, when barriers and constraints manifest within a situation, the ability to relate to oneself, others, and collectivities can be challenged or completely compromised, which disasters compromise even further. To put differently, when barriers and constraints manifest within a situation during the sense-making process (SMM) surrounding a disaster, identity gaps can result (CTI).

Although consistency is frequently sought among CTI's four frames of identity, there are inconsistencies, disconnects, or discrepancies between them. Disasters can evoke such discrepancies, which complicates the sense-making process (Weick, 1993; 1995). Jung and Hecht

(2004) defined these inconsistencies, disconnects, or discrepancies as identity gaps—also referred to as interpenetration—which can occur between or among the four frames of identity. In the case of identity gap(s), individuals often attempt to communicatively negotiate existing tensions in hopes to (re)conceptualize and/or maintain their ascribed identity (Hecht, 1993). Barriers and constraints within the sense-making process evoke identity gaps, restricting an individuals' enactment of their conceptualized identity/ies (Dervin, 2003a; Dervin & Frenette, 2003).

Some POs/AGs experienced a personal-relational-communal identity gap within the context of Hurricane Harvey. Participants' *personal* frame of identity as a PO/AG was conceptualized based on being a responsible, dedicated caregiver that was committed and bonded to their animal(s) (see Appendix F, Tables F9, F10). To most POs/AGs, this also meant protecting their animal(s) from Hurricane Harvey. Being a PO/AG also involved a *relational* frame of identity as participants valued their animals as companions, friends, and members of their family unit (see Table F10). CTI posits that "people gain a sense of self through their relationships with others," for POs/AGs their human-animal relationship(s) were one such relationship that provided them with a sense of self (Hecht & Yu, 2014, p. 227). By internalizing identity as a PO/AG, informational needs and sense-making outcomes surrounding POs'/AGs' Hurricane Harvey experience were impacted (Hecht & Yu, 2014). Furthermore, POs'/AGs' relationship with their animals also served as a source of comfort and normalcy surrounding Harvey. However, POs'/AGs' personal and relational frames of identity were discrepant with the *communal* frame of identity.

POs'/AGs' communal frame of identity is constituted by their membership in their local community that is bonded by a collective memory and collective place as the loci of identity (Jung, 2011; 2013). Communities can be defined by political constituency, living in a town along the

hurricane-prone Gulf Coast, being a Texan, being a Houstonian, etc. POs'/AGs' communal identity included being a citizen within a community that is served by various public officials and governmental agencies that are charged with crisis and risk communication responsibilities surrounding disasters, like Hurricane Harvey. CTI posits that identities can emerge from group associations and social networks (Hecht, Jackson, & Ribeau, 2003). Furthermore, Dervin's (2003f) SMM framework posits that individuals cannot have complete understanding of reality alone; instead, people must work together to make sense of the world. However, in the context of Hurricane Harvey, POs'/AGs' communal frame of identity was discrepant with their personal and relational frames. Most of the barriers and constraints that participants experienced emerged from the communal frame as POs/AGs were excluded from governmental crisis and risk communication, communal plans, evacuation shelters, recovery resources, etc. Simply put, personal and relational identity as a PO/AG was important to participants, but was not perceived as important to others in the communal frame, such as governmental officials and disaster-relevant agencies that had planning and communication responsibilities. Participants deduced this due to the lack of relevant crisis and risk communication for POs/AGs, which also impacted enactment of PO/AG identity. Barriers and constraints led many POs/AGs to feel as though their conceptualized identity was delegitimatized by others in the communal frame. In CTI terms, this is an identity gap.

Some participants also experienced a personal-enacted-communal identity gap. Participants' ability to *enact* their PO/AG identity was hindered by barriers and constraints they faced, which were specific to their identity as a PO/AG. Government officials and disaster-relevant agencies failed to provide POs/AGs with timely and relevant communication. This lack of relevant communication restricted POs'/AGs' ability to make informed decisions for themselves *and* their

(multispecies) family; hence, their ability to *enact* their conceptualized identity of being a PO/AG was hindered due to these barriers and constraints. Yet, a handful of POs/AGs seemed to negotiation these identity gaps through utilizing "lessons learned" from previous disaster experiences, which helped participants maintain their *personal* frame of PO/AG identity and, thus, make sense of experiencing Hurricane Harvey. The impact of identity gaps within disaster contexts are important to discuss, especially as related to crisis and risk communication.

Identity gaps negatively relate to communication satisfaction (Jung, 2011, 2013; Jung & Hecht, 2004, 2008; Kam & Hecht, 2009) and relational satisfaction (Kam & Hecht, 2009; Wadsworth, Hecht, & Jung, 2008). Identity gaps have also been found to mediate the relationship between a number of communication phenomena including conversational effectiveness, discrimination, and relational and communication satisfaction (Jung, 2011, 2013). Further, "When one's self-concept (internal standard about his or her self) is not reinforced by others, he or she may be dissatisfied with the communication" (Jung, 2011, p. 319). As related to crisis and risk communication, the presence of identity gaps *due to the lack of identity-affirming, self-efficacious, relevant communication* is problematic (see Olsson, 2014; Seeger, 2006). If publics' identity/ies are not affirmed surrounding a disaster, than their conceptualization of self, relationships, decisions, and sense-making process can be negatively impacted.

Identity gaps complicate decision- and sense-making processes (Krieger et al., 2015). These processes are already strained in the context of a disaster (Sellnow & Seeger, 2013; Weick, 1995). Perceptions of oneself, identity/ies, and community are connected to an individual's feelings about themselves and the social context in which they live (Deeny & McFetridge, 2005; Dugan, 2007). Disasters have the "potential to seriously disrupt the life and social networks of individuals, groups, and communities. It is reasonable, therefore, to suggest that a disaster may

result in changes related to self, identity, and culture" (Deeny & McFetridge, 2005, p. 433). Therefore, when identity gaps are present during an individual's disaster experience, they can create and/or worsen barriers and constraints that are present in the disaster context. For POs and AGs, these barriers and constraints emerged from a lack relevant crisis and risk communication and information about pet preparedness. Here, it is important to note that crisis and risk communication are not bound to the immediate crisis stage, but should be ongoing throughout pre-crisis, crisis, and post-crisis (Sellnow et al., 2010; Sellnow & Seeger, 2013). Due to the lack of relevant information for POs and AGs surrounding Harvey, the barriers and constraints they faced evoked identity gaps because they could not enact *their* conceptualized PO/AG identity (Jung & Hecht, 2004).

A primary component of participants' *personal* frame of identity as a PO/AG was their ability to provide care for their animals. Extant research has noted that animals can provide POs/AGs with a sense of self-worth and moral identity due to the animals' status as a family member or friend (e.g., Charles, 2014, 2016; Irvine, 2013; Walsh, 2009). Yet, participants in this research felt that they could not properly enact their identity as a PO/AG because they did not have the needed information to make informed decisions, such as how they could evacuate *with* their animals. The lack of relevant information elicited feelings of exclusion and feeling (re)victimized, which corresponded to negative impacts on POs'/AGs' personal frame of identity (Hecht, 1993; Hecht et al., 2003). Simply, many POs/AGs felt that their identity was delegitimized rather than affirmed by communication surrounding Hurricane Harvey.

Barriers and constraints within the sense-making process can evoke identity gaps. This destructive cocktail of barriers, constraints, and identity gaps can severely compromise individual sense-making abilities, which does not support functions of crisis and risk communication: to

create shared meaning with and between affected individuals, groups, agencies, and communities (Sellnow & Seeger, 2013). Additionally, POs'/AGs' identity was not communicatively affirmed surrounding Hurricane Harvey and, in some cases, POs/AGs could not sustain their identity as they attempted to make sense of their experience (Agarwal & Buzzanell, 2015). However, some participants noted how being a PO/AG was a positive facilitator to taking protective actions surrounding Harvey.

Protective Actions: Identity as Facilitator, Identity as Hindrance

PO/AG identity facilitated the enactment of protective actions in some situations. POs/AGs felt obligated to care for their animals surrounding Hurricane Harvey (see Appendix F, Table F10). As previously mentioned, a primary component of POs'/AGs' *personal* frame of identity was their ability to provide care for their animals (Charles, 2016; Hecht, 1993; Power, 2008). Although some participants felt that they could not properly enact their identity as a PO/AG because they did not have the needed information to make informed decisions, other participants were motivated by their PO/AG identity to enact protective actions, such as evacuating early. Through these enactments, participants' identity as a PO/AG was enhanced (Jung & Hecht, 2004).

Identity can be enhanced through actions and communication (Jung & Hecht, 2004). The personal frame of PO/AG identity (self-concept) was enhanced through participants' *enacting* protection and care for their animals surrounding Hurricane Harvey. Similar findings have been reported in other caregiving roles, such as with mothers. Women's roles as caregivers, mothers, helpers for the injured, and general household managers can prompt protective actions, such as proactive information seeking, information sharing, and elevated (health) risk perception (Enarson, Fothergill, & Peek, 2007; Morioka, 2014; Spence et al., 2006; Spence, Lachlan, & Burke, 2007). Women's identity as caregivers, mothers, helpers for the injured, and general

household managers can be enhanced through their enactment of the aforementioned protective actions. POs/AGs' identity often involves a caregiving role, which may prompt enactment of protective actions as a way to provide protection and care, thereby enhancing and affirming their personal frame of identity (self-concept). However, it is important to note that this was not the case for all POs/AGs.

Crises bring forward our identities. Yet, barriers and constraints within a disaster context can complicate one's conceptualizations of identity. A primary barrier that participants discussed was the lack of relevant information about evacuation and sheltering options. According to extant research, we know that identity as a PO/AG can impact individuals' decision-making during disasters and negatively impact compliance with evacuation orders (Faas et al., 2014; Mei et al., 2013), as many POs/AGs will not evacuate without their animals but struggle to find animal-friendly evacuation options.

Many participants cited a general unawareness of where they could evacuate to *with* animals as a reason why they did not evacuate during Harvey (or why they delayed evacuation). This unawareness of where to evacuate with animals was also reported during 2005 Hurricanes Katrina and Rita, 2008 Hurricane Ike, and 2011 Hurricane Irene (Brackenridge et al., 2012; Heath & Linnabary, 2015; Hunt et al., 2012; Zottarelli, 2010). Having POs and AGs fail to evacuate due to a lack of relevant information and/or evacuation options threatens their health and safety as well as responding personnel who may have to embark on rescue mission(s) (Brackenridge et al., 2012; Day, 2017; Faas et al., 2014; Hesterberg, Huertas, & Appleby, 2012; Hunt et al., 2012; Lowe, Rhodes, Zwiebbach, & Chan, 2009; Mei et al., 2013; Schütte & Kreutzmann, 2011). As Heath and Linnabary (2015) point out that, "There is no other factor contributing as much to human evacuation failure in disasters that is under the control of emergency management when a threat is

imminent as pet ownership" (p. 184-185). Failing to address known and mitigatable risks is not only problematic, but can lead to feelings of (re)victimization.

(Re)Victimization. Disasters spawn environments of victimization. Seeger and Sellnow (2016) state that a crisis victim is "someone who is treated unfairly, does not deserve what is happening, and is innocent" (p. 101). According to this definition, POs/AGs that experienced Hurricane Harvey can be considered victims, especially as official crisis and risk communication efforts largely excluded them. Victims vary in levels of immediacy to the crisis (Seeger & Sellnow). *Primary* victims experience the crisis event and usually have self-determination stripped from them. Humanistic and dignified treatment towards primary victims is abandoned. In feeling like (or being portrayed as) a victim, people are treated as objects and their humanity and rights have been violated, essentially "blaming" victims for their circumstances. Blaming victims has been documented in various disasters.

Certain identities have been (re)victimized in disasters through blaming. During Hurricane Katrina, for example, many African Americans did not have the financial resources, did not receive consistent, timely evacuation communications, and/or experienced racism and inequities that impacted their decisions not to evacuate (Elder et al., 2007). However, African Americans that did not evacuate were blamed for *their* poor decision-making, which often served as a form of (re)victimization for this vulnerable population (Henkel, Dovidio, & Gaertner, 2006; Spence & Lachlan, 2016). Here, it is important to note that in some cases, blame can be attributed to crisis-affected individuals unfairly and serve as a source of (re)victimization after being initially victimized by the disaster event. Furthermore, perceptions of judgement and blame related to PO/AG identity evoked feelings of (re)victimization for some participants.

Implications for Crisis and Risk Communication

Sense-making is a function of language and communication. The process of sense-making uses language and communication to conceptualize understandings, situations, organizations, and environments (Dervin, 1992; Weick et al., 2005). As I have asserted, identity is also an integral part of the sense-making process. For this reason, it is important that identity is considered within crisis and risk communication and that implications of crisis and risk communication are considered as related to facilitating or hindering sense-making of crises.

At the micro-level, sense-making is the process through which individuals use information to help interpret their environment and create meaning for novel and ambiguous experiences, such as disasters (Dervin, 1992, 2003a; Weick, 1995). As information is a constructed product of humans, it is inherently incomplete; however, this is why crisis and risk communicators are charged with the task of partnering *with* publics, listening to publics' concerns, understanding their publics, collaborating with credible and relevant sources, and providing messages of self-efficacy (Foreman-Wernet, 2003; Seeger, 2006). Simply, crisis/risk communication should help publics interpret the environment and create shared meaning (Sellnow & Seeger, 2013). As many of the best practices in crisis communication were absent surrounding Hurricane Harvey—based on POs'/AGs' insights—the barriers and constraints they faced were worsened, which complicated PO/AG identity. By complicating participants' identity, decision- and sense-making abilities were also complicated and resulted in mitigatable threats to health and safety. This issue exemplifies why identity must be considered within crisis and risk communication research and practice.

There is a lack of empirical micro-level knowledge within crisis/risk communication (Spialek & Houston, 2017). Identity/ies exist at the micro-level, as personal conceptualizations of self as well as relationally with others (Hecht & Yu, 2014). The best practices for crisis communication assert that officials must listen to the public's concerns and understand their

audience(s) (Seeger, 2006). POs/AGs value their self-image as a PO or AG, value their human-animal relationships, and value their multispecies conceptualization of family. Based on these best practices, micro-level research is not only needed but critical for effective crisis and risk communication. Further, the lack of micro-level research is worrisome when we recall consider the importance of the local level in disasters.

"All disasters are local," according to Quarantelli (1982, 1988). The local perspective is important and is best understood via inquiry centered on micro-level phenomena. This type of research it can contribute to enhancing organizational processes and (de)constructing knowledge so that it is more comprehensive and inclusive to various publics; not only the publics—or identities—that experts and organizations define and deem as relevant (see Dervin, 2003a). As such, this research was an attempt to begin to fill this gap in crisis and risk communication research. To better understand how POs'/AGs' identity and sense-making are impacted by crisis/risk communication, it is important to investigate POs'/AGs/ informational needs and media uses surrounding Hurricane Harvey and if crisis/risk communication was helpful/not for POs/AGs (RQ2). Further, my assertion that identity is important to the process of sense-making, especially as related to disaster contexts, may help explain how and why POs/AGs have particular information needs and media uses.

CHAPTER 4 FINDINGS CENTERED ON THE FUNCTION OF COMMUNICATION IN BRIDGING GAPS

Communication is an essential component to sense-making. Specifically, when bridging communication gaps during sense-making, individuals rely on cognitions, emotions, beliefs, informational sources, media, and personal evaluations of information to help them make meaning. Therefore, Research Question (RQ) 2 was developed to query phenomena surrounding this part of the sense-making process. The overarching premise of RQ2 is "how does communication function to bridge gaps during POs'/AGs' sense-making in the context of Hurricane Harvey?" To query RQ2, sub-questions were formed, which were narrowed and informed by data collection and analysis. The sub-questions of RQ2 are:

RQ2a: What were the communication gaps that POs/AGs experienced surrounding Hurricane Harvey?

RQ2b: How did POs/AGs bridge communication gaps and/or move to make decisions with the presence of communication gaps?

RQ2c: What were the consequences and impacts of communication gaps for POs/AGs surrounding Hurricane Harvey?

Communication Gaps

As crises evoke uncertainty and threaten well-being, goals, and disrupt routine, most POs/AGs experienced communication gap(s) (RQ2a), especially as it related to PO/AG identity. Riley discussed how experiencing a disaster, especially one of Harvey's size and magnitude, has been a life-altering experience that impacted her sense of "normalcy,"

> You could see the devastation of the town that you know and love in the rearview mirror. That's not normal! All the things that you wake up and do each day, everything that you do, all of your routines. My granddaughters were in ballet, Girl Scouts, dance, and all these different activities and everything. All of that gone. We walked at The Beach Park every

single day, they played softball and soccer. We walked Sophie [dog]. We did all of these things; all that was just gone. Everything we knew was gone. All of our family disbanded, everybody scattered to the four winds. We still are! All the people you see every Saturday, all the things you do every Wednesday night, all that just gone suddenly within 24 hours. Not only that, you have no mattresses, you have no dishes, you have no pillows, you've lost everything! All stability; to having people you can network with, they were all gone, they're all struggling.

For reasons such as those that Riley highlighted, crisis and risk communication become invaluable and life-saving resources in the context of disaster. However, relevant, accurate, and timely information are not always present or accessible in disaster contexts, especially for POs/AGs. This absence of information is referred to as a "gap" in sense-making (Dervin, 2003c, 2003h). Participants discussed a wide range of communication gaps they experienced as related to being a PO/AG during Hurricane Harvey, which included late communication, underestimating Harvey, evacuation options, lost/found animals, and pet-related resources, resources to help with recovery, general lack of animal-inclusive information, and issues accessing information.

Late Communication

Hurricane Harvey rapidly progressed into a Category 4 hurricane. Many POs/AGs stated that the flow of official communication did not keep up with Harvey's rapid progression. Riley detailed this when she said, "as of Wednesday they [officials] were still telling us that it was going to be a Category One or Tropical Storm. By Thursday, 'it was going to kill us all.' And that happened in about an 18-hour space of time." This lag in timely and relevant information resulted in communication gaps that impacted decision-making. Heather also exemplified this by saying that officials were late in "getting out the information because it was very late in the evacuate communication that they let us know that the hotels had to let you bring your animals, if you had FEMA [assistance/vouchers]." Demarcus recalled that:

> We only had about a 24-hour notice before Harvey because we saw it was coming, but we didn't get the mandatory evacuate until 12 to 16 hours before it made landfall in Port

Aransas, Texas. By then we had, maybe, two hours to get out because Port Aransas is on an island and we can take the highway through Corpus, which would have been packed or we take the ferry, but they were shutting the ferry down; so, we were just trying to get out as fast as possible. We didn't have too much of a response time to get everything together and properly evacuate as a result.

Aster also expressed a similar insight, saying,

Well, at first, they [officials] had said that it wasn't going to be too bad. That it was going to miss Rockport [Texas]. At first, I was thinking it's just going to be like all the other tropical depressions. It's either gonna hit way north or way south, but I think it was the day that the evacuation became mandatory there was just a feeling that I had that it was gonna be bad. And really what concerned me the most was that there was still water everywhere.

Late communication hindered some participants decisions to evacuate, or it was too late for them to evacuate by the time they received updated information about Hurricane Harvey.

Lupita experienced this, saying that she would have evacuated and,

I think that I would have taken my animals to my sister's in Dallas. Time and the availability of good information were big things for us. Because by the time that we did get information, it was already too late for us. It was already way too late and a lot of [animal] rescue groups too...we took care of a lot of stray animals on our block and we didn't have the capacity. I couldn't get outta my house. It flooded. It literally flooded up; I mean you just couldn't. You had to have a boat.

Ezra expressed a similar sentiment as Lupita, noting that:

Most information didn't really help. I think if our [Houston] mayor would have told us to evacuate a few days before, I would have been better prepared and evacuated with my pets to Dallas with relatives. So, no, there was not enough information for pet owners and what I did find was not helpful in any way.

Underestimating Harvey

Participants expressed how officials and organizational entities seemed to underestimate Hurricane Harvey in their communication. In the online survey, Wiley wrote, "We did not get enough information from our city. The hurricane was underestimated by everybody; therefore, we were very unprepared." Jerica expressed anger when recalling how Harvey was underestimated in officials' communication, saying,

> Leading up to Harvey, it wasn't a big concern of mine because our mayor [in Houston] and the meteorologists were telling us not to worry, it's just the rain, you know. [Officials said] Don't evacuate, you don't need to prepare, it's just another rainy day. So, I didn't prepare for it. I just took it as it was just another rainy day. Then the day that it hit, it was a Sunday, and my boss called me and told me that work had been shut down. I knew then that it was serious; however, they [officials] were still reporting that it was just another rainy day…I don't understand. I've been through hurricanes before. I went through Katrina, I went through Allison, I've been through a lot of hurricanes here in Houston, but this one, I don't understand why it was so bad. And I am angry, like I said earlier, that the mayor made a joke of it saying 'it's just another rainy day. Don't worry.'

Even Bridget, a PO and a public information officer (PIO), recalled that Harvey was underestimated and that impacted official communication efforts that she was involved with:

> When the National Weather Service was like, 'okay, we're just going to get some rain' and that's not what we got! But what was unique, and I don't know if it was the same for down south or not, is Port Arthur never issued a mandatory evacuation. And the reason for that was once it became evident that an evacuation would be necessary, all of the routes were impacted by the same weather. So, it was either have folks here in the water or on a freeway somewhere for 16 hours stuck in water, you know? Either one of those is not a good option.

Other participants were also surprised by Harvey's magnitude. Greta expressed, "I didn't realize that the storm was gonna be that bad." Additionally, Sable explained that not only did officials underestimated Harvey, but many individuals did as well due to the influence of official communication:

> They [officials] didn't see us getting a direct hit. We didn't feel like it was gonna be that much of a threat and then it just kept raining and raining. I mean, it kept up. They said something like up to 50 inches of rain, I don't think anybody thought we were gonna get 50 inches of rain. So, yeah, it caught us all off guard.

Similarly, Abdul noted,

> Ummm, the news was acting like things were fine until late that night [August 24, 2017] and it was too late. You could not leave your house because all the road ways were already flooded. They [officials and news media] were not helpful, also they would say a shelter is accepting pets but they weren't. Which was devastating to families that had escaped the flood waters with their pets just to be separated from them. It was horrible, I feel the mayor and city [Houston] should of done a better job warning people. They really let everybody down. Because of their actions we still have many family pets missing because they were sent all over the place and owners were not notified of where they were sent. It was a shit show.

In contrast to those participants that felt as though Harvey was underestimated by officials and its seriousness was not adequately communicated to the public, Ariel stated,

> I think that they [officials] told us a lot, but I don't think that anybody really took them seriously [laughs]. I mean, they said it was gonna be horrible and that we were gonna have a lot of rain and a lot of water, but I don't think that anybody could fathom what they really meant.

Simon also expressed an adverse opinion regarding a communication gap about Harvey's seriousness, saying, "I knew a hurricane was coming; so, I bought extra dog food. I didn't need a governmental agency to tell me what to do."

Evacuation Options, Lost/Found Animals, and Pet-Related Resources

Many participants indicated that they experienced a communication gap when it came to information regarding evacuation options, animals they lost or found, and pet-related resources (e.g., pet food). First, many participants experienced a communication gap concerning evacuation options for them *and* their animals. One survey respondent, Ellis, noted,

> I wanted to know where we could go WITH our dogs. We did not want to abandon them or leave them with someone else. I searched on Google for information and a few local animal shelters' websites or Facebook pages. I didn't find much really, so we just decided that the dogs were staying with us and that was that.

Honour and her family decided not to evacuate because they could not find options to accommodate their special-needs dog,

> We decided not to [evacuate] because we do have access to a generator [at home] that is big enough to, as sad as it sounds, to run our central air. So, that's a factor to me, you know, 'can I run our central air and how long?' Because of the dogs. Like I have a cardiac dog and an epileptic dog and they can't be hot. So, we decided to stay and the generator was the main reason that we didn't evacuate.

Similarly, Moses stated that he experienced a communication gap concerning,

> Pet Friendly Shelters: In attempting to help other people who had homes that flooded, it was difficult to find information as to pet-friendly shelters in suburban areas…Pet help and supplies: There also was no information for people on how to obtain pet supplies or vet

care for their pets other than at the main downtown shelter…Lost and Found efforts: There also was not a central database for lost/found pets, nor was there advisement to people as to what to do if they find a pet. Some of the rescues and private shelters never posted pets found during the Harvey period on any public database. Many pets were transported out of the area with no record and no attempt to find owners.

Greta, who had lost her dog during Harvey also experienced a communication gap regarding lost and found animals, "My biggest thing was where do people go? Like where are these [animal-related] places popping up at? Like where can we go look for our animal?"

A communication gap was experienced by some participants regarding pet-related resources, such as where to get animal food and veterinary care. Bridget, for instance, discussed one such communication gap she experienced post-Harvey, "Lack of food source, I mean, we grain feed them [agricultural animals] once a day after Harvey but had to figure out where we could get hay from to be able to feed them." Rooni expressed a similar communication gap she experienced concerning her cats, "It had to do mostly with food and clothing and bedding [for Rooni and her animals]. I mean, really the basics. Well, you know, pet food." The lack of information about where POs/AGs could access a veterinarian post-Harvey was also a communication gap for many participants. When I asked Lupita about things that stood in her way as a PO during Harvey and topics she did not receive (enough) information about, she responded, "no availability for vets." Moreover, other participants, such as Greta, discussed the need for a "low-cost vet, a reasonably priced vet" post-Harvey because as many businesses were flooded and/or badly damaged by Harvey, many POs/AGs had to access new veterinarians/animal care options—if available. Access to veterinarians previous to Harvey's landfall was also a communication gap for some participants. For example, Aster stated,

Pretty Girl [cat] cannot do cars. She can't be kenneled because she throws up the entire time. All the vets were already closed so I couldn't get her anything to just knock her out. And I did not just want to give her Benadryl 'cause I am not comfortable doing that unless

the vet tells me to. And if she's in the car and un-kenneled, she literally will get in the driver's ear and screech the entire time! So, I just knew that there was no taking her. Period.

Resources to Help with Recovery

The availability of information regarding resources to help Harvey-affected individuals recover was considered a communication gap for a large number of participants. Rooni explained that, "It was hard to get accurate and useful information on applying for assistance from multiple organizations to aide us and also our pets." This communication gap was further complicated by the lack of animal-inclusive information regarding housing options post-Harvey. Emilia, who had four house pets, wrote in response to being asked, "Was there any information relating to Hurricane Harvey that you tried to search for, but could not find?"

> FEMA's housing arrangements and options past the hotel options [for immediate evacuation purposes]; we looked online, called and spoke to numerous people and departments. We never did find that out; the hotel option ended before the housing options were available. If we had been relying on FEMA, we'd have been homeless for 6 weeks. We moved back into our damaged house mid-repairs (still on-going 7 months later) because we had no other option.

As there were little to no resources for animal-friendly, post-Harvey housing options, many participants were stranded without a home, or lived in their car with their animals. Riley's story exemplifies this. Her geriatric dog had a skin condition that produced a strong odor. Due to this, her family did not want Riley's dog in their home and Riley refused to abandon Sophie (dog). Riley's home was demolished from Harvey and,

> So, at that point, I'm basically living in my car…my brother has a house, in Ingleside that also incurred a lot of damage. So, I would go stay with him from time to time. It was just, you know, where ever I could sleep. At one point, I parked the car and got a U-Haul and was using the U-Haul [to live in]. I've got pictures of Sophie riding up in the cab.

A similar situation occurred with Jessalyn; whose home was severely damaged from Harvey:

> The water had sat there [in the house] all those days. You know, like three days filled with water and it was actually up to four inches of mold growing off the walls already. So, the police and the FEMA and all those people said, 'you can't stay here!' It was very

confusing…We couldn't find a place to stay with dogs, if there was room, they didn't take dogs. And if they took dogs, there wasn't a spot; so, we stayed in the car out in the front of our house.

Cleo also noticed many POs/AGs "are still living in their cars here." However, some participants were aware of this gap in resources for POs/AGs and offered assistance to other POs/AGs. For example, Kenzie owns a boarding kennel and offered it up to previous clients as a temporary home for their animals while they rebuilt their damaged homes, or secured new housing:

we housed, especially after the hurricane, three German Shepherds for a while. They were there already because they [the dogs' owners] were building a house. And so, we've had the dogs for a total of 11 months. Then we housed two other dogs after the hurricane for eight months, six months, and one just went home. But we've got plenty of room and their owners would come every couple of days to see them, bring their medication, bring their food and they got to go outside and play with them, go to the lake and play with them, whatever.

Other participants, such as Hayden, had to find a boarding facility for their pet while they repaired their damaged home. Hayden explained,

We were in a small hotel room and we were spending twelve hours a days over in Port Aransas working on the damage [to our home] and I just couldn't figure it out; it wasn't safe for her [Hayden's dog] to go with us 'cause there was so much nasty stuff and she would have been so incredibly miserable spending 12 hours a day by herself in a hotel room where she couldn't even walk five feet and then she has to turn around to walk the other five feet. So, we put her in boarding in Corpus Christi, at a place we've put her in boarding there before but we've never left her more than like three or four days when we go on vacation. But it's a nice place and they gave us a good rate because of it being Harvey. They took $10 a day off the boarding. We ended up leaving her there a little bit over a month, which I hated but we went and took her out. We'd go over there once a week or so and take her out and take her to a different dog park, let her run around, but I felt really bad about it.

Information about financial aid post-Harvey was also a communication gap for many POs/AGs. Jerica became so frustrated with trying to find information regarding financial aid to help her with recovery that she stated, "I did everything and I figured everything out on my own. I researched and tried to find answers and help, but I couldn't. I finally just gave up." Hannah wrote

that there was "Not enough info on how to get financial help. Although plenty of groups sent aid to the city, I got turned down for most of it."

General Lack of Animal-Inclusive Information

POs/AGs discussed how a lack of animal-inclusive information and communication surrounding Harvey made decision-making difficult and prolonged their decision-making process. Billi noted that she experienced confusion about,

> Whether a potbellied pig was considered a pet or livestock. I looked online, asked the sheriff's department, and Cajun Navy to see if Lucy (pig) could be evacuated with my parents. I finally just told them to bring her and insist on it.

Other participants also experienced communication gaps regarding what to do with certain types of animals. Zion responded to the question "Was there enough available information surrounding Hurricane Harvey to help you make sense of what you should do to protect you and your animal(s)?", saying:

> To help protect us I would say yes; to protect our pets, absolutely not. [We had a question about] Should we board the farm animals or turn them out? …We really didn't have lots of time to think. We went from no need to evacuate, to voluntary evacuation to mandatory evacuation within a two-hour window…We chose not to evacuate as we would not leave our babies [animals] behind.

Many POs/AGs noted the general lack of animal-inclusion in crisis and risk communication, alluding to anthropocentrism in these communication practices. Kailani said, "I would say there was not as much information about animals as there is about getting the people out because obviously, the people are the first concern for officials." Sable commented on this topic, noting, "whatever information was out there it wasn't very helpful. There wasn't a lot of services or money available for people, especially with animals." Stacey expressed a similar insight, saying, "Information was very hard to come by, even when you're not a pet owner. It was

just [pauses], it seemed that animals were the last thing they [officials] thought about to be honest." Echoing this sentiment, Hayden noted, "There wasn't much information put out about pets. I think people were just worried about people." Ariel explained that anthropocentrism in crisis and risk communication is a problem for POs/AGs because:

> they're [pets/animals] very important and they're not expendable. I think that's the one thing that I want people to understand; they are not expendable and provisions need to be made for them and they need to be made for their guardians, together.

Issues Accessing Information

Although most participants attempted to search for (animal-related) information to help them make decisions surrounding Harvey, there were issues due to the loss of electricity, which hindered the use of many communication technologies, such as cellphone and television. Many participants did not have the resources needed to receive or seek-out relevant information under these circumstances (e.g., hand-crank radio). Phoenix expressed this saying, "Due to down signals, I was unable to access [mobile] apps to know which roads were closed or open. Internet was down and news casters were unable to access those areas due to flooding." In some areas, participants did not have power and/or internet for weeks post-Harvey, which Demarcus experienced, "We lost complete cell coverage for about a few weeks." Ryan echoed Demarcus' comment, writing in the online survey, "Information was not sufficient. This storm's potential was not expected and that resulted in information being delayed or not received as power was lost, cell service was lost." Star also mentioned this in the survey, writing, "145 mph winds destroyed the city's infrastructure. Information was scarce due to no internet, no cell service, & no electricity."

Some participants did not have a television or a cable television subscription, which made accessing information related to Harvey difficult at times. Ariel's community lost electricity leading up to Harvey and post-Harvey:

> we didn't have access to information because we didn't have television or the general electricity was spotty. You were also tryin' to be careful with your utilization of battery life on your phone, you understand what I'm sayin'? So, you tried to be a good steward of your power.

Without access to electricity, many participants experienced a communication gap(s) and as Jessalyn stated, "the cellphones were dead, that was it. That was my biggest question [surrounding Harvey], how to find out news without power?" At one point during Riley's experience with Harvey, she recalled that there was "No electricity! There was no electricity, there was no radio signal, there was no phone signal, no water. There was no TV, there was no gas." Thus, without electricity and the resources needed to receive or seek-out relevant information, many participants experienced various types of communication gaps, often prompting higher levels of uncertainty and anxiety. As Ameera summarized, "There was a lot of uncertainty there and that bothered me, a lot!"

Bridging Communication Gaps and Making Decisions

In the presence of communication gap(s) in the context of a disaster, participants attempted to bridge these gaps so that they could make decisions and, ultimately, move onto make sense of their disaster experience (RQ2b). Participants utilized a variety of strategies to bridge the communication gaps they experienced and detailed numerous processes, such as weighing the risks they faced, in-the-moment decision making, accessing the collective for help, and utilizing existing schema. However, some participants—even at the one-year follow-up—were still struggling with bridging gaps that they experienced.

Decision-Weighing of Risks

As most disaster response services and crisis/risk communications are sparse in their inclusion of animals and the POs/AGs that care for them, most participants faced communication gaps. The strategy that some participants employed to deal with the communication gap(s) they faced so that they could make decisions in the context of Hurricane Harvey meant weighing the risks they faced based on the possible decisions they saw available. Ariel described this when she said,

> for people who are responsible pet owners and who love and care for their pets, they [officials and animal-exclusive policies] really put you in a position of not being able to evacuate, of being trapped, or leaving your animals. If you love your animals, then you're not gonna leave them. So, you're there with them and it's just kinda like, it shouldn't have to be that way.

Kenzie, who owns a boarding facility and was caring for other POs'/AGs' animals during Harvey, had to weigh the risks of: leaving with all of her clients' animals (if she could find a way to do so), risk her and her family's safety by staying behind with her clients' animals to shelter-in-place for Harvey, or wait as long as she could for customers to try to get back to south Texas to pick up their animals previous to Harvey's landfall. She explained,

> We literally made the decision to leave at 4:00 o'clock in the morning the day that Harvey hit [August 25, 2017]…Making the decision to go was a big deal; now, the fact that we knew that we had somewhere to go that was really an ideal place to be made it a lot easier…So, it was just a lot of stress trying to get ahold of the people and logistically get dogs up there [to their evacuation location], like how many vehicles we were gonna have to have, and dynamics of putting dogs together…it don't sound like it was a big deal, but it was a big deal especially when it was 5:00 o'clock in the morning. And see, we waited. We had a poor man that called us and he was in Florida and he had three dogs being boarded and he said, 'I am leaving right not and I am going to drive through the night and I will be there in the morning to pick them up!' Well, we had made the decision to leave; so, we needed to be gone. We had everything packed and were literally waiting for him to show up and he did. He made it at like 9 o'clock that morning. We had already been there since 5:30 that morning, waiting.

Axel was in a similar predicament as he had to weigh multiple risks:

> People I knew in the Houston area were taking their horses to hill country, which would be like College Station, going towards Austin, Texas. Those are about an hour in a half to two

to three-hour drives, one way. I decided, at that point, I was worried that I could take one load of horses there. I may or may not be able to get gas, enough gas to get back. I might be stranded and the horses. Or, if I do get back, I don't have the gas to make another run. That was a real stressor there. So, looking at the maps, looking at the expectations, I called the Great Southwest Equestrian Center, which is right down the street from where I live. It's the largest equestrian center for like competitions and shows in this part of the world, this part of the south. I knew that they were a little bit higher in elevation and they said that they were canceling the show and that they were making their facilities open for evacuations…So, I took horses there. Also, because we were down the street, I felt that I would be in a good position where I could go daily to take care of the horses, multiple times a day very easily. If I had to, I could have walked if I needed to save gas, but it wasn't even a one-mile drive from my residence. I was expecting the waters to get high. I was expecting the reservoirs to get high, but it exceeded my expectations and everyone's expectations…Seeing that the gas stations were running outta gas, which they did most of the gas stations there they did run outta gas; I made the right decision to move the horses, keep them closer, on higher ground, rather than try to take them hours away 'cause I literally would have run outta gas at some point, or I would not have had gas. Somewhere at some point, the truck woulda been stranded…my wife went to stay with some friends a little bit further, in a town that was safer. I wound up living at the Equestrian Center.

For other participants, they weighed the risk of evacuating without their animals and experiencing the grief of leaving them behind, or taking the risk of not evacuating so that they could stay together with their animals. For example, Francis noted,

Me: Do you think that your cats influenced how you responded to Harvey, like the decisions you made at that time?

Francis: Yes, I do. I think that's another reason why we didn't evacuate. I didn't wanna lose them.

Aster's situation was further complicated by weighing the risks that her animals faced with the risks that her and her (human) family faced:

I almost didn't evacuate because of the animals, because of Bebe [dog]. I had a very hard time 'cause when I thought that I was gonna go to my Dad's, and at the time, my Grandma [Bebe's previous owner] was living with my Dad, it's more damaging for Bebe to see my Grandma because she doesn't get to stay with her. So, I had a very hard time with that; with I knew that I couldn't stay, but that's one of the only few places where I should feel ok enough to go to. But because I didn't want to hurt her [Bebe], I didn't. I was scared, too! …Then, I thought that I would go to my brother's in Colorado, but I felt that he has four kids and he was just about to get married within a month of Harvey. I felt that that would be too much, you know, me showing up with two kids and a dog when he has dogs and four kids and is about to get married. If I didn't have to worry about the animals I wouldn't

have thought twice, I just would have gone there….I woke up the next morning I was like 'Okay, now we gotta go. Right now, we gotta go.' Went back and forth, I turned around three times to come get my boyfriend. I didn't leave until almost 11:00 because the first time [I tried to evacuate] I got to Aransas Pass and I turned around. Then I got to, I don't even remember now, I want to think I went up I-188. I think I got to Brownsville and turned around again. Then I was just outside of San Antonio and I turned around…I ended up having to go some big roundabout way to get to Chicago.

Other participants' decision-weighing of the risks they faced took up too much time and hindered their evacuation. Sable explained this, saying,

By the time I figured out how bad Harvey was, it was too late to drive in it. The only way I figured I could escape with all of these dogs [seven] would have been to rent a van and strap them in place so they would not be able to move about and fight with each other. The males all fight with each other and have to be kept separate. I didn't have enough money set aside to do that and it was too late…So, I was prepared to stay here and die with my animals if it came to that. I would never let anything stand in the way of me caring for them.

In-the-Moment Decision Making

In light communication gaps, POs/AGs noted that they had to make decisions in-the-moment and improvised to the best of their abilities. Simply, many POs/AGs made decisions without much planning or thought about the outcome(s) For example, this was previously noted by Ellis (survey respondent), "I didn't find much [information that included animals] really, so we just decided that the dogs were staying with us and that was that." Another survey respondent, Charlie, said that in light of communication gaps, "I just listened to my heart and did what I felt was right." Becky also noted that when facing the pervasive communication gaps, she "just winged it [making decisions]." Jerica expressed similar insights in the online survey, during the phone interview, *and* at her one-year follow-up, "I had to make decisions based on my gut feeling. I didn't know where to turn for help. The lack of resources was just not there [for pet owners]." Lupita discussed her and her husband's strategy for decision-making surrounding Harvey, "My husband and I just played it by ear, played it all by ear." Axel also referred to his decision-making

surrounding his experience with Harvey as, "it seems like it was very impromptu, my decision making" Other participants explained some of the decisions that they made in-the-moment.

Participants that described in-the-moment decision-making highlighted the necessity of innovation and quick thinking. Typically, this included collective decision-making. Ariel, her son, daughter-in-law, and their animals sheltered-in-place, but faced large-scale flooding that permeated their home:

> My son said, 'Mom, the house is gonna flood if we don't get the water away from it.' He said, 'While we have electricity, I'm gonna turn the pool pump on and dump the water from the pool into the moat. We gotta get it away from the house.' So, he was the one that went out and started digging [the moat around the house]. Then it seemed to work; so, we were excited…we took two-hour shifts for days to try to keep the water outta the house, which we did…I know that my house would have flooded, but 'cause my son and daughter-in-law were the ones who were like 'Okay, we need to get organized. We need to do this, we have to do this,' you know? My son dug that ditch for days, I realized that [long pause] after you get over the cryin' and the sadness and the destruction, you have to decided what you're gonna do.

Kenzie also made many in-the-moment decisions and she explained that this was due to:

> Hurricanes are a tricky business and, literally, you do not make the decision to leave until the last minute because they [officials] may tell you that they know where it's gonna go, but 100% they do not. So, even if they've got a path, it's dead-on, but storms come into the Gulf all the time and are always directed at Corpus [Christi]. But then they just turn and hurricanes take the path of least resistance and so the way that our coast line works is storms just feed up to Houston, Louisiana, to the Gulf Coast. They very rarely hit here [Rockport]; so, they either turn and go to the south around Matamoros or they go north. And so, you just don't make the decision to leave until it is on you.

Even if some participants had disaster plans, they were not utilized in the midst of Harvey. Cleo, for example, said,

> Oh, we [Cleo and her spouse] just flew by the seat of our pants. We didn't know what to do. We just did what we had to: pack up and get out of there, that's all. I mean, it was a life or death, pure adrenaline, decision-making process. That's all there was.

Accessing the Collective

Due to the many communication gaps, POs'/AGs' decision-making abilities were challenged. One way that many participants were able to bridge the communication gaps and move onto make decisions was through accessing and inquiring with a collective. By accessing a collective, individuals are made aware of others' feelings, views, new information, etc., helping them to "make sense of the chaos that is taking place in the world" (Heverin & Zach, 2012, p. 45). For instance, Vivian explained how Instagram helped her during Harvey,

> A lot of it was just pictures [on Instagram]. Like, my friends would be like, 'Look at all the water here. Look at how deep these horses are standing in water.' And then I did search a couple times [on Instagram] and I just tried different hashtags…So, we just had to use the information the best we could to make educated guesses.

Sable also accessed a collective via social media:

> Oh yeah, there was a lot of talk going on with friends via Facebook and texting, things like that. You know, 'where's the storm?', 'what is it doing?', 'it is going to hit us?', 'how are the animals?'. There is a lot of talk going around about what was going on and how hard we were going to get hit; trying to figure things out.

Ariel's "collective" included her immediate family members,

> Ariel: I realized that if my son had not been here and his wife, I don't know what would have happened.
>
> Me: To make sure I understand your perspective right, it sounds like having your son and daughter-in-law there, at that time, helped you make some decisions?
>
> Ariel: Yes, they did. I mean, Breese, that's my son, he said to me 'We're gonna get water in the house. We've gotta get water outta the house.' And he says, 'I'm gonna dig a ditch.' And I'm just like 'You really think digging that ditch is gonna help?" Then he says, 'Then, while we have electricity, we are gonna pump the water from the pool into the ditch.' And I said 'Ok, that sounds like a good idea.' So, then when we saw that water start flowin' out that ditch, then we realized that it was a good idea.
>
> Me: So, did you, your son, and your daughter-in-law have conversations before decisions like that were made?
>
> Ariel: Yes.

Simon also detailed how accessing a collective was useful to his decision-making surrounding Harvey, "I was sharing [information] through a group text-message thread with a bunch of guys that I went to law school with…I like Reddit too. Again, more of the searching for pictures of the disaster and recovery efforts [on Reddit]." Greta described how accessing the online collective of POs/AGs was helpful to her,

> Other pet owners in the city and all across this country and the world actually, because there's people on the Facebook page from Australia, from all over who were great. Absolutely great, like totally would just talk to me and stuff because I was losin' my mind [during Harvey]. And now, we're all pretty good friends…They understood where I was comin' from and alls they wanted to do was help me get Franky [dog] back…The pet community totally, the community of animal people is awesome. Great people…They tried to keep my mind occupied. It wasn't me. It was the community of my friends and animal lovers…[Those] people helped me make decisions. I was not thinking clearly.

Some participants accessed a collective as a way to check and confirm received information with other POs/AGs. For example, Aster's teenage daughter helped her make decisions surrounding Harvey, which was supported through her use of Facebook,

> Aster: That's what my daughter was using actually, Facebook. 'Cause when I am stressed out, I turn into, well I have narcolepsy. I just I pass out constantly. My oldest daughter, just to stay calm and to feel like she was doing something, she was just going on to Facebook…She's the one who was like, 'Oh, look at this page. Look at that page' and the news was just repeating the same stuff over and over again.
>
> Me: So, it sounds like your daughter helped you make decisions during that time?
>
> Aster: Uh huh, yes.

Marcie also used social media to access the collective of POs/AGs, which helped her make decision surrounding Harvey,

> I was on Facebook, looking at pages. There is a local page just for my community [on Facebook] and just kinda to get a picture of what was going on, on the ground, people were putting up photos that were driving around and taking video and putting that up to kinda see what was going on. I mean, you got different information on there [Facebook].

Emergent Groups

Emergent groups were considered "helps" by many POs/AGs. Specifically, emergent groups helped POs/AGs make decisions, or made decision-making easier for POs/AGs. These emergent groups connected participants to others for support and facilitated information-seeking and sharing. As Jerica discussed her use of Facebook surrounding Harvey, she spoke about the organizing that emerged from the online collective of the "pet community,"

> I was looking to see what everybody else was posting [on Facebook] because everybody was sharing things and adding groups and information. You know, that's how I met Greta when her dog got stolen; so, it was the community [of pet owners] that was helpful. The community was helping each other more so than the government, the city officials. It was more of a community effort that got us through.

When it came to searching for animal-specific information, Lupita discussed:

> There was not enough information out there about pets and being in the hurricane. Absolutely not. So, we relied on Facebook and each other, text messaging, like literally strangers. That's how we found out about the rescue groups in Katy [referencing the facilities that were created for animals]. A total stranger posted that 'Hey, there's people here in Katy and they are helping take animals here, at this Katy mall, if you have animals or strays or whatever and they do have some vets available.'

> Emergent organizing also provided participants with donations and animal-related supplies. As Arwa noted,

> We had a lot of angels [i.e., lay volunteers] on the island. That in itself was up-lifting and reassuring. We wouldn't have made it, at all, without the angels that came on this island to help us. They have nothing to do with the government, these were just folks that just came down and knew that we were desperate, you know? The angels saved. They saved all of us…People donated lots of pet food and we lucked out with him [points to dog] 'cause he strictly eats that Little Caesars wet food…We had people here offering cases of it and we took them because we knew that after everybody was gone that were gonna have to count on what we got from donations and we do. We stocked up on food, cleaning stuff, food for him [dog], and water.

A prominent way that many participants discovered and accessed resources/information offered by emergent organizations was via social media.

Social media. Social media were a significant facilitator to emergent organizing that aimed to help POs/AGs and their animals. Kenzie offered her viewpoint on this topic, saying,

Social media, like Facebook and stuff, really kinda came into play after [Harvey] because the people in Rockport and Port Aransas literally had no other means of communication; and so, they just formed these Facebook pages and every kind of information you could want or ask or need was on there. It was just like posting like 24 hours a day, every four seconds someone was wondering something…I would say that was the main form of communication, Twitter, which I don't use, and Facebook. So, yeah. And, you know, news stations are gonna push what they are told to push and what people [pet owners] really needed wasn't what the news was covering. So, I think people that lived there that were going through it, they were telling the real story on social media. I think a lot more people got their information that way then they did through the regular news. It was helpful, it really was.

Riley recalled that,

Food was a problem for a lot of folks [post-Harvey], but again they used Facebook and I could tell you that in the first donation trucks, we had 18-wheeler after 18-wheeler that arrived in Rockport from all over the United States! Bringing us supplies, like water, diapers. From the beginning, they brought cat food, dog food, cat litter, and stuff like that. From the beginning, donors brought supplies for the animals.

Cleo received assistance from multiple emergent organizations,

The Cajun Navy was live [on Facebook] all of the time here, telling us what was going on. And then they have a Southeast Texas Rescue Society and they are still in effect right now. They're still on bringing people things that they still need, that are still homeless from Hurricane Harvey. And so, they were guiding us to where the worst flooding was, where the rescues were. And the Cajun Navy did an outstanding job. I watched them constantly. And somebody would just get on Facebook and say, 'I'm on Fourth Street. I need help,' and the Cajun Navy would say, 'Okay, we're going to be there in about an hour, shine your lights or whatever, and we'll see you,' and then they would also, you know, if you have pets they were quick to help with the pets and do what they can. The Cajun Navy also went in and, as did the Southeast Texas Rescue Society or whatever the name is, they went in toward the end of Harvey and started rescuing bigger animals, such as cows, horses, and other livestock or even rescuing pets that people left behind.

In addition to general organizing that surrounded animals or was specific to animals, some groups emerged on social that were specific to certain species of animals. Vivian explained her experience with this,

And especially the horse community because it's a much bigger deal to locate places and things for horses; so, you know, they [emergent group members] would come on [Facebook] and share 'Well, this person is going to open up their barn, they have this many stalls,' or 'Waller County is going to open up this place and they have that many stalls,' or

'take them [horses] to the racetrack.' So, there were definitely people coming together and trying to be a resource for each other and their horses.

Bridget, a PIO as well as a PO, noted how emergent groups for POs/AGs were vital resources for individuals in her community:

> Now a friend of mine that lives out there where I do, he coordinated across the nation to have 18-wheelers loads of hay. He breeds Longhorns and that is a very tight-knit group of individuals…that network of individuals is so close knit that he, I mean, from all over the country they brought not just hay, bags of feed, and then stuff for the humans too, but mostly for the animals. He also owns a mini-storage place and right next to him is a store and they the owner of the store let him use the parking lot and it was a constant flow [of people coming to get donations] and because of the network within that community, all they did was take and set the boxes out…on these community pages on social media we were able to know what other people were doing.

When faced with communication gaps, especially those specific to animal-related information, participants often sought out information from other POs/AGs, which often coalesced on emergent groups' social media pages. Sable explained,

> On Facebook, I looked for pages that were about Harvey and pets. There was a lot of rescuing going on and a lot of lost and found animals. We [other POs and Sable] were sharing information and stuff like that. I am still involved with the groups.

Aster also mentioned finding resources that emergent groups were offering via Facebook, "We had people from surrounding towns coming to Rockport to get their pet food. I met a girl that she was dropping off like big trucks of food to each of the [veterinarian] offices…I saw it on Facebook." Similarly, Jerica discussed how "it was the community [of pet owners] that was helpful. The community was helping each other more so than the government, the city officials, it was more of a community effort that got us through [Harvey]."

Emergent organizing on social media also functioned to help share information within a specific community or neighborhood. Star detailed this in the online survey, writing, "Our neighborhood created a Facebook page immediately after the storm to share information." Jaynae

also mentioned this in her online survey response, "My neighborhood Facebook pages were very

helpful in finding information for me and my animals." Heather also contributed to this category,

noting,

> We have a community page for our town and that was mainly where I got most of my information [concerning animals]. It's just for local community members; people were posting what information that they had heard from someone…there's a lot of people that have pets and have lots of questions about that. I am still in that group.

Thus, as there were many communication gaps for POs/AGs in the context of Harvey, emergent

organizing helped many participants get information that they desired, provided a sense of support

and community, and, in some cases, these emergent groups provided participants with material

resources that they needed for their animals (e.g., pet food).

Accessing Existing Schema

Using previously established schema about disasters was one strategy that some

participants employed to help them bridge the communication gap(s) they faced. Ariel, for

instance, said:

> Harvey [long pause] had to be one of the very worst things that I've experienced. I am not a novice. I grew up in west-central Florida. I lived in Mississippi, although it was the delta, [Hurricane] Katrina came in. I have been here for [Hurricanes] Rita and Ike. I think we all knew, I mean, as a person who's gone through many hurricanes, that's the price you pay for livin' on the Gulf Coast. You kind of prepare yourself. You think you'll be without power, maybe without water. And with Ike, I think it was two weeks that we were without power and a week without water, but you kinda know. But it's like you live for terror for like 24 hours and then it's gone.

Simon used his knowledge of the local area and schema that he developed from experiencing other

disasters in the Houston area, "Being that I know Houston really, really well from a lifetime of

being here, it's obviously gonna flood along Allen Parkway or, obviously, Channel 11 News is

gonna go underwater 'cause it's done so the past five storms." On a similar note, Arwa said:

> I've been watching the [ocean] water. If that water stays cool, less chance something will happen. Last year [2017] at this time, that water was hot! It was already in the 90s and

100s. It was the water temperature…Now, it's warm, it's probably 87 or 88, but it's not like it was last year [2017, when Harvey struck]. Last year, my sister and I both were sure something was gonna happen. The water was too hot, too fast…I actually lived with a fisherman for 15 years who taught me those things. He taught me when the water gets hot, then it'll make the hurricane season more active.

Based on previous disaster experiences, some participants accessed schema about preparedness

for a disaster as it related to being a PO/AG. Sable demonstrated this, saying:

Sable: I did have a good stock up of food and toys for the dogs because we were hunkered down. I got out on the Friday before the storm started and got some stuff…We did have a lot of batteries and lights and candles and things like that. So, yeah. We were pretty stocked up and ready.

Me: What prompted you to do that?

A: Ike! [laughs]. I never really got over [Hurricane] Ike. Since Ike, I've always kept extra ice in the fridge and freezer in case the power goes out so the food won't go bad and you know there's a lot of candles and lights and batteries and stuff that I keep. Ike was a nightmare.

Axel described how his previous disaster experiences informed his evacuation decisions during

Harvey,

I had plenty of places that I could have gone to, up by all the animals and the horses that had them out in nice pastures and keep them nice and dry in barns. There was just the gasoline as the problem. Would there be enough gas? And I would have run out of gas. And I based that on previous experience and I was right…So, I stayed at the Equestrian Center with my horses.

Joan also drew on previous disaster experiences and extant schema to help her make decisions:

The things I had done for the dogs in previous evacuations worked well. I had less time to react, but mentally knew what needed to be done, and was able to work quickly…Having evacuated for hurricanes Rita and Ike, I have a folder with important papers and a list of things to pack to go [for my dogs]. I had thought about what I might need to pack in case we had to leave. I keep Koko's [dog] health records in the car with the car registration papers.

For other participants that had not experienced previous disasters, they used schema they

had developed for other experiences to attempt to bridge the gaps they faced. Although Cleo and

her spouse had never experienced any other hurricane previous to Harvey, extant schema proved

to be useful during Harvey,

> My husband is kind of a prepper in that he's an Eagle Scout. So, he's always got a plan. We've never been involved in anything other than like snow storms when we lived up north, but he's always ready to go just in case we need to. And with that being said, I've always kept my important documents in a watertight container, easy to grab. And like I said, with Sassy [dog], we kept everything right there in the counters. So, if we needed to go-go, you had that right there.

Honour, an AG as well as an employee at an animal rescue, explained how her and her coworkers

used knowledge gained from prior disasters to bridge communication gaps and make decisions

surrounding Harvey:

> We live in Louisiana and we had a severe hurricane, Hurricane Rita in 2005, that did a lot of damage. So, that kind of was our learning experience; so, I have a protocol that I kinda follow during hurricane seasons, when there is a named storm, when it's in the Gulf, of action steps that we take...we [animal rescue organization] bought a bus [laughs]. We've had it ever since Rita. That's kinda what our area gauges how bad this all is by.

Struggling with Bridging Gaps

Unlike POs/AGs that utilized certain strategies to bridge the communication gap(s) that

they faced, other POs/AGs struggled to bridge communication gaps. According to Dervin's (1992,

2003a) conceptualization of sense-making, hindered gap-bridging impedes sense-making abilities.

Heather said, "It's just like so much has happened in the last six months that it takes a couple days

for thoughts to process sometimes." Other participants struggled to bridge communication gaps

that they faced because locating relevant information was too difficult. Jerica explained,

> I would say by the second day I was just so frustrated; so, it [Hurricane Harvey] hit in my area on Sunday. I would say by Tuesday night I had given up. [I] just said, 'Whatever. It's gonna be what it's gonna be.'…I think more information needs to be given out for people that are stuck like I was on how to get there [to an evacuation shelter], who to call, and where you can go, especially with dogs like Pitbulls.

Ariel struggled to bridge a communication gap concerning the lack of communication from

officials about evacuation:

In retrospect, I've been told that they [officials] knew the flooding would be catastrophic. And I wonder why they didn't tell more people they needed to leave? …people died! It is really up to you [officials] to make that decision? I mean, I guess I just think tell the truth and let people make the decision themselves…And I think that, in retrospect, my understanding is that they knew. So, my question is 'who are you to not tell me?' There was a lot of people that came to help. There were people in boats from other parts of Texas and Louisiana that were here gettin' people out. I know that you cannot be prepared for this amount of people and this amount of tragedy, I understand that. I understand that nobody has that figured out, but I struggle with that if they [officials] really knew this and I am in one of those low-lying area and you know that my house is gonna be underwater, why didn't you tell me?

Some participants struggled to bridge communication gaps concerning aid and relief. Specifically, Arwa and her sister Ella struggled to bridge a communication gap they faced regarding why they were denied financial aid from disaster relief organizations:

FEMA, why were we denied? Why were we getting no help? Why were we being ignored? We needed help. American Red Cross came with their American Red Cross truck and fed meals and stuff, but then we needed [financial] support and that. We needed help. We got destroyed, pretty bad. Goin' through 131 mile-per-hour winds, we got hit by the eye-wall and it was devastating.

Similarly, Greta expressed some difficulty with processing her experience with Hurricane Harvey. When thinking about the communication gaps that she faced and how she bridged the gaps that she faced, she remarked, "People helped me make decisions. I was not thinking clearly… In all honesty, I guess [pauses] I don't know if I have even come up with any conclusions yet."

Bridging the communication gaps that participants faced was not seen as a time-bound process for some participants. As Jessalyn noted, "I am still struggling with Harvey. I mean, it's only been six months [since Harvey occurred]." Dede went onto to comment that she struggled to bridge many communication gaps:

Me: Was there anything surrounding Harvey that you were struggling to make sense of?

Dede: The whole thing. The lack of leadership from our local officials. I mean, people needed to be rescued and [officials] having them stand down? Having people that came here to rescue people, having them stand down? And I guess the situation at Ford Park [a site set up to help POs/AGs and animals], which I don't know what's true and what's not true there, you

know, if you weren't there with all the animals. 'Cause you want to see animals reunited with their owners. These are people's animals or pets and that whole situation was weird. And the fact that a lot of people lost their pets, I mean [sighs and stops talking].

Kailani described the communication gaps she faced:

I have students who live on farms. And one of my students, it was right before the semester started, but she was a very proactive student…She was telling me, for instance, about she had some goats and they put the goats in the highest part of the farm and it wasn't high enough. She talked about listening to the goats screaming as they were drowning and it was just like, obviously they did the best that they could and, unfortunately, they weren't able to evacuate an entire farm…It's not about struggling to make sense of it, but sort of going, 'Oh, my God, that had to be so incredibly awful,' and trying to figure out how to provide emotional support for somebody who had to go through something like that.

Rooni also remarked that her struggle to figure out "'Why me?' Why? Why? You know, the eternal question and I know people who died. Why did they die?" hindered her ability to be able to bridge communication gaps and move onto to make sense of her Harvey experience.

Consequences and Impacts of Communication Gaps

With communication gaps present, participants faced an array of consequences and impacts as their decision- and sense-making abilities—that are already strained in a disaster—were further strained by the lack of relevant information for POs/AGs (RQ2c). Some of the most prominent and frequently mentioned consequences and impacts of these communication gaps that participants discussed were risks to their health and safety, such as evacuating late, death, and trauma and stressors that could have been mitigated with relevant information and communication.

Risks to Health and Safety

Risks to health and safety amount in disaster contexts when communication gaps are present. Rooni explained how a lack of relevant and timely information impacted her experience with Hurricane Harvey as a PO:

At about 11:00 p.m. at night, water came into the house about three inches deep, and by midnight, it was waist deep. And by 1:00 a.m. in the morning, we had almost eight feet of water in our home! And my son and I took turns standing on the kitchen cabinets and

holding the kittens in a carrier out of the water. And we were, overnight, from 1:00 a.m. in the morning Sunday morning, until 10:00 a.m. in the morning, we were in eight feet of water and we took turns holding the cats so that they didn't drown…I was covered in poison ivy from being in water for 24 hours and being damp. I was submerged in the water for eight hours and damp for 24 [hours] after.

As many participants did not evacuate because there was not enough relevant, timely information, it created or worsened health and safety risks that many POs/AGs faced. Edna described her experience with this, saying:

I am looking out [my front window] and I see a boat coming into the neighborhood. I started hollering at them and waving at them and I told them that we needed to be rescued and that it was two adults, two children, eight dogs, and three cats. I told them that we were gonna wade down [through the water] and go out onto the front porch of my house. That's exactly what we did. We managed to get all the dogs and the cats, we had two kennels and one of the cats we put in a pillowcase [starts laughing] because it was the only thing that we had! That's our cat! We put her in a pillowcase. We had a blow-up swimming pool that we managed to get all the dogs in, inside a playpen type thing, a portable playpen type thing. We put them inside this swimming pool so they could float out there on the porch and these two boats pulled up to my front porch and that point, the water was up to about my knees on the front porch. When all this started and I started getting the dogs upstairs, the water was up to my knees, at ground level. Now, water is definitely four-feet deep. We loaded up into two boats and they took us to a place where my other daughter and adult granddaughter could rescue us and all four of us and those two and all the dogs and all the cats got into a vehicle that seats five people [starts laughing]! We drove through water that was coming in on the floorboards and finally made it to my daughter's house.

Later, Edna went onto explain how this experience led to severe health issues:

Afterwards [wading through flood waters to be rescued] we had bladder infections, we had all kinds of stuff; skin issues and everything else 'cause that [flood] water was so toxic. People don't realize that have never been in a flood. Our area is all aerobic septic systems and then we have all this farm land all around us. There's people that raise cows and horses, goats, I mean, all over around us! So, when this water starts rising, the first thing that happens is the lids come up on all these aerobic septic systems. This water is full of sewage; it's full of farm chemicals; it's full of farm animal feces; it's full of road waste. You can't imagine. That [flood] water is vile!

Greta and her dog, Franky, also became stranded in the rising storm surge and flood waters:

It was August 27. I will never forget that date. That was the date that we tried to walk to the store and I was walking through waist-deep water through the neighborhood. Franky was pretty much swimming beside me and I lost him [to the water's current].

Lupita also discussed the communication gaps that she faced and the consequences that these gaps

had for her:

> None of the main stream media or government information, it did not include information about animals or pets. I know 'cause I went on the websites and even my website [her employer's website, associated with a government entity] actually had nothing. Nothing at all…I woulda liked to know a couple days ahead of time that this storm is going to be really bad and that we should evacuate. And I would have evacuated. I would have stocked up on everything and just left…I believe that if they'd [officials] been better prepared for evacuation, I think that a lot of persons and animals that died or were lost during the hurricane, I think that that could've been prevented if we'd been given a better evacuation route or more time. Instead of sitting still, sitting still. I think that I would have taken my animals to my sister's in Dallas. Time and the availability of good information were big things for us because by the time that we did get information, it was already too late for us. It was already way too late and a lot of rescue groups, too...I couldn't get outta my house. It flooded. It literally flooded up, I mean, you just couldn't [get out]. You had to have a boat.

> Other POs/AGs faced health risks post-Harvey. Jerica did not evacuate and explained how

this impacted her health:

> I am on oxygen because the mold and the spores in my home got in my lungs. I have restrictive lung disease now…and my doctors are blaming Harvey for it. Mentally, I think it messed with my head really bad. I think more so because I got sick from it and because it's my fault because I was ignorant. Mentally, it really messed with me because it really made me open my eyes to the hate that I have to face with my life choices and my life choices are my world, they [pets] make me happy, they're my babies: my dogs, my birds.

Other participants also reported mental health issues due to their Harvey experience, such as Cleo

who explained,

> I have some weird anxieties. I'm going to talk to a counselor and with the loss of my dog, you know, I think both of them combined [experiencing Harvey and the death of her dog] was just a high amount of stress, even though it's been a while now, I'm still kind of dealing with some stuff; so, I'll go talk to a therapist and just make sure that I'm on the right track. And that I am not becoming depressed or anything like that.

Cleo made the decision to euthanize her dog during Harvey. This decision severely complicated

Cleo's experience and left her with difficult post-Harvey health issues to manage. As may be

evident, communication gaps evoked many consequences for POs/AGs, such as late or failed evacuations.

Late or failed evacuations. Many participants discussed how the communication gaps that they experienced hindered a timely evacuation. According to survey responses, POs/AGs experienced issues with evacuation due to poor communication as 36.9% of respondents reported that they evacuated their home with all of their animal(s), 6.9% evacuated their home without all of their animal(s), 7.4% did not evacuate their homes, and 48.8% of respondents indicated that they chose an "other" option when it came to evacuation, such as being rescued by the National Guard/other rescue personnel, or being stuck at the respondent's place of employment, or at a friend's home (see Appendix F, Table F19). Darby provided additional detail about how communication gaps impacted their family's evacuation:

> The part that caught everyone off guard out here [was] how fast the water rose, unexpected. And no local government or media gave us any warning. We are farm life out here, every neighbor had to prep for horse and cattle evacuation, didn't do so until the water touched the roadways, almost too late. There was no warning or media coverage on Chocolate Bayou [area in south Texas]…We loaded our family of five on the boat, [which was] prepped, stored under the house so we could evacuate first and went to higher ground, the water level was 59 inches. The second boat ride was my husband and eldest daughter going back to our home after four kenneled animals…We were not given any updates or media coverage.

Ameera ended up sheltering-in-place with her cat for Harvey. She explained:

> I tried [searching for information], but I wasn't very successful because I didn't know the road conditions because I was not going to go out and check it myself. So, that is why I was checking, for like more updated information…There was a lot of uncertainty there and that bothers me, a lot! …I got quite nervous because of that. I was thinking 'Okay, here is a big responsibility. Not only do I have to take care of myself, but also this little one [cat] that depends on my care.' Yeah, for a while I didn't know what to do, I was thinking like 'Should I just brave the weather and drive back to Dallas?', but it was just impossible. So, I had to stay there until Harvey went away.

Francis recalled,

I think Victoria [Texas] finally did become mandatory evacuation, but it was too late by then. And so, we stayed where we were…And no, there really wasn't any information about preparing my pets for hurricane-related activities. It was all the emergency notifications that were going out were for us [humans]. And then all the notifications afterwards were for us [humans]…I think that's another reason why we didn't evacuate. I didn't wanna lose them   [cats].

Lydia also experienced the consequences of communication gaps as she was not able to evacuate

with all of her animals. Her bee hive, hens, and rooster were left behind as she and her cats and

dogs barely evacuated in time to miss Harvey's landfall:

There was no information available because they didn't indicate the storm would hit until it was too late. No one saw this coming; everyone was scrambling just to get out. To my knowledge there was no information on what to do about animals.

Moira also evacuated last minute because:

they [officials] waited too late to give an evacuation order. They didn't give an evacuation order until Thursday. It hit Friday. You're talking huge amounts of people and like I said, we've done it [evacuate] before. When we evacuated for three hurricanes before this in different seasons, we got bitched at, yelled at, you know? …But this time, they [officials] waited. I didn't even know about it. My daughter called me and she says, 'Mom, what are you doing at the house?' I said, 'What else would I be doing? You know, it's a tropical storm, I can get through that.' [Daughter says] 'No, Mom it's not, it's a Cat. 5!' And I said, 'What are you talking about?' And she said, 'It's a category 5. It's all over the news!' Well, I don't get TV and it doesn't show up on the radio like that...Well, I grabbed clothes that I can wear and shoved the dogs in the car and I left. I opened the gate between all the horses and threw out as much feed as I could and I left Thursday afternoon.

A similar situation was explained by Demarcus:

We only had about 24-hour notice before Harvey because we saw it was coming, but we didn't get the mandatory evacuate until 12 to 16 hours before it made landfall in Port Aransas, Texas. By then we had, maybe, two hours to get out because Port Aransas is on an island and we either can take the highway through Corpus [Christi], which would have been packed or we take the ferry, but they were shutting the ferry down; so, we were just trying to get out as fast as possible. We didn't have too much of response time to get everything together and properly evacuate. For that time, I was getting stuff ready to leave, between trying to get sand bags over behind the doors to try and prevent some flooding, trying to gather up some food, whatever valuables I needed, important documents and making sure that the animals had food and we had water just in case. We had three vehicles and we fit all of those animals plus the litter of the mama [cat] and her kittens into three vehicles plus our belongings, food, and all of that. It was very cramped.

Lupita also noted that "when we saw it [Harvey] hit Corpus Christi, it was too late for us to evacuate. God, it was too late…There was not enough information out there about pets and being in the hurricane. Absolutely not."

Death. In a few unfortunate circumstances, participants experienced the death of an animal(s) due to Harvey. Most participants that experienced this felt as though their animal's death could have been prevented with relevant and timely communication and/or resources. All of Moira's horses died due to being stranded in Harvey's wrath. As Moira explained,

> those animals were killed during the hurricane 'cause I was unable to get them outta here. The man that said he'd come and take all the mares and foals just never showed up [long pause]. There's nothing in this town set up for removing of animals. Nothin'...Some of them [horses] were hit by flying debris [long pause]. You know, they were hit by trees [voice starts to tremble]. They were turned lose so they could fend for themselves, but you know, within a certain confined area. Within three acres. The storm was so vicious and then when the wave came in [storm surge], it just, there was nowhere for them to go…I kinda left knowing that I wasn't gonna have 'em anymore [begins to sob].

Other participants experienced the death of their animal(s) via elected euthanasia. Cleo, for instance, explained this difficult situation:

> We [Cleo and her husband] laid in bed, and sorry if I cry a little bit [beginning to cry], we made the decision to put her [dog] down [euthanize] that night. We didn't know what else to do. She was suffering, she was breathing hard in the night. She was very uncomfortable. So, we went back to our vet, back in Louisiana, and he put her down for us. And after that we are able to find places to stay [post-Harvey] since we didn't have a dog anymore…The stress that she was under during the storm and she hates thunderstorms, and she hated the rain. So, when it [Harvey] was all coming in, she was just in a constant panic state and she just became so exhausted that she couldn't even panic anymore.

Marcie also made the difficult decisions to euthanize her two elderly dogs during Harvey due to the stress that they were under. She explained,

> I consider my two dogs to be victims of the hurricane. I mean they would have lived longer if Harvey wouldn't have hit. I probably would have waited longer to put them down…for the dogs Harvey wasn't such a good experience with their age and I guess the stress. Kimmy [dog] was not able to hold her bowels. And we weren't able to get her outside in time. And we felt that with the uncertainty and with her situation being as it was, that we needed to go ahead and put her down [trembling voice] and because she and JayJay [dog] were a

bonded pair and he had hip dysplasia. He had bad hip dysplasia; he was developing it as well. So, we decided that [pauses and crying] since they were a bonded pair that we needed to go ahead and put both of them down. The hotel [that we evacuated to] happened to be right next door to a shopping mall, that had a PetSmart in it that had a veterinary hospital in it. I mean, we were literally right next door. So, we took them over to the vet and had them put down.

Sadly, Ariel and her family also decided to euthanize an animal during Harvey; however, this animal was a cat that they had found:

The one cat that we took in that came outta the parking lot, that really wasn't my son's or mine [cat], but we couldn't leave her out there [in the storm]. We ended up putting her down. She apparently inhaled motor oil tryin' to get outta the [flood] water and then she was in the car engine. That's when we took her in 'cause we felt very sad because we were trying to get my son's car, which had been lost to the water. She apparently developed a real serious pneumonia 'cause she inhaled that motor oil. They [veterinarian and staff] couldn't save her. I mean, she just didn't get well.

In other experiences, some participants that left their animals in the care of others lost their animals due to negligence on behalf of the caretaker. Lydia experienced this, saying,

I left my hens in dog kennels, and my rooster loose, they all survived. They were loose after the storm and a lady came and took the birds under the pretext of caring for them. She left them out and they were are all killed except one hen and the rooster. I took them back. I'm so mad at this woman but there's nothing to do about it now…If I had had an extra coop [at the time of Harvey], I wouldn't have let that woman take my birds and they would still be safe with me instead of abandoned by this deceitful lady. Sorry, I'm still really mad at her.

In another respondent's experience, Nadia's "bees drowned and died," because she did not have enough notice to evacuate them.

Mitigatable risks and stressors. With more relevant and timely communication, many POs/AGs felt that the risks and stressors that they faced could have been mitigated. Simon, for example, experienced what he thought were mitigatable risks and stressors due to officials' poor communication surrounding controlled dam releases surrounding Harvey:

Surrounding that dam release, why did they [officials] chose to release the dam in the middle of the night and not send people into the neighborhoods? You know, like send police or the National Guard who had been deployed, or anybody into these neighborhood

and announce with bullhorns and knock on doors! Tell us 'You need to get outta your house right now!' The flooding from the rain comes in and it happens relatively quickly, but it's usually not gonna be the kinda thing where you go to sleep and you wake up and you got three feet of water in your house…This dam release was within a matter of eight hours and it just changed the landscape of huge sloths of Houston! …I think that the government should tell you when they are gonna do things that they've never done before. They need to make a huge effort to inform the public and you can't just get on the news at night, when people are asleep, and expect that to be sufficient; especially, for those that are immediately affected or had to think about their pets, too.

Edna's adult daughter risked her health and safety to save her grandmother's cats and the family

chickens, which could have been mitigated with timely communication. Edna explained:

We were worried about my mother's cats [next door] and the water was just flowing through our yard so fast. It was just terrible. She [Edna's daughter] managed to wade and half swim across a football-field length of property from our backdoor over to my mother's and she got the two cat carriers that my Mom used to take her cats to the vet. She got the cats in them. She pulled a door off of a closet and put those carriers on that door and floated those cats over to our house and got them inside, upstairs. And then she went out with this door, literally, she had to swim out to the back of our property and the chickens were all up on top of their little coups, on top of their little chicken houses, inside their big pen. She loaded them up on this door and swam them to the hill, which is actually a dyke to keep the bayous from flowing into our yard; it was flowing through drainage ditches that were doing the reverse of what they were supposed to do. And she got all those chickens up onto the top of that hill where we had a swimming pool and a deck and everything up there. So, the chickens had a place to go to get outta the rain and the water did not get as high as that dyke; so, they were safe up there. And they were safe from predators because nothing could get into our yard. She nearly got sucked away before she could get back to the house.

Kenzie felt that she could have saved more of her property, belongings, and experienced less stress

if official communication would have been timelier and more relevant for POs/AGs:

So, we live right on the water. We didn't even board up our house in Portland [Texas]… the only place that we tried to board up was in Rockport [Kenzie's animal boarding facility] and my staff did that. If they hadn't done that, we wouldn't have had time to do that either… So, it was just a lot of stress trying to get ahold of the people [to come pick up their dogs at Kenzie's boarding facility] and, logistically, getting dogs up to the evacuate site and how, how many vehicles we were gonna have to have, and dynamics of putting dogs together [during evacuation]. We had two dogs that absolutely could not go with any dogs ever because they're aggressive to other dogs; so, just trying to figure out how to put what dogs in what vehicles and how and to get them up there before it starts raining and getting them out, it don't sound like it was a big deal, but it was a big deal especially when it was 5 o'clock in the morning.

Lupita discussed how officials may not agree that animals should be included at the same level as humans in official crisis communications and response/recovery efforts:

> I just think that it should be common courtesy though [to include animals/POs/AGs in official communication]. I mean, people consider their animals, their pets, as family members….I believe that if they'd [officials] been better prepared for evacuation, I think that a lot of persons and animals that died or were lost during the hurricane, I think that that could've been prevented if we'd been given a better evacuation route or more time or better information.

Bridget, a PO as well as PIO in Texas during Harvey, even remarked:

> Not something that, even given my predisposition toward animals, never even gave it a second thought [including POs/AGs in official communications]. Now for my animals, I did, but I had never thought of it from a professional standpoint. It will forever be a part of that now. And something that I've mentioned to the Emergency Management Coordinator, especially with them I have to do it from a City standpoint, from an Animal Services, or something of that nature to prevent some of the same things from happening again [in future disasters].

Summary

Communication or the lack thereof played a prominent role in participants' sense-making processes, especially as related to bridging communication gaps. Communication gaps were omnipresent for POs/AGs surrounding Hurricane Harvey, which included: late communication, underestimation of Harvey, evacuation options, lost and found animals, and animal-related resources, resources to help with recovery, a general lack of animal-inclusive information, and issues accessing information that impacted their ability to bridge communication gaps. The process of bridging communication gaps and moving onto make decisions was done in various ways. Some POs/AGs partook in decision-weighing of the risks that they faced, utilized in-the-moment decision-making, accessed a collective, received assistance from emergent groups which largely coalesced via social media, made use of extant schema, and some POs/AGs struggled with bridging communication gaps altogether. Although many POs/AGs bridged the communication gaps they faced, there were still many details about consequences and impacts of communication

gaps that they experienced. Participants described risks to their (and animals') health and safety, late or delayed evacuations, animal deaths, and mitigatable risks and stressors.

Discussion

The overarching premise of Research Question (RQ) 2 is "how does communication function to bridge communication gaps during POs'/AGs' sense-making in the context of disaster?" To address this question, three sub-questions were posed. Sub-questions were crafted and revised based on data collection and analysis, following iterative qualitative data analysis procedures (Tracy, 2013). In regard to RQ2a, which centered on the communication gaps that participants experienced surrounding their experience with Hurricane Harvey, six prominent categories surfaced: 1) late communication, 2) the underestimation of Harvey, 3) evacuation options, lost/found animals, and pet-related resources, 4) resources to help with recovery, 5) general lack of animal inclusive information, and 6) issues accessing information.

Communication Gaps

There were many mitigatable risks that POs/AGs faced in their experience with Hurricane Harvey, which were created or worsened by communication gaps. POs and AGs who experienced Hurricane Harvey would be considered information-poor due to the numerous communication gaps that they faced (Dervin, 2003h). To reiterate, communication gaps are discrepancies or deficits between the cognitions that an individual has about a topic and the communication/information they need to make sense of the topic (Dervin, 2003h). Bridging communication gaps is essential for informed decision-making and sense-making. Dervin (1992, 2003h) asserts that there is a dire need within communication research to better understand how individual characteristics *and* social systems impact individual sense-making. Based on findings from this research, it is evident that the official systems surrounding Hurricane Harvey largely

failed to meet the informational needs of POs/AGs. These unmet informational needs evoked communication gaps and complicated POs'/AGs' ability to make informed decisions and move onto make sense of their experience. This phenomenon is not new within crisis communication, as Wukich and Mergel (2015) note:

> The inability of government actors, whether local, state, or federal, to generate adequate risk perception among the public and to disseminate timely protective action information represents an ongoing set of problems in emergency management. What is also important to note is that government performance declines when agencies fail to receive adequate feedback from constituents about an incident and related community needs. These problems create communication gaps. (pp. 707-708).

However, social systems—such as other POs/AGs and online collectives—provided some POs/AGs with helpful information that facilitated gap-bridging surrounding Hurricane Harvey.

Communication gaps during disasters can hinder timely and informed decision-making and, therefore, hinder sense-making. The numerous communication gaps that POs/AGs experienced serve as an "indication that formal systems as they are now designed do not intersect well with gap-bridging needs" of diverse publics (Dervin, 1983, p. 19). As formal, official systems do not support the gap-bridging needs of publics—like POs/AGs—during crises, there is greater strain on sense-making because it relies heavily on interaction between and among individuals and systems (Heverin & Zach, 2012). Government officials and associated organizations are one of the primary systems that participants expected to receive communication from. However, even former administrator of the Federal Emergency Management Agency (FEMA), Craig Fugate (2018) has acknowledge that, "We plan for our communities by placing the 'too hard' to do in an annex: the elderly, disabled, children, and pets" (n.p.).

The lack of communication from governmental officials and organizations violated most POs'/AGs' communication expectations. According to expectancy violations theory, individuals carry expectations about the behavior of others (Burgoon, 1978, 1993). Some expectations are

based on direct experience, while other expectations are based on social and cultural norms. Such knowledge is applicable to disasters because they "often involve transgressions or violations of rules, a crisis can function in a manner similar to expectancy violations in organization–public relationships" (Kim, 2014, p. 141). As crisis communication originates from organizations and associated authority figures or spokespeople (Ulmer et al., 2019), participants carried the expectation that governmental officials and organizations would provide them with relevant and timely communication about Hurricane Harvey; however, these expectations were violated and resulted in communication gaps. The experience of communication gaps, however, is not unique to Hurricane Harvey and POs/AGs.

Communication gaps have been documented in other disasters. Many Black and African American residents in Flint, Michigan desired to receive additional information about health effects associated with the municipal water crisis (Day et al., 2019). During the 2009 Victorian bushfires in Australia, residents experienced communication gaps about the severity of the fire, when the fire was expected to reach certain towns, the location of a fire and the direction it was spreading, receiving confusing or contradictory information, and the use of vague terminology in warning messages (Choo & Nadarajah, 2014). Based on crisis communication gaps on social media during 18 snowstorms in the U.S., Hong, Fu, Wu, and Frais-Martinez (2018) suggest that government officials need to better promote themselves to local residents on social media so that residents are aware of governmental accounts and responsibilities during crises. Residents could then utilize officials' social media accounts to seek out information during a crisis. Government officials should strategically select information that they share with residents so that it meets *their* informational needs, which would help decrease communication gaps (Hong et al., 2018). Yet, this necessitates that officials understand publics' informational needs, which requires

understanding publics well *before* a crisis (Seeger, 2006; Wukich & Mergel, 2015). Further problematizing this issue are the levels of cooperation among officials, organizational spokespeople, and journalists. When cooperation among these entities is low, it can constrain the flow of information during a crisis which can create or worsen communication gaps (Palttala et al., 2012). Such issues do not support the goals of crisis communication.

Crisis communication functions to help people take responsibility, understand the crisis and associated risks, and make informed decisions (Seeger, 2006; Sellnow & Seeger, 2013; Sellnow et al., 2010). Creating shared meaning among disaster-affected individuals, groups, communities, and organization is a top goal of crisis communication. However, disaster managers have reported discrepant perspectives about the roles and goals of crisis communication (Palttala et al., 2012), which may be a reason that POs/AGs experienced communication gaps surrounding Hurricane Harvey. Here, it is important to noted that

> Response organizations often fail to meet the expectations of all the diverse public groups, and hence neglect the human perspective. This could be addressed prior to crises occurring…the starting point for crisis communication should be people – the directly and indirectly affected civilians and communities, and their needs. (Palttala et al., 2012, p. 9).

Understanding the informational needs of diverse publics is essential for effective crisis communication.

Effective crisis communication is not based in the transmission model of communication. Yet, most crisis communication operates according to the transmission model. In this model, messages are created from the sender's point of view (Foreman-Wernet, 2003). As related to crisis communication, "social power structures, such as systems of expertise, decide whose understandings and observations get preference" (Foreman-Wernet, 2003, p. 5). Due to this uneven distribution of power, communication gaps are inevitable when crisis communication operates according to the transmission model of communication. POs'/AGs' understandings and

preferences did not get preference or consideration surrounding Hurricane Harvey, which created and/or worsened communication gaps for this population. If government officials and organizations followed the best practices for crisis communication and worked to engage publics to facilitate relationship building (Seeger, 2006), it is likely that the understandings and preferences of POs/AGs would have been understood previous to Hurricane Harvey. However, within the transmission model of communication, POs/AGs are not a part of the status quo due to the value they place on their animals and, therefore, they are not (fully) included in the expert-dominated systems that create crisis communication.

Frameworks like SMM are important to consider within crisis communication. SMM rejects viewing publics as static entities and does not view information/communication as "things" to be received as the transmission model of communication does (Dervin, 2003a). SMM critiques transmission-based models of communication and advocates for a contextual, dialogic-based model of communication (Foreman-Wernet, 2003). To practice crisis communication as dialogic and publics-centered, "institutions need to learn to listen and to address differences and contests in human beings' understandings and experiences," such as those explicated by POs/AGs (Foreman-Wernet, 2003, p. 6). Dialogic and publics-centered crisis communication practices function to support resilience.

Communication Gaps and Resilience

Resiliency is a function of resources and support, which enables individuals to "bounce forward" after an adverse event, such as Hurricane Harvey (Houston, 2015). Manifestations of resilience are exhibited in an individual's or community's ability to participate and plan for crises and risks *previous* to their occurrence (Brand & Jax, 2007). In the case of POs/AGs and Hurricane Harvey, participants felt excluded from official and organizational communication practices and

efforts. As resiliency is a function of resources and support, of which information are considered both a resource and a form of support, POs' and AGs' resiliency was stifled by their exclusion from official crisis communication efforts. Through their exclusion, POs'/AGs' sense-making processes were impacted because the "forward" part of resiliency encapsulates "the reality that the return to baseline [pre-crisis] is not simply a return to how things were before the event, as it includes adjustments to a new reality that has been shaped by the event" (Houston, 2018, p. 19). Therefore, POs/AGs have to make sense of their experience to enact resiliency and move "forward," but this was complicated by communication gaps which complicated POs'/AGs' sense-making processes.

The lack of relevancy to and inclusion of POs and AGs surrounding official crisis communication efforts for Hurricane Harvey is problematic as related to various levels of resiliency. Extant research reminds us that interconnection among and between individuals, families, communities, and leaders influence a community's level of resiliency (Acosta, Chandra, & Madrigano, 2017; Houston, 2018). To put differently, a resilient community is not just a group of resilient individuals or organizations. It is a collective that interacts in a successful manner to support adaptation of the *entire* community, which governmental officials and organizations play a prominent role in (Houston, 2018). Exclusion from crisis communication can impact the resiliency of community/ies as well as the sense-making capabilities of individuals, as individuals often require collectives to make sense of adverse events likes disasters (Dervin & Frenette, 2003; Heverin & Zach, 2012). Such exclusion also impeded implementation of the Federal Emergency Management Agency's (FEMA) Whole Community approach to disaster planning.

The Whole Community approach to disaster planning and response is important to consider as related to individual disaster experiences and sense-making. A main assumption of the Whole

Community approach is that local publics should be aware of and be engaged with their community's disaster management efforts and be able to access and exchange disaster-related information (Chandra et al., 2013; FEMA, 2013; World Health Organization [WHO], 2017). Based on PO/AG insights and the numerous communication gaps they experienced surrounding Hurricane Harvey; the Whole Community approach was not supported by governmental crisis communication. Implementation of the Whole Community approach is further hindered by the lack of empirical micro-level research within crisis and risk communication because the:

> current Whole Community disaster management approaches are not adequately utilizing local residents in their role as micro-level communication resources for family, friends, and neighbors. We propose that Whole Community disaster management approaches would be strengthened by utilizing an ecological disaster communication perspective that incorporates micro-level community communicative sources and activities. (Spialek & Houston, 2017, p. 2).

As SMM "provides a missing procedural link between macro and micro levels of human communicative behavior, between larger social organization and individual action" it is a useful framework for crisis communication research to help begin to fill the void surrounding micro-level research (Foreman-Wernet, 2003, p. 9).

Bridging Communication Gaps, Making Decisions, Making Sense

There were a variety of ways in which participants bridged communication gaps and moved to make decisions in the presence of these gaps. Based on participant responses, there were six non-mutually exclusive ways in which participants moved to bridge communication gaps, 1) decision weighing of risks, 2) in-the-moment decision making, 3) accessing a collective, 4) emergent groups, 5) accessing existing schema, and 6) struggling with bridging altogether. Some participants utilized multiple bridging processes, at different times, for different moments/contexts surrounding their experience with Harvey, and some were not able to bridge the gaps that they faced—even at the one-year follow-up.

One way in which participants bridged communication gaps they faced as a PO/AG was to weigh the risk(s) they faced. With the presence of numerous communication gaps, POs/AGs weighed the risks they were willing to take. For example, some weighed the risks of either evacuating without their animal(s), evacuating with their animals without a place to shelter (e.g., hotel or evacuation shelter), or stay at home with their animal(s) to shelter-in-place for Harvey. Here, the link between crisis communication and sense-making becomes apparent because without access to timely, relevant information, POs/AGs faced communication gaps which required gap-bridging; however, under the uncertain and threatening conditions of a disaster their ability to bridge gaps often prompted them to weigh the risk(s) they faced and make in-the-moment decisions. Weighing of risks was directly related to PO/AG identity, which influenced gap-bridging behaviors (Foreman-Wernet & Dervin, 2016; Reinhard & Dervin, 2011).

Communication gaps are difficult to bridge within the context of a disaster and can negatively impact decision-making and sense-making due to cognitive and motivational biases. Specifically, as related to evacuation and being a PO/AG, difficulty bridging communication gaps during a disaster can result in utilizing cognitive biases as a way to cope and/or make decisions (Comes, 2016; van den Homberg, Monné, & Spruit, 2018). With communication gaps present for POs/AGs surrounding evacuation, they could utilize to a cognitive bias in which they create an over-simplified mental schema because they are dealing with a complex problem (Comes, 2016). POs/AGs may also experience a motivational bias in their decision-making due to communication gaps. These biases arise due to the desire for a specific outcome, such as being able to care for and stay together with their animals while also escaping the threat of Hurricane Harvey (Montibeller & von Winterfeldt, 2015). Both cognitive and motivational biases are detrimental to informed decision-making. However, the present of and negative effects from communication gaps are not

"new" problems in crisis and risk communication as extant research has noted how "Response organizations often fail to meet the expectations of all the diverse public groups, and hence neglect the human perspective" (Palttala et al., 2012, p. 9). One of these public groups is POs/AGs. As related to Dervin's (1992) sense-making, the intersection of "relevances," "verbings," and bridging are important areas of focus because they serve as an explanatory purpose as to *how* gaps were bridged (or not) by POs/AGs.

Bridging gaps are impacted by what the SMM terms as relevances. These are criteria attributes that individuals use to evaluate inputs such as information, information systems, and information design (Dervin, 2003e). The inputs used can be garnered from an array of sources, such as interpersonal sources, organizations, media, etc., but are also impacted by verbings. "Verbings" involve making use of ideas, cognitions, attitudes, beliefs, values, feelings and emotions, memories, and stories and narratives for sense-making (Dervin & Frenette, 2003; Foreman-Wernet & Dervin, 2005). For POs/AGs, many view their animals as family members, relational partners, and very important elements in their lives (Amiot & Bastian, 2017; Entis, 2016; Sanders, 2003; Taylor, Lynch, Burns, & Eustace, 2015). Due to this, having an animal can impact a POs'/AGs' relevances and verbings and, hence, their gap-bridging behaviors. Simply, being a PO/AG influenced participants' informational needs and their sense-making process. Some participants directly stated that their animals were not only an influence on what information they desired, but their animals were also a prominent influence on the decisions they made (or not) surrounding Harvey. These decisions were further influenced by communication gaps. However, accessing a collective supported the gap-bridging process for *some* POs/AGs.

Sense-making typically involves accessing a collective. Individuals cannot have complete understanding of reality alone; thus, people must work together to make sense of chaos (Dervin,

2003f). Such an assertion is especially relevant to disasters (Sellnow & Seeger, 2013). In working together to make sense of chaos, individuals often enact the "talking cure" as a way to bridge communication gaps, cope with chaos, etc. The "talking cure" occurs when individuals communicate their inner feelings or thoughts to others (Heverin & Zach, 2012). Through accessing a collective in this way, disaster-affected individuals can express their feelings/thoughts, which can help bridge communication gaps and contribute to their sense-making process (Dervin & Frenette, 2003). Thus, the "talking cure" can be considered a sense-making communicative micro-practice (Heverin & Zach, 2012), one that can even occur on social media.

Social media was used by many POs/AGs as a resource to help bridge the communication gaps that they faced. Social media are very important to crisis communication, across all levels: micro, meso, and macro (Austin, Liu, & Jin, 2012; Sellnow & Seeger, 2013). At the individual level, social media provide users with opportunities to check-in with their interpersonal networks, rapidly acquire information, and confirm or challenge disaster-relevant information (Austin et al., 2012). Sharing and/or gathering information via social media during time of a disaster can contribute to informing oneself or others and, thereby, facilitate bridging communication gaps while connecting to a collective (Heverin & Zach, 2012; Houston et al., 2015; Lev-On, 2012; Macias, Hilyard, & Freimuth, 2009). These were primary functions of social media use among POs/AGs.

Social media can support accessing interpersonal networks and social connections, even during disasters. Previous research has suggested that at-risk and vulnerable groups, such as racial minorities and ethnicities, prefer interpersonal channels and social connections as sources of information (e.g., Day, et al., 2019; Spence, Lachlan, & Griffin, 2007; Spence & Lachlan, 2016; Westerman, Spence, & Van Der Heide, 2012). Although POs/AGs are not typically considered an

at-risk or vulnerable group, they are excluded from most crisis and risk communication efforts and are largely understudied within empirical crisis and risk communication research, just like many at-risk and vulnerable populations. As POs/AGs expressed that they felt there was a general lack of animal-inclusive information in official crisis communication efforts, they often turned to social media to connect with collectives of other POs/AGs. These online collectives helped many participants meet their informational needs and, based on findings from this research, bridge communication gaps, too. Many of the online collectives that POs/AGs utilized surrounding Harvey were emergent groups.

Emergent organizing is a unique phenomenon surrounding crises. POs/AGs facing communication gaps during their experience with Hurricane Harvey sought information from emergent groups, primarily via social media. The involvement of ordinary citizens and groups in crisis response is critical, especially at initial stages of the crisis (Drabek, & McEntire, 2003; Sebastian & Bui, 2009). Groups and organizations form and emerge within the crisis context and provide a kind of collective action involving large-scale movement of people and resources into and out of disaster areas (Kapucu, 2007). Information can be a "resource" that emergent groups provide for disaster-affected individuals. Emergent groups fulfill needs that are not being met by officials and extant organizations, such as the informational needs of POs/AGs surrounding Harvey (Dynes, 1970; Sebastian & Bui, 2009). With advances in technology, it is easier for publics to participate in emergent organizing and collective sense-making surrounding a disaster (Palen & Liu, 2007; Sebastian & Bui, 2009). Sense-making processes are necessary for the emergence of collective behavior and emergent organizing in highly equivocal contexts like disasters. Therefore, social media can aid sense-making for emergent groups and publics that utilize their resources

(Lai, 2017; Majchrzak, Jarvenpaa, & Hollingshead, 2007) and that, in turn, aids the gap-bridging process for disaster-affected individuals who utilize emergent groups as information sources.

Social media can support emergent organizing and collective action, which can help disaster-affected individuals bridge communication gaps. Such an occurrence has been reported in the 2011 Japan earthquake and the 2012 Superstorm Sandy, as there were many emergent groups of digital volunteers that coalesced online (BBC News, 2011; Griswold, 2013; Gross, 2012). Digital volunteerism also emerged following Hurricane Harvey through Facebook users' formation of online groups like "Hurricane Harvey Lost and Found Pets and Rescue Assistance" and "Hurricane Harvey-help victims find their loved ones and more". The use of technology—like social media—to organize surrounding a disaster significantly reduces or eliminates the costs required to establish a traditional organization and/or access the resources of a traditional organization (Bimber, Flanagin, & Stohl, 2005; Bimber, Flanagin, & Stohl, 2012). Additionally, mediated communication is not as "difficult, time consuming, or limited by the cognitive constraints of individuals as it once was" (Bimber et al., 2005, p. 366). Therefore, the presence of online, emergent groups has changed with advances in technology and this can be a positive facilitator to individual sense-making in the context of disaster—especially for publics like POs/AGs that are largely excluded from official crisis communication efforts.

CHAPTER 5 FINDINGS CENTERED ON THE ROLE OF CRISIS AND RISK COMMUNICATION IN SENSE-MAKING

Information plays a monumental role in sense-making (Dervin1992, 2003a). Crisis communication supplies disaster-affected individuals with vital information about the disaster, protective actions, resources, and much more. Thus, Research Question (RQ) 3 was created to query, "how does received and/or sought-out crisis and risk communication about Hurricane Harvey play a role in POs'/AGs' sense-making?" To examine RQ3, sub-questions were formulated, which were narrowed and informed by qualitative iterative data collection and analysis. The sub-questions of RQ3 are:

RQ3a: What informational channels and media do POs/AGs see as most helpful surrounding their experience with Hurricane Harvey?

RQ3b: What informational sources do POs/AGs see as most helpful surrounding their experience with Hurricane Harvey?

RQ3c: What were the sense-making outcomes for POs/AGs that experienced Hurricane Harvey?

Information Channels and Media Use

Information channels and media play a large role in disaster-affected individuals' ability to access relevant information to help them make informed decisions, especially during a disaster like Hurricane Harvey (RQ3a). Based on participant insights, there were certain informational channels and media that were perceived as more helpful in obtaining disaster-relevant information—especially as related to being a PO/AG. In the survey, POs/AGs reported that face-to-face conversations with a friend (54.7%) and texting with a friend (60.1%) were prominent ways that they obtained information about Hurricane Harvey (see Appendix F, Tables F11, F14).

Phone calls with a family member was another way that survey respondents received and/or sought-out information about Hurricane Harvey (51.1%) as well as phone calls with friends (41.7%) (see Table F12). Vivian explained why she preferred texting versus making a phone call to get information in some cases:

> I think that if I would have had an immediate emergency, I would have been on the phone. But since it was all planning and trying to touch base with people and help each other out with getting info, you know, there was so much going on during that time that if somebody else had a more pressing matter, they could take their time to text me back, you know, kinda like in a triage order, right? So, that's why we text each other; it was that we could wait till we had the information and then texted back instead of sitting on the phone and waiting, or taking up somebody's time.

Some participants were able to use their cellphones during Harvey (i.e., they did not lose service).

Dede explained why texting was helpful to her:

> All night long our phone would alert us, we'd have a weather text alert, like 'tornado,' or 'flash flooding,' or 'flood warning,' that kinda thing…Our mini horse, there's no way we could get to him [during Harvey]. Karly [mini horse's caretaker] kept tellin' me they were okay, but they were actually having to dig trenches at the barn [where the mini horse was housed during Harvey]. Karly and I texted or messaged on Facebook. She sent me pictures; she was really good about keeping us updated. So, she'd send us pictures and let us know everything's okay.

Stacey described the role of texting and phone calls with friends,

> All I could do was text and call other friends and stuff to see what they had heard, what's happening, if they were evacuating, and where they were going. So, we would have some sort of way of knowing where everybody was headed, to keep track of everybody…I learned how to text. I had refused to go to texting before that point [Hurricane Harvey], but I had to get dragged into this century. Yeah, we called each other and texted back and forth a lot, 'cause you couldn't depend on what you saw on Facebook either. So, we would call or text once a day and check on each other.

According to survey responses, email was not reported as a helpful channel for obtaining information (see Table F13). However, a few interviewees found emails to be helpful, such as Lupita:

We would exchange a few emails with the Chihuahua rescue group and one Pitbull rescue group. I would search for the groups [on Facebook], message them [on Facebook or their posted email address], and wait for the reply.

In the survey, many POs/AGs reported that social media were very helpful surrounding Harvey. Specifically, Facebook was reported as a helpful social media for Harvey-related information by 87.2% of POs/AGs (see Table F15). Aster stated that the most helpful channels for getting animal-related information surrounding Harvey were, "Facebook and the other one, it was texting." Similarly, Sable described the most helpful media and information channels for her, "I was on the phone talking to my family members. So, one way was the Facebook and the other one was my cellphone [to get animal-related information about Harvey]." Lupita also found Facebook to be the most helpful informational channel for animal-related information surrounding Harvey:

> Facebook was a lifesaver at that time. Facebook was really a lifesaver because we were able to communicate with family members and strangers that really helped us. None of the main stream media or government information did not include information about animals or pets. I know 'cause I went on the websites and even my website [her employer's, a government website] actually had nothing about pets…We relied on Facebook and each other, text messaging, like literally strangers. That's how we found out about the animal rescue groups in Katy [referencing the Katy Mall in Texas, where animals were sheltered during Harvey].

Kenzie also explained the importance of Facebook as it related to getting information about animals and "telling the real story of events," even post-Harvey:

> Social media, like Facebook and stuff, really kinda came into play after [Harvey] because the people in Rockport and Port A [Port Aransas] literally had no other means of communication; and so, they just formed these Facebook pages and every kind of information you could want or ask or need, it was just like posting 24 hours a day, every four seconds someone was wondering something…I would say that was probably the main form of communication: Twitter, which I don't use, and Facebook. So, yeah. Well and, you know, news stations are gonna push what they are told to push and what people will really talk about wasn't what the news was covering. So, I think people that lived there that were going through it [Harvey], they were telling the real story. A lot more people got their information that way [via social media] then they did through the regular news.

Similarly, Riley noted:

> Facebook was the biggest [source for animal-related information], always. When we have tornados, flooding, anything, Facebook is number one. Facebook helped us immensely because people were able to say, 'Ok, I'll tell ya this.' The day after the storm [Harvey], people were concerned about their loved ones and were able to go onto Facebook community pages like for Rockport [Texas]. They were able to say 'my parents lived in the Blue House on San Antonio Street down towards the end. Does anybody know how that area did? Does anybody know if the house is still standing?' There was a ton of that! …It was Facebook. The kids used SnapChat and Instagram. Instagram can be tied to Facebook, but Instagram doesn't have that immediate group response like Facebook. With Facebook you can say, 'Hey, we're out and we are here and there's somebody poking around,' and you know, the police couldn't get there. Everybody was having to help everybody, like, 'There are a bunch of cattle out, can somebody come help me?' Lots of stuff like that…There is a lot of people who do that in the Houston area, who rescued not humans, but animals. So, now Facebook was used for that. There were several Facebook pages, gosh, where people use Facebook to try to set up a page for you to post pictures of the animals that you are housing, that you found so that they can be reunited with their owners. There was a ton of that after Harvey, you know, and the shelters, were posting 'We've got this, this, this and this. If any of these are your babies, bring proof of ownership,' That kind of thing. There was a ton of that.

Honour explained another helpful function of Facebook, saying:

> Facebook was the most helpful because of the ability for people to tag you and 'bloop,' it pops up [in your newsfeed]. So, it's more instant than, 'Hey, let's wait until the news comes on at 6:00 o'clock.' I mean, you can always check with the Parish OEP, the Office of Emergency Preparedness. They're updating that [Facebook] page frequently. You don't have to wait for it to roll across the TV. I did actually look for new groups, too [on Facebook]. I mean, people would kinda tag and say 'Hey, look there's somebody in here that needs helps.'

Francis explained the helpfulness of her cellphone and social media during Harvey:

> It was all social media. My phone was the only thing that had service. We didn't have electricity and so I have external batteries, you know, like the ones where if you charge it then you can charge your phone from it a couple of times? So, we used that for the most part, and then when those started dying out, we would drive around in our car and charge those [external batteries] and charge our phones.

Traditional media were also used by POs/AGs to seek out and receive Harvey-related information. However, traditional media did not provide participants with as much animal-related information as did social media. While 81.1% of POs/AGs reported using of television as a source

of receiving/seek-out information in the survey (see Appendix F, Table F16), interviewees, such as Ameera, went onto to explain that:

> I did not use radio or TV much. Most of my media time [surrounding Harvey] was on the internet…I preferred to use the internet and my phone because at my own home, I don't even subscribe to cable service 'cause I feel like it can consume a lot of time.

Other POs/AGs reported that they did not find television to be a helpful informational channel surrounding Harvey, because as Moira explained, "I don't pay for cable [television]. I'm on a fixed income and it just wasn't in the budget at that time and it isn't still [laughs]." Similarly, Rooni remarked, "I don't have television. I mean, I truly don't. I am sure there was plenty of information. I didn't have it because we gave up television three years ago." Although some participants did not find television helpful because they did not have cable subscriptions or own a television, others did not find television helpful because it lacked animal-relevant information. As Heather remarked, "you couldn't catch everything on the [television] news and the town wasn't as urgent about things as they shoulda been." Arwa was also frustrated that television channels did not include POs/AGs in their Harvey communications,

> Here, of course, we don't get cold weather very often; so, when it gets below freezing, which is seldom, they [officials and news media] always go on TV and say, 'Be prepared for your animals. Bring your animals in. Take care of your animals.' So, why can't they do it with the storms like Harvey, too?

> Some POs/AGs, however, found television to be a very helpful information channel.

However, this was typically in combination with another information channel. Axel explained:

> So, if I wasn't watching the television, I was either listening to the radio in my car or I had a portable radio with me at the Equestrian Center [where Axel evacuated to], with the horses in the stall. I had basically set up a stall, the pack room and feed room, as a semi-living quarters and I would have the radio playing to where I could hear it…What I saw, personally, on the news they would tell you that if you had animals that they were evacuating people with their animals. There were shelters that were taking people in with their pets. The one thing that you did see on the news and information that was being put

out, that you would be separated from your pet. You just couldn't be in the gymnasium where they had all the bunk beds out or the sleeping cots, you're not allowed to have your pets out there with you. They had to be contained in kennel cabs, like little pet areas and stuff like that. A lot of animals had to go separate from where the people where. People went to one shelter and there was a shelter set up for animals and the animals were dispersed to them. So, here is the administration aspect of trying to keep track of where your animal went and if you'd ever get reunited again.

Demarcus also stated, "I am constantly on Facebook, but during Harvey I was constantly watching the Weather Channel and all the news sources as well. I was kinda glued to the TV at the time." Kailani also described the use of multiple media to obtain information,

I think a lot of people, even me, get significant amount of that information through the local news stations, you know, television news. I do think, too, that when it comes right down to it, many people see the government website as the most reliable source.

According to survey responses, websites were used by 59.1% respondents to seek-out information about Harvey, but very few POs/AGs mentioned *specific* websites (by name) that they found helpful (see Appendix F, Table F16).

Informational Sources

POs/AGs reported the use of many different informational sources surrounding Hurricane Harvey (RQ3b). However, some informational sources were seen as more helpful than others. In the survey, 58.4% of POs/AGs reported that they sought-out or receive information from a state official or agency and 51.6% turned to the local police department (see Appendix F, Table F17), many went onto report that this information was not helpful—especially as related to being a PO/AG during Harvey. Charity described how the animal rescue organization that she works for partnered with the local police department surrounding Harvey to share information to help POs/AGs,

We do a lot of things through social media. That's how a lot of our citizens keep in contact with us and with the police department and so we're [the animal shelter] underneath the

police department. So, our stuff gets shared on our page, then PD's page, then the website, and that's how we communicate back and forth with the community.

Similarly, Francis commented:

I like the City of Victoria's [Texas] Facebook page and the Emergency Office Management page for Victoria, the Victoria Police Department page. That's where I was getting all my information, from those pages and friends, too. Friends would post things, too. But it was mostly those type of [Facebook] pages…I followed all of them on the [Facebook] pages. There was also weather pages that I followed to see what everyone else was saying about the storm, what was going on in their area and then I follow our vets. Anything that she [vet] posted, I was taking into consideration for our animals.

Greta also discussed how she thought that her local police department was a helpful source of information, "The police department, the sheriff's department, the constables they were great, but Mayor Turner [of Houston] I don't think he handled it correctly [communicating about Harvey]. He shoulda told us to evacuate."

Some participants saw state officials and agencies as helpful informational sources for receiving *general* Harvey-related information; however, these informational source did not provide animal-related information. Dede, for example, recalled "Our [state] representative, James White, is very hands-on. He was flying over [during Harvey]. He was on the ground helping. Some statements from him were more helpful than from local officials!" Kenzie also said:

Rockport was really awesome [city officials]. I mean, as much as their hands were tied with FEMA and TWIA, you know, FEMA and TWIA didn't do a damn thing. I mean, they tried. The State of Texas they did a great job for what they were having to deal with. I mean, it was massive. As much as somethings are gonna fall through the cracks…I have to say, they did a really, really good job. Like Samaritans Purse, I would say Samaritan's Purse probably did more and had more of a presence [than some government agencies]. It was really the church-related groups, all of their programs they brought in and brought down that probably did the majority of the work…And then I would say the State was next and then the federal government was a joke. Rockport [city officials] actually did a really good job.

Arwa explained how certain government agencies and local informational sources helped her during Harvey:

> The NOAA [National Oceanic and Atmospheric Administration] and the weather.gov on the computer were helpful; so, I watch it thankfully. And I watch our local news station, KIII TV 'cause Bill Vessey's [news station meteorologist] really good. But mostly, I watched the [weather] radar online. That was really important to me.

However, Arwa also described the role that Facebook had in her Harvey experience:

> Everybody was passin' the word, 'Time to go! Time to get off the island, let's pack up!' And I checked on Facebook, actually, for a lot for stuff like that 'cause we have local posts that we can go to, especially since Harvey…Now, we have a bunch of [Facebook] community pages.

Heather explained how she received information from local officials, "Mostly on Facebook, it was through our Mayor. The Mayor did daily updates, hourly updates during the storm on Facebook, but they were very slow."

When it came to seeking-out or receiving information from public officials, 72.2% of survey respondents used social media and 59.3% turned to television to access this informational source (see Appendix F, Table F18). Kailani found officials and governmental agencies to be helpful sources of *general* Harvey-related information:

> I was getting information from work, but I was also getting information from the news and online. Beaumont [city] was giving a lot of information online. And most of what I was learning about the water [flooding and rainfall] and how to deal with the water shut off and all that was actually through the City of Beaumont website.

However, it is important to note that not all participants had access to television or internet due to loss of power, financial constraints, or personal choice to abstain from television and/or internet (e.g., Moira, Ameera, Rooni).

In turning to social media to seek-out and receive information, some POs/AGs received animal-related information from strangers; however, these strangers were often other POs/AGs. Edna detailed one of these occurrences:

> There were only a couple of families that absolutely refused to leave [in our neighborhood] and that was because they had animals and they didn't feel like they had anywhere to go where they could take their animals. One of them was a couple. Through these Facebook

interchanges with other pet owners, we were able to find them a place that would take them and their dogs and they got out with their dogs.

Stacey also explained how other POs/AGs that she connected with on Facebook helped her throughout her experience with Harvey:

> Once I got to the motel where I could get reliable internet using WIFI, I was able to connect [to Facebook] to find out about resources that would help with the carrying-out process and things. We did find some help that way. They [other POs/AGs] connected me with organizations that were people I didn't know, but it was also friends.

Many participants shared information that they received with interpersonal networks, which were also important informational sources for participants. Vivian explained:

> Vivian: We have a large horse community around here; so, we all kind of touched base and we had some options in case stuff happened…we just watched it [Harvey] come in on the TV to Corpus, and we have friends down there. So, our friends with horses and dogs, we kind of kept in touch with all of them to make sure everything was going okay. And of course, they were in chaos…satellites went out, on and off. So, we all had our antennas and we watched the forecasts and we watched it come in and come back in and the waves of the different bands kept coming our way…it was more of social media and crowdsourcing type information [that was helpful] because in this area the information wasn't coming to us, we didn't get the direct impact with the wind and everything, the first time that it [Harvey] came ashore. There were no areas set up for animals and we're fairly rural. So, it's not like there's an evacuation center. So, while the hurricane was coming into the Houston area, we were up in the middle of the night kind of using our resources to help each other figure out where to take horses because we didn't know where it was going to flood and where it wasn't. So, for example, my friend teaches at a big dressage barn in Simonton, which flooded. And so, in the middle of the night, as Harvey had been here for 24 hours or so, you know, we were trying to reach out to each other, figuring out where we can take these horses and who's gonna transport them and if somebody could get there with the trailer. So, I feel like the information that we had was helpful, but it wasn't able to be pre-staged because no one knew and the government didn't know.

> Me: It sounds like your friends and your family were the most helpful sources of information?

> Vivian: Yes!

Ariel recalled that, "My son in New York told me if the Army told me that I had to leave, that I should just leave." Moira also noted how "if it hadn't been for my daughter, I would not have

known it [Harvey] was changin' from a tropical storm to a Category 5." In Greta's opinion on the

role of the online PO/AG community as an informational source, she explained:

> I think because of other pet owners there was enough information out there. I don't think it had anything to do with officials…I think we're [pet community] doing that now still [sharing information with each other]. Like, since Harvey, that was a really big learning experience for everybody and I think that the word is gettin' out there through social media. You know, I mean, we're all blasting it everywhere. It's everywhere now because so much was learned from that…the community of animal people is awesome. Great people.

In addition, Aster described how the online community of POs/AGs helped her, "Everything that

I found out about what I could have done or where I could have taken them [Aster's animals], any

of that information, I found out from volunteer pet people on different Facebook pages."

Jerica discussed the importance of the PO/AG community, which consisted of people she knew

and strangers,

> It was the community [of POs/AGs] that was helpful. The community was helping each
>
> other more so than the government, than the city officials, it was more of a community
>
> effort that got us through. Strangers and people I knew, and strangers.

Dede said,

> It was all social media. That's where we got our information. I mean the news stations, we weren't gettin' TV; so, the social media, you know, they'd add things on their Facebook page or I'd go to their website. I read the Texas Storm Chasers and Eric Berger, he's the SciGuy. Eric Berger in Houston, his website. That's where we got our information and, of course, other people and social media, people in my town. That's where we got most of our information…I'm not really big on the government providing [information]…and the official government communications did not include information about animals.

However, some participants, did not find information from interpersonal networks and connections

to be helpful; rather, the contrary. Axel explained:

> I found that listening to people, like neighbors, because I had neighbors who said, 'Well, we have a friend in the Core of Engineers here locally, and they said, X, Y, Z.' That here-say, I found that to be the worst information you can have. 'Cause those were the people that were denying that you need to leave, that we needed to get ready to leave. They were listening in denial and thinking it's not gonna be that bad. Well, it was.

Sense-Making Outcomes

Participants' sense-making outcomes were linked to their informational needs, media uses and gratifications, and availability of information (RQ3c). Altogether, these elements contributed to the meaning(s) that participants assigned to their Harvey experience, synthesizing collective decisions and the micro-moments of their Harvey experience, which resulted in sense-making outcomes (Dervin, 2003a, 2003h). Specifically, many participants discussed how Harvey was traumatic—for them and their animals—and linked this back to their identity of being a PO/AG. Lupita exemplified this, stating,

> They have feelings, too [animals]. They were traumatized…we are looking to buy [a home] outside of Houston now; we are looking to move towards Austin. I think it would be better for my pets. Now I am in a cramped, tiny duplex and my dogs have no space to run like they used to. I want them to be happy and they have been miserable you know because this is a small house [temporary post-Harvey housing]. Their wellbeing is important, you know, a lot of humans don't think that animals have feelings, but no! If you take on the responsibility of being a pet owner you have to be responsible for them and their wellbeing.

Similarly, Aster said, "Harvey just reminded me of how much I need them [pets] in my life."

Some participants discussed how their Harvey experience highlighted the disadvantages of being a PO/AG due to the lack of inclusion and understanding by others and, particularly, officials. Ariel, for example, said,

> It's a distinct disadvantage to have a big dog. That's what I came to the conclusion of, but it doesn't change what I have and it doesn't change my plan to keep her [dog]. It's a distinct disadvantage when you have big dogs because people don't like them for whatever reason.

Kailani expressed a similar sentiment, saying:

> It would've been significantly easier to just go, 'Oh, well, you know, let them fend for themselves, they're animals, so they can do that,' but, you know, they really can't. I mean, they're domesticated! And they have spent their whole lives with us taking care of them. And, you know, if it's hard for a six-foot tall human being to wade across the road [that is flooded] to go check out something; for a dog that's two and a half feet tall, they could easily drown out there. We're just not willing to let that happen to our babies, our fur-

babies. So, you know, it's just that additional idea of it's an extra thing you always have to think about [being a PO/AG].

As many participants discussed how their Harvey experienced made them realize how excluded and devalued animals and POs/AGs are in some aspects of society, they went onto discuss a sense-making outcome related to ideologies about animals. Greta demonstrated this, expressing:

> People's thoughts. People. It's people that need to change. If you're gonna have a dog, gonna have a cat, a bird, snake, whatever it is that you have, I mean, you can't leave it. You can't leave it to die. That's just my main thing. So many animals died and there's no reason for it. Okay, so, you don't want to take your animal. You've got kids you've gotta take [for evacuation]; well, unchain your dog and give 'em a chance!

Bridget also echoed this theme, saying:

> There's got to be a better way for preparing people for the responsibility that comes with that [being a PO/AG]. But I think that's a society thing, too, because some people put so much more value on the life of an animal than other people and value things in different ways. The way that my husband sees things, he's like 'this livestock, the chickens produce eggs. It's cute that you named them; however, they serve a purpose: food.' Not everyone sees it like that, but we have to understand that view, too.

Moira came to a similar conclusion about her Harvey experience, stating "It was just a traumatic experience because from what I felt was just a lack of care about animals here." For Jerica, being left out of official communication efforts as a PO/AG led her to feel resentment towards officials.

She explained:

> The thing that really irritated me the most was the lies that were told by our City Officials, the cities that were forgotten. If you think about it, I know y'all are researching it but if you weren't in school and researching it and stuff, like a week after that storm, it [Harvey] was never on the news again. We were forgotten, everybody was like 'Okay, the rain is gone, they are under water. Okay, they'll survive.' People were like 'Oh, they are back up and running.' Well, okay, we may be up and running, but we are not okay. We were forgotten after that storm. Once it was over, that was it. We were done…When people ask me how many kids I have and I tell them eight [includes her pets as kids], they look at my like I am crazy. But the ones that know me, know exactly what I am talking about. It makes it, especially during a storm like Harvey or maybe another disaster like the wildfires, a lot of people don't understand so they criticize those people and judge those people [POs/AGs]. If everybody could just understand and even if you don't agree with it, don't make rude comments. Everybody's life is different. If we were all the same, life would be boring, but

you don't have to hate while living a different lifestyle. I think Harvey did a lot of damage mentally, physically, emotionally.

In some instances, experiencing Harvey as a PO/AG prompted participants to come to the realization of what is truly important in their lives. Rooni explained, "It changed my priorities. I mean, now, I have a much clearer sense of what's important. And, I guess, it's given me a lot more compassion." Demarcus discussed a similar sense-making outcome, saying:

> My conclusion is that, as a pet owner, I would do anything for my animals. No one gets left behind and even in a situation as bad as Hurricane Harvey, I will take them anywhere even if it means losing some of my most valuable stuff.

Although Zara loved her dogs, she noted, "With Harvey, I realized I had too many dogs. With four dogs, it was very stressful trying to figure out how we would save them…We knew we would let the lizard and turtle go [if we had to evacuate]." Other participants discussed how Harvey made them realize how important "community" was to them. Vivian explained:

> In crisis, people come together here and definitely help each other out. I think that people in the area like to take pride in it. And so, it's something that is constantly brought up in commercials, on TV, and social media about how we help each other out here, that kind of stuff. I mean, I think, of course, once the crisis is over, people start going back to their regular personalities. But I think that it does provide a good base of community to remember how we helped each other out.

Jerica also noted,

> It was the community [of pet owners] that was helpful. The community was helping each other more so than the government, the city officials, it was more of a community effort that got us through…I saw a community come together during the storm.

Bridget also commented about the importance of community, especially during a disaster:

> Bridget: It was really a community effort and that's out where I live here. Here, it wasn't like that.
>
> Me: In the city?

Bridget: In the city, it wasn't like that…there's a sense of ownership and pride in helping your neighbor out, out there [in the rural areas]. In the cities, it wasn't like that…Out where I live, it's very rural. Everybody works together. So, everybody knows everybody and have known each other for, you know, 40 years.

Hayden also remarked:

There have been good things, too [coming from Harvey]. There's a lot more feeling of community. We have had, I mean our customers are just fantastic. There have been a lot of them that have sent us money, which pretty much blows me away to help us get reopened and there's been so many, thousands and thousands of volunteers that have come to Port Aransas and Fulton right after [Harvey] and still continuing to come and help; so, that has also given me faith back. I have more faith in people than I had before. Less faith in the government, more faith in the individual persons [laughs].

In ideal situations, proactiveness is applauded when it comes to risks and disasters. However, some participants discussed a sense-making outcome regarding the lack of support for proactiveness by extant (power) structures. For example, Axel decided that he needed to call off from work to begin evacuation preparations two horses, two dogs, three turtles, and two rabbits. Axel's employer, however, did not feel the same way:

One problem was that I had some stress from my employer who couldn't understand, he couldn't appreciate, and he couldn't understand that I was taking a day off on short notice to go take care of animals and move animals, which was frustrating for them. It was a regular work day, you're supposed to be at work…there was a stress between myself and my boss. That was a difficulty there.

Lupita had a similar realization about her employer:

They [employer] literally wouldn't let us outta work. When we knew that the hurricane was getting ready to hit, literally a few hours before, they did not let us go until 3:00 o'clock. They said that we could, literally, not leave until 3:00pm. I was in a panic. I had already stocked up on dog food and all my babies' [pets] medicines and provisions for us in the house. Then there was literally nothing left on the shelves in the store anyways because I went at about 3:00pm. By the time I got home, it was comin' down pretty hard [rain]. It was really starting to come down hard.

Some participants sense-making outcomes were linked aspects of preparedness for the future. Heather noted this when she said:

I learned one thing, that next time I will be a lot more prepared. I will leave a lot earlier and I will make sure that my pets are found before I leave. I'll just heavily make better arrangements and be more prepared next time. I won't wait until the last minute.

 Arwa stated, "Be prepared. Be early prepared. Don't count on someone else to keep you updated." In relating sense-making outcomes to preparedness, other participants discussed things that they would do differently in retrospect. Jessalyn said:

> I will definitely evacuate and I will definitely make sure that the animals in the center [animal shelter] get evacuated before and we won't stay. And I probably will not, if it hits in the direct area, I will probably not come back immediately. I will probably stay away and provide for my animals and not bring them back with me. And the same thing with the center, I think that we'd get them out sooner even if we were able to know it's coming and it turns and then just go back and get them if it turns. I'd rather us be safe than sorry again. Instead of brining mine back with me on that Monday, now, I wish I would have left them in Austin [Texas] with my daughter and came back and then gone back and got them later, or have my daughter bring them later.

Lynette commented in her survey response, saying, "After having actually lived through Hurricane Harvey and its aftermath, I realized we were woefully UNPREPARED."

Distrust

A prominent sense-making outcome for many POs/AGs was distrust in government officials. Jerica highlighted this, saying,

> Know not to trust your city officials and to follow what your mind tells you, because my heart was telling me to get the hell out, but I was listening to the [Houston] mayor. I was ignorant. I didn't listen to myself. So, next time, that's exactly what I'm going to do, listen to myself and not anybody else.

Darby expressed a similar insight, noting, "[In the future] I will not wait or trust local officials to update my area." Dede also expressed, "The local officials and national meteorologists, which I will never trust again said, 'yeah, these people [weather bloggers] don't even listen to them.'" For Dede, the unofficial informational sources, such as WeatherBELL Analytics, provided more accurate information than official governmental sources, but official sources continually negated

the information produced by these "unofficial sources." Dede went onto explain, "I know that I don't want to depend on my local [officials], I don't trust the leadership in the town, this area. You better figure it out on your own! [laughs]. That's what we've learned with every hurricane."

Struggling to Make Sense

For some POs/AGs, they struggled to make sense of their experience with Harvey. Specifically, this was often related to questions about why POs/AGs and their animals were excluded from communication and response efforts. Greta expressed, "In all honesty, I guess [pauses] I don't know if I have come up with any conclusions yet." Jerica also remarked:

> I struggle with why. I don't understand. I've been through hurricanes before. I went through Katrina, I went through Allison, I've been through a lot of hurricanes here in Houston, but this one, I don't understand why it was so bad. And I am angry, like I said earlier, that the mayor, to me, made a joke of it saying 'It's just another rainy day. Don't worry,' because had he told us that it wasn't gonna be bad. I would have prepared for it and I would have been gone with my animals and my son. And came back when I could come back, but I wasn't given that option…I couldn't find anything [animal-related information]; so, I gave up and followed my heart...I made decisions based on what my heart told me to, not officials.

Rooni also struggled to formulate sense-making outcomes. She said, "I struggle with 'Why me? Why? Why?' You know, the eternal question and I know people who died. Why did they die?" Demarcus also commented on his difficulties making sense of going through Harvey and the lack of resources for affected individuals, especially POs/AGs:

> FEMA. Definitely FEMA, why were we denied [financial aid]? Why were we getting no help? Why were we being ignored? We needed help. American Red Cross came with their American Red Cross truck and fed meals and stuff, but we needed support and that and we needed help. We got destroyed and it was worse if you had animals.

Heather also commented on this topic, saying,

> It's just like so much has happened in the last six months that it takes a couple days for thoughts to process sometimes…just trying to figure out what we were gonna do and how we are gonna figure it all out. We're still there.

Summary

Crisis and risk communication played a large role in POs'/AGs' sense-making. Certain informational channels and media were viewed as helpful and others were not viewed as helpful. Face-to-face conversations with friends, texting friends, phone calls with family members and friends, and social media—especially Facebook—were reported as helpful informational channels and media. Television, however, had varying utility for POs/AGs. State officials and agencies, police departments, various public officials, other POs/AGs, and interpersonal networks were seen as helpful informational sources. Accessing the aforementioned sources via social media was heavily reported. Sense-making outcomes related to experiencing Harvey as a PO/AG included: viewing Harvey was a traumatic experience, the disadvantages of being a PO/AG during a disaster, realization of what is important in life, the importance of community, proactive behaviors in disaster contexts are not always supported, the importance of preparedness, distrust towards officials due to excluding POs/AGs in communication and response efforts, and some POs/AGs struggled to make sense of their Harvey experience altogether. Some of these findings are consistent with extant research, while others present nuances and important implications for practice and future research.

Discussion

The overarching premise of RQ3 is, "how does received and/or sought-out crisis and risk communication about a disaster play a role in POs'/AGs' sense-making?" These topics are important to explore at the micro-level because "our theories of information use and their potential applications to design have been so weak" due to primary focus "on predicting patterns in rigidities, rather than patterns in flexibilities" (Dervin, 2003f, p. 333). This assertion from Dervin

(2003f) is especially applicable to crisis communication and the study of individuals' information and media uses.

Information Channels and Media

POs/AGs reported using multiple information channels and media surrounding their experience with Hurricane Harvey (RQ3a). However, certain information channels and media were reported as more helpful than others for POs/AGs, which positively facilitated their sense-making process. Face-to-face conversations with a friend, texting with a friend, and phone calls with a family member and friends were frequently used informational channels and media. Most information sharing and receiving was facilitated by participants' cellphones, which is a common utility of cellphones during disasters (Bengtsson, Lu, Thorson, Garfield, & von Schreeb, 2011; Lai, Chib, & Ling, 2018). In a disaster, many individuals desire to communicate with interpersonal sources and networks through face-to-face conversations, phone calls, and/or texts (Liu, Fraustino, & Jin, 2016), which POs/AGs reported, too. Offline interpersonal connections, like those facilitated via texting and phone calls, are important sources of information, especially for populations that may be largely excluded from official crisis communication efforts, like POs/AGs. Prior research suggests that this is likely because people prefer to turn to informational sources that they have strong relationships with, such as family and friends (Dellarocas, 2003; Goldsmith & Horowitz, 2006; Sen & Lerman, 2007). Many disaster-affected individuals connect with informational sources and move onto seek-out and share information through social media.

Social media were frequently used among POs/AGs to seek and receive information surrounding Hurricane Harvey. Most POs/AGs accessed social media via their cellphones. Cellphone use during disasters has been associated with utilization of a wide range of disaster information repertoires (Lai, Chib, & Ling, 2018). Individuals' information repertoires are

composed of their preferred subset(s) of media channels (Reagan, 1996). Social media has changed individuals' ability to access and share information, making lay citizens more visible and influential in regard to disaster response (Sommerfeldt, 2015). Social media have also impacted on how disaster-affected individuals curate information surrounding a time of disaster (Thorson & Wells, 2016). For POs/AGs, the most helpful social media platform was Facebook, which they largely accessed via their cellphones. Reasons that POs/AGs saw Facebook as the most helpful media included: the availability of animal-related information, ability to connect to other POs/AGs and share information, the ability to quickly confirm information, and create or join groups/pages specific to POs/AGs impacted by Hurricane Harvey.

Social media are important to crisis and risk communication as they can support rapid dissemination of messages that reach many individuals and can engage publics in dialogue (Austin et al., 2012; Sellnow & Seeger, 2013; Veil et al., 2011). Yet, this requires that crisis and risk communicators understand how to use social media effectively and that they understand their publics' social media uses and preferences (Seeger, 2006; Veil et al., 2011). In past crises, such as the 2014 California drought, 2009 Red River floods, and 2009 Oklahoma fires, governmental agencies and other responding organizations used social media to communicate with publics. Overall, social media positively facilitated crisis communication efforts during these crises (Starbird & Palen, 2010; Tang et al., 2015). The majority of POs/AGs, however, did not think that governmental agencies or officials effectively utilized social media surrounding Harvey.

Many POs/AGs reported that they received information about Harvey from their interpersonal and social networks on social media. Sharing information via social media during a disaster can contribute to information dissemination and acquisition—especially as related to hard-to-find information like animal-related information (Austin et al., 2012). Facebook, in particular,

was reported as one of the most helpful media by POs/AGs and *the* most helpful social media. This finding is consistent with research that indicates that Facebook is viewed as more useful than other social media by lay individuals and communication professionals because Facebook encourages information sharing, debate, and creation/maintenance of relationships (Eriksson & Olsson, 2016; Zhao, Grasmuck, & Martin, 2008). During a series of natural disasters in 2011 in Australia and New Zealand, individuals sought information, asked and answered questions, provided general information, and shared information with others via Facebook (Taylor, Wells, Howell, & Raphael, 2012). These interactions on Facebook also fostered feelings of togetherness among users, which was also reported by POs/AGs in this study. Use of social media, like Facebook, may be even more important among POs/AGs as they face specific and pervasive communication gaps during disasters.

Uses and gratifications theory (UGT) provides insights into POs'/AGs' Facebook use. UGT posits that individuals are active decision-makers when it comes to using and consuming media (Blumler & Katz, 1974; Katz, Blumler, & Gurevitch, 1974). Individual decisions about media use fulfill different needs and gratifications. In the context of a disaster, specific media can fulfill an individual's desire to lower levels of uncertainty about the disaster and assist them in becoming better informed about the disaster (Houston et al., 2015; Lev-On, 2012; Macias, Hilyard, & Freimuth, 2009). Such media uses and gratifications were reported by POs/AGs affected by Harvey. Individual traits and identity influence informational needs and sought-out gratifications and, therefore, influence how and why individuals use particular media (Blumler & Katz, 1974; Katz et al., 1974; So, 2012). POs/AGs utilized Facebook to help gratify their need to find animal-relevant information about evacuation, animal-friendly hotels and housing, animal-related resources (e.g., pet food), and much more. POs'/AGs' intentional use of Facebook helped gratify

their need to become better informed about Harvey and the options available to POs/AGs, which facilitated informed decision-making.

Social media connect users to their interpersonal and social networks. Interpersonal and social networks are especially important to publics that are excluded from or weary of official discourses surrounding crises (see Al-Saggaf, 2006; Al-Saggaf & Simmons, 2015), such as POs/AGs. While social media can bridge communication gaps for publics that are excluded from official crisis communication efforts—like POs/AGs—their lack of inclusion by officials may lead to low risk perception, information that unfairly privileges dominant cultures and ideologies, and/or a collapse of decision- and sense-making abilities due to exhaustion and frustration from failed information seeking (Wilbur, Chandler, Dancy, Choi, & Plonczynski, 2002; Utz, Schultz, & Glocka, 2013; Weick, 1995). However, Facebook has been effectively utilized by officials to communicate with *and* engage publics during crises, such as during the 2016 Zika outbreak. Therefore, social media should be continually incorporated in crisis and risk communication plans and practices (Lwin, Lu, Sheldenkar, & Schulz, 2018; Veil et al., 2011).

Informational Sources

POs and AGs sought and received animal-related crisis and risk communication from numerous informational sources (RQ3b). This finding is consistent with extant research on publics' use of various informational sources, which largely vary depending on external factors (e.g., crisis origin, magnitude, location) as well as internal factors (e.g., an individual's habitual source use, identity) (Jin, Liu, & Austin, 2014; van der Meer, 2018). It is imperative that crisis communicators strive to understand their publics' informational source preferences since there is such variance across publics' preferences. As related to sense-making, informational source

preferences can be impacted by sense-making outcomes *and* they can also influence sense-making outcomes.

Understanding publics' informational source preferences is vital for effective crisis communication. When this is not done, disaster-affected individuals may experience a sense-making outcome that views governmental officials as low-quality informational sources and/or they may distrust officials as informational sources. Individuals affected by the 2008 Cedar Rapids floods in Iowa experienced such outcomes. During the flooding, many residents felt as though governmental officials did not communicate efficiently with them, leaving residents confused about what to expect during the floods and subsequently feeling like certain geographical areas and demographics of Cedar Rapids were favored by officials over others (Adler, 2015). This same experience was reported by POs/AGs surrounding Harvey. When disaster-affected individuals cannot find information from official informational sources, they often turn to informal, interpersonal sources and/or community-based (informal) groups (e.g., Tagliacozzo & Magni, 2016), as many POs/AGs did.

POs/AGs were innovative in their information seeking surrounding Hurricane Harvey. Many POs/AGs reported that emergent groups on Facebook were very helpful informational sources. During a crisis, emergent groups often form to fulfill needs that are not being met by officials and organizations (Dynes, 1970; Sebastian & Bui, 2009). Information supplied by emergent groups during crises can contribute to sense-making since the process of making sense often requires accessing a collective (Dervin, 2003f; Heverin & Zach, 2012), like an emergent group. With advances in technology, it is easier for publics to participate in wide-spread, information seeking and sharing, such as through emergent groups. These emergent groups can facilitate collective sense-making during a crisis (Palen & Liu, 2007; Sebastian & Bui, 2009).

Sense-making processes are necessary for the emergence of collective behavior and emergent organizing in highly equivocal contexts, such as a disaster.

Social media, like Facebook, can aid sense-making by supporting emergent groups and facilitating connections to these groups (Lai, 2017; Majchrzak, Jarvenpaa, & Hollingshead, 2007). In turn, emergent groups on social media can aid disaster-affected individuals' decision-making and, ultimately, their sense-making as they disseminate desired information that is not propagated by officials and organizations (Dynes, 1970; Sebastian & Bui, 2009). This notion may be especially true for populations that are excluded from officials' crisis and risk communication, such as POs and AGs.

Gaps in desired crisis and risk communication often prompt individuals to seek information in innovative or nontraditional ways. In these cases, individuals often utilize their media repertoire(s) in attempt to gratify their informational needs (see Lai & Tang, 2018a). For POs/AGs that experienced Harvey, emergent groups on social media helped fulfill these needs and often connected them to informative strangers. Most of these strangers were other POs/AGs. In other disasters, such as the 2007 wildfires in California, a local citizen-based website called "Rim of the World" provided affected individuals with the most up-to-date information about fires (Novak & Vidoloff, 2011). The citizen-run website became one of the most important sites for disaster information, similar to the importance of emergent groups on social media for POs/AGs during Harvey.

Emergent groups were not preemptive, "preferred" informational sources for POs/AGs. However, they were extremely helpful to many POs/AGs. Here, it is important to note that during disasters it is possible for individuals to gather information unintentionally (e.g., Veinot, 2009), which may explain the prominence of social media and emergent groups in POs'/AGs' information

seeking (and sharing).The (online) community of POs/AGs emerged in the context of Harvey, filling the communication gap(s) that extant power structures (i.e., governmental officials and organizations) failed to help POs/AGs bridge. Social media fostered the use of social capital for the mobilization of skills, networks, communicative exchanges, and support systems for POs/AGs, which is not unique to Hurricane Harvey (Alexander, 2014; Bird, Ling, & Haynes, 2012; Dufty, 2012).

While emergent groups were not specified as preemptive, "preferred" informational sources for POs/AGs at the onset of Hurricane Harvey, they were described as some of the most helpful informational sources. POs'/AGs' interpersonal and social networks were easily accessed via social media and, in some cases, expanded through accessing emergent groups on social media. Within the SMM metaphor, these sources would be considered "helps" and "facilitations" to POs'/AGs' sense-making process (Dervin, 1999; Dervin & Frenette, 2003). Other groups' that have been adversely and disproportionally impacted by disasters have also reported preferences for certain "helps" and "facilitations" (i.e., informational sources).

During Hurricane Katrina, many poor, African American residents of New Orleans, Louisiana had strong connections with their interpersonal and social networks (e.g., family, friends, neighbors, community groups) (Eisenman, Cordasco, Asch, Golden, & Glik, 2007). The situation for poor, African Americans was further complicated by risk paradox, groupthink, refusal or inability to evacuate elderly family members, and/or limited (financial) resources. Similar to what POs/AGs experienced during Hurricane Harvey, official crisis and risk communication surrounding Hurricane Katrina did not accurately account for the situational constraints of vulnerable groups, the importance and influence of interpersonal networks to many vulnerable groups, and the strength of interpersonal and social connections among these groups (Mundorf,

Willits-Smith, & Rose, 2015; Waters, 2016). Vulnerable groups like, poor, African Americans, experienced worsened or additional negative health outcomes which led to new and/or worsened health disparities and longer periods of recovery due to failures associated with crisis and risk communication surrounding Katrina (Eisenman et al., 2007; Finch, Emrich, & Cutter, 2010; Mundorf et al., 2015; Spence et al., 2007; Waters, 2016). These findings have striking similarities to the struggles and negative outcomes explicated by POs/AGs surrounding Hurricane Harvey. Due to the persistent communication issues that POs/AGs felt that they experienced surrounding Harvey, their sense-making outcomes were also impacted.

Sense-Making Outcomes

The sense-making outcomes for POs/AGs affected by Hurricane Harvey were impacted by the crisis communication (or lack thereof) that they received, which impacted their sense-making process(es) and outcomes (RQ3c). To be able to make decisions and move onto make sense of an experience, an individual must be able to bridge communication gaps that they encounter (Dervin, 1992; Dervin & Frenette, 2003). For POs/AGs that experienced Harvey, communication gaps were mountainous. A key mechanism that individuals can use to bridge gaps, according to SMM, are "relevances" and sources. Relevances are criteria attributes that individuals use to evaluate inputs such as information, information systems and their design, etc. The inputs used can be garnered from an array of "sources", such as other people, institutions and organizations, media, channels, etc. (Dervin, 1992; Dervin, 2003e Dervin & Frenette, 2003).

For *some* POs/AGs, there were no "relevances" or "sources" that helped them bridge the gaps that they faced. In these instances, POs/AGs experienced a break down in sense-making. Weick (1993, 1995) refers to this as a cosmology episode, which is the feeling that all order and rationality have been lost and that the sense of what is happening and how to rebuild that sense

have diminished. The concept of a cosmological episode demonstrates the tension between rationality and the social/emotional side of decision-making and, hence, sense-making. POs'/AGs' animals and caring for them *are* linked to the social/emotional side of decision-making, which is a legitimate part of the sense-making process (Botan, 2018). According to Dervin (2003a), sense-making as well as information-seeking, making, and use are not restricted to the cognitive realm, "but rather to any realm of experiencing that actors define themselves as using in their sense-making process" (p. 150). Additionally, if crisis communicators fail to acknowledge the social/emotional component of decision-making and sense-making, then their "assumption of rationality allows risk communicators to believe that publics will only cocreate meanings the practitioners believes they should" (Botan, 2018, p. 147).

As not all POs/AGs experienced a cosmology episode, it is important to recall that sense-making is individualistic and the timeframe for sense-making is contingent on where an individual is along the time and space continuum (see Figure 1), the situation, the context, and how they receive, gather, evaluate and process information (Dervin, 2003a; Dervin, 2003b; Foreman-Wernet, 2003). Some POs/AGs were able to utilize different information-gathering strategies, such as seeking-out information from emergent groups on Facebook. However, the extra effort that POs/AGs had to expend to try to find animal-inclusive crisis and risk information was a source of stress, irritation, and trauma for many participants.

One sense-making outcome that resulted for some POs/AGs was that Harvey was a traumatic experience that was exacerbated by the lack planning for POs/AGs. During disasters, POs/AGs may be more susceptible to higher levels of grief, posttraumatic stress disorder (PTSD), and psychological trauma than the general population, especially if they lose an animal in the disaster (Goto et al., 2006; Hunt et al., 2008; Lowe et al., 2009; Zottarelli, 2010). It is important to

investigate these effects on POs/AGs because they can be associated with other forms of trauma. For example, POs/AGs who lose an animal during a disaster are more likely to be injured and/or separated from (human) family members (Zottarelli, 2010). Depression is also an associated effect in these cases (Hunt et al., 2008); however, POs/AGs may not receive the needed mental health and/or recovery services due to the lack of inclusion and understanding of this population by officials and disaster-relevant organizations.

Due to the lack of inclusion of POs/AGs in official crisis and risk planning, preparedness, response, recovery, and communication efforts, many POs/AGs felt that they faced distinct disadvantages *due to being a* PO/AG. As a result, many POs/AGs saw officials as a "hindrance" in their Harvey experience (see Figure 1). SMM's metaphor acknowledges that hindrances, consequences, and (negative) effects can be an outcome of individuals' sense-making process (Dervin, 2003a). This sense-making outcome was often associated with another sense-making outcome: distrust of officials.

Crises are social constructions that have vast implications. Crises are influenced by organization-driven *sense-giving* processes as well as individuals' personal sense-making processes (Weick et al., 2005; Utz, Schultz, & Glocka, 2013). Further, individuals often look to officials and organizations during crises for disaster-relevant information and often expect that officials' communication and response and recovery plans are comprehensive and inclusive to their needs (Botan, 2018; Navarro, Moreno, & Al-Sumait, 2017; Sellnow & Seeger, 2013; Ulmer et al., 2019). Put simply, information from officials and disaster-relevant organizations tends to be an important part of individuals' sense-making process surrounding disasters. When these expectation are not met, disaster-affected publics often blame officials, which can lead to distrust (Cordasco, Eisenman, Golden, Glik, & Asch, 2007; Crouse Quinn, 2008; Day et al., 2019). When

publics do not trust officials, they typically have lower levels of worry about impending disasters (Rød, Botan, & Holen, 2012) and "distrust can cost many lives in natural disaster [sic] situations" (Botan, 2018, p. 149). Thus, in the future, officials and disaster-relevant organization may be removed from individuals' sense-making process because they are seen as a "hindrance" to sense-making.

When officials' communication efforts surrounding a disaster are not perceived as sufficient by publics, levels of trust can decline. Trust is critical to effective crisis and risk communication (e.g., Seeger, 2006; Sellnow & Seeger, 2013; Sellnow et al., 2010). When publics distrust officials, there are often negative impacts, which have been reported in a wide range of crises, such as when communicating food-related risks (Lofstedt, 2013), the 2013 Typhoon Haiyan (Takahashi, Tandoc, & Carmichael, 2015), officials' slow response time after a tsunami (Strömbäck & Nord, 2006), and when communicating risk about a public health threat (Schwerdtle, De Clerck, & Plummer, 2017). Although official crisis and risk communication is a crucial element to health and safety during a disaster, it must be inclusive to publics' goals, desires, needs, and relevances to be effective and useful.

Altogether, informed decision-making and sense-making could have been better supported for POs/AGs if official communication efforts were inclusive to this population. It is relevant to recall that the best practices for crisis communication mandate that communicators understand their publics, foster partnerships with their publics (which aids communicators in understanding those publics), and engage in pre-event planning and policy development (Seeger, 2006). Further, we know from past disasters (e.g., Hurricanes Katrina, Gustav, Ike) and extant research about POs/AGs in disaster contexts that there can be many negative outcomes for this population because they are often unprepared and excluded from officials crisis plans (e.g., Brackenridge et al., 2012;

Day, 2017); therefore, it is striking that crisis communicators failed to adequately include this large population in communication plans and preparedness, response, and recovery efforts surrounding Hurricane Harvey. Sense-making is important to consider as related to disasters and risks, because "risk [and disaster] is first and foremost a human experience, so that meanings publics cocreate about risk [and disaster] are very important" (Botan, 2018, p. 139). Based on the findings from this research, we know that POs/AGs face particular risks during disasters and they cocreate meaning about risks and disasters in unique ways due to their identity as a PO or AG; thus, it is a matter of public health and safety to better understanding this large, majority population.

CHAPTER 6 DISCUSSION AND CONCLUSION

The purpose of this research was to better understand the sense-making processes of POs/AGs impacted by Hurricane Harvey and the role of crisis and risk communication. This research is important due to the lack of micro-level research in the crisis and risk communication field (e.g., Spialek & Houston, 2017), the growing inclusion of animals as family members, and evidence from past disasters that identify the unmet exigencies of POs/AGs surrounding disaster contexts. Below, a summary of findings from this research is presented, followed by an explication of how the research questions meld together to provide a comprehensive, theoretically informed interpretation of the sense-making process(es) of POs/AGs affected by Hurricane Harvey. Specific theoretical implications are discussed, succeeded by practical implications for crisis communication. Lastly, limitations and directions for future research are presented.

Summary of Findings

Three overarching research questions guided this inquiry, which centered around POs'/AGs' sense-making processes. To query the sense-making process surrounding a disaster experience, it was important to investigate the role of PO/AG identity, how communication functions to help individuals bridge communication gaps, and, the role of crisis and risk communication in the sense-making process. Below, a summary of findings for each of the overarching research questions are provided.

Identity as a PO or AG impacted participants' experience with Hurricane Harvey (RQ1). Previous disaster experience(s) contributed to their understandings of "self" surrounding Harvey as many POs/AGs compared their Harvey experience to previous disaster experienced. Many POs/AGs applied "lessons learned" from previous disaster experiences to help them navigate their Harvey experience. However, there were many barriers and constraints for POs/AGs surrounding

Harvey, many of which centered around logistics of evacuating with animals, evacuation shelter options, post-Harvey housing that was animal-friendly, and families being separated due to animal-exclusive policies and material barriers. Further, these barriers and constraints impacted participants frames of identity, most of which were negative impacts. However, in some instances, PO/AG identity positively facilitated enactment of protective actions. Lastly, for many POs/AGs, they felt excluded from official/governmental crisis planning, response, recovery, and communication efforts. Feelings of exclusion resulted in feeling (re)victimized, which was worsened by perceived stereotyping and misperceptions of the participant and/or their animal(s). To put simply, POs/AGs felt disregarded and, in many cases, forgotten by government officials, disaster-relevant organizations, NGOs, news media, and larger society. Thus, not only is a person's self-conceptualization of their identity important on an individual basis, but the affirmation of their identity by others is too. Specifically, in this context, crisis and risk communication did not affirm a prominent aspect of participants' identity: being a PO or AG. Ultimately, this lack of inclusion impacted POs'/AGs' sense-making.

Communication, or the lack thereof, played a prominent role in POs'/AGs' sense-making processes, especially as related to bridging (communication) gaps (RQ2). Communication gaps were widespread for POs/AGs surrounding Hurricane Harvey, and included: late communication, underestimation of Harvey, evacuation options, lost and found animals, and animal-related resources, resources to help with recovery, a general lack of animal-inclusive information, and issues accessing information. The lack of relevant and accessible crisis communication on these topics impacted POs'/AGs' ability to bridge communication gaps. The actual process of bridging communication gaps that POs/AGs experienced and moving onto make decisions was done in various ways. Some POs/AGs partook in decision-weighing of the risks that they faced, utilized

in-the-moment, sought information from a collective or emergent group, made use of extant schema, while some POs/AGs struggled to bridge communication gaps. Although many POs/AGs bridged the communication gaps they faced, there were still many stories about the consequences and impacts of communication gaps. Participants described consequences related to health and safety risks, late or delayed evacuations, death, and mitigatable risks and stressors.

Crisis and risk communication played a large role in POs'/AGs' sense-making (RQ3). Certain informational channels and media were viewed as helpful and, in some cases, not so helpful. Face-to-face conversations with friends, texting friends, phone calls with family members and friends, and social media—especially Facebook—were reported as helpful informational channels and media. Television, however, had varying utility for POs/AGs and not all POs/AGs saw it as a "helpful" information channel. State officials and agencies, police departments, various public officials, other POs/AGs, and interpersonal networks were seen as helpful informational sources. Accessing the aforementioned sources via social media was heavily reported. In terms of sense-making outcomes related to experiencing Harvey as a PO/AG, some participants discussed: how Harvey was a traumatic experience, the disadvantages of being a PO/AG during a disaster, realizing what is important in life, the importance of community, proactive behaviors are not always supported by extant (power) structures, the importance of preparedness, distrust towards officials due to excluding POs/AGs in communication and response efforts, and some participants struggled to make sense of their Harvey experience altogether.

In summary, by querying phenomena associated with the three noted research questions, it becomes apparent that making sense of a disaster experience is a very complex process. However, it is important to understand the role of crisis and risk communication in the sense-making process. Based on findings from this research, it is equally important to consider the role of identity in the

sense-making process, especially among affected individuals. Identity/ies impact decision- and sense-making processes of disaster-affected individuals, which, in turn, impacts their informational needs. As such, there are many implications for crisis and risk communication theory and practice.

<div align="center">**Theoretical Discussion and Implications**</div>

Sense-making is a complex process that can function uniquely in disaster contexts. Sense-making is the process through which individuals bridge communication gaps they encounter and move onto give meaning to experiences. To reiterate, communication gaps describe the discrepancies or deficits between an individual's cognitions about a topic or situation and the communication/information they need to "make sense" of the topic or situation—as related to *their* life (Dervin, 2003h). The process of bridging communication gaps and giving meaning to experiences involves retrospectively evaluating information received or sought out; evaluating decisions made; evaluating the context; evaluating sources involved within the context, and; evaluating "relevances" (Dervin, 2003e). As related to this research, it was important to investigate the role of identity and the role of crisis and risk communication in POs'/AGs' sense-making process because identity *and* communication are central to making sense—especially in a disaster context. In a disaster, access to quality and relevant information can be the difference between life and death. Thus, crisis communication impacts an individual's disaster experience, which impacts individuals' sense-making process.

The sense-making processes described by POs/AGs affected by Hurricane Harvey are broadly consistent with Dervin's (1992, 1998) explication of sense-making. As depicted in Figure 1, this research aimed to query the central elements of SMM. Each of the central elements in SMM had varying degrees of impact on POs'/AGs' movement across space-time and how they came to

make sense of their experience with Hurricane Harvey. The *context* of a disaster impacts how an individual experiences it, which is largely influenced by structures outside of the individual, such as government organizations and animal-restrictive policies. The *situation* impacts how POs/AGs perceive and experience the disaster, which is largely based on the POs'/AGs' personal background and characteristics. Based on a POs'/AGs' ideas, attitudes, feelings, memories, etc. that are utilized in a situation, the way(s) in which they *bridge* communication gaps is done in a very personalized manner. How POs/AGs constructed bridges impacted their overall *sense-making* process, because as Dervin (1998, 1999) proposes, sense-making is generally defined as the process of bridging communication gaps.
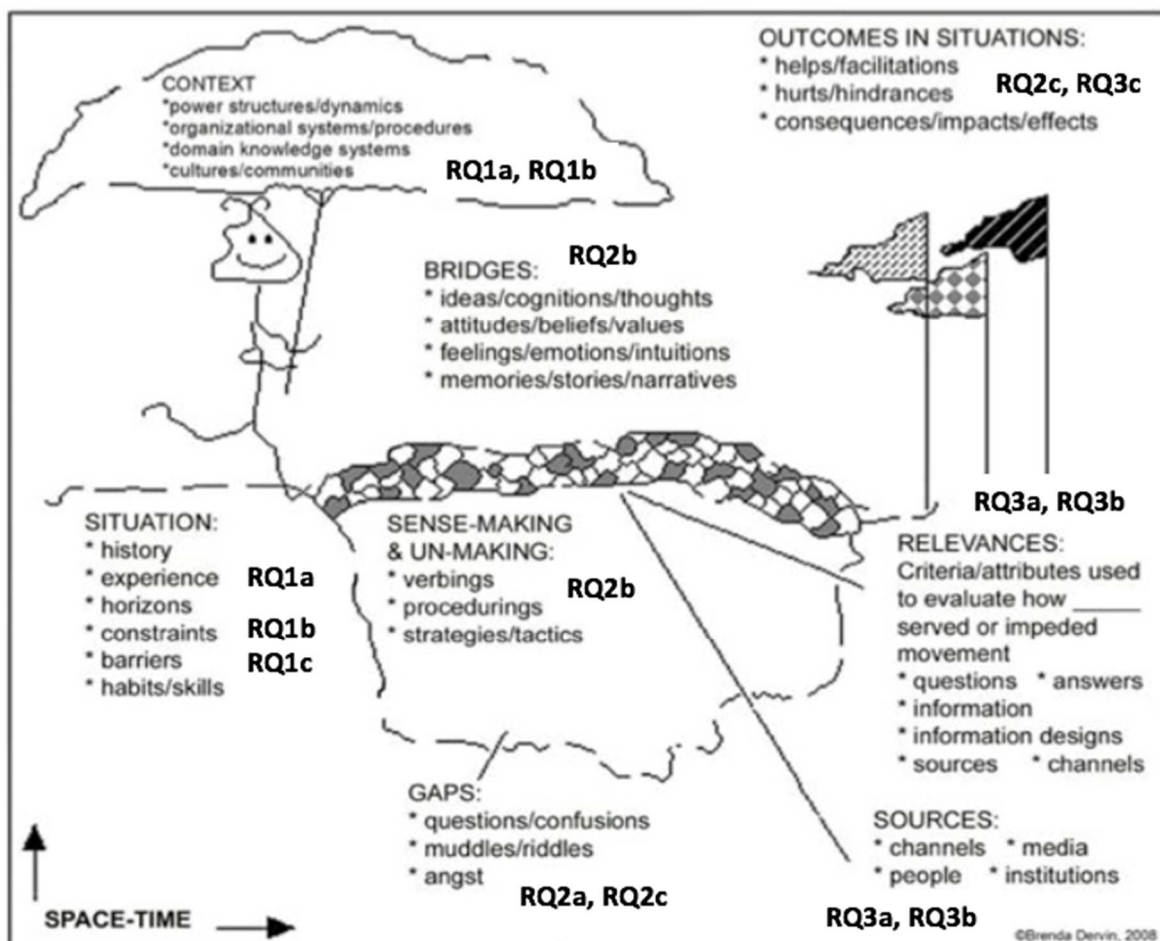

Figure 2. Research questions mapped onto the SMM metaphor (Foreman-Wernet & Dervin, 2016).

As illuminated through participant insights, identity was a central element that influenced what they considered communication gaps and the strategies they employed to bridge communication gaps in the context of Hurricane Harvey. In what follows, findings are discussed in relation to SMM's metaphor and its central components (see Figure 1). Consistencies and nuances are presented, primarily surrounding the role and function of identity in disaster sense-making, how identity influences communicative exigencies in disasters and how communication (or lack thereof) impacts identity in disasters, and implications regarding the micro, meso, and macro levels of phenomena in disasters. As identity impacted POs'/AGs' movement across the SMM metaphor (Figure 1), advocation for identity-based research within crisis and risk communication is also discussed.

Sense-Making, Crisis Core Identity/ies, and Crises

Identity is an influential element in individuals' sense-making process. The relationship between conceptualizations of identity and sense-making is an important consideration for crisis and risk communication. According to SMM, individuals' previous experiences are important to consider in the process of sense-making (Dervin, 2003a; Dervin & Frenette, 2003). Taking this assertion of SMM a step further, it is important to consider that individuals' experiences impact how they conceptualize self and conceptualizations of self also influence how individuals experience reality; therefore, identity impacts and is impacted by experiences (Hecht, 1993; Hecht, Jackson, & Ribeau, 2003; Jung & Hecht, 2004). This notion is especially applicable to disaster experiences. The sense-making process and outcomes about a disaster experience will vary depending on an individuals' previous experiences, values, attitudes, socioeconomic status, and, as I am proposing, individuals' *"crisis core identity/ies."*

"Crisis core identity/ies" are salient aspects of oneself that are core to an individual's self-conceptualization. Individuals want others to understand these salient aspects of their conceptualized self, especially in a crisis context because they frame what the individual deems as important, their desires and needs, and their decision- and sense-making process. These micro-level conceptualizations are constituted, challenged, and evoked by and through communication. As may be evident, identity-affirming crisis and risk communication are necessary for individuals to maintain "crisis core identities" in disaster contexts. In noting this, it becomes apparent to see why crisis core identities become primary structures that influence decision- and sense-making in a disaster context. They frame how an individual interprets their reality and influences their communicative actions, largely because individuals want to affirm their crisis core identity/ies and experience consistently between their self-conceptualization(s) and reality. Thus, crisis core identities can help explain individuals' priorities, desires and needs, and decision- and sense-making processes surrounding disasters.

Crisis core identity/ies are brought forward in crises. They are influential in the decision- and sense-making processes related to crises because they are frames of individual identity that are of utmost importance to them, such as being a PO/AG. Other identities that an individual holds are not selected as primary decision- and sense-making structures during a crisis, but these other identities are not forgone. In the context of crisis, however, other identities are not (as) relevant and are, therefore, not enacted frames of identity in the crisis context. Individuals strive to protect their "crisis core identities" because they are prominent frames of identity for individuals, even outside of a crisis context. Thus, "crisis core identities" become especially important for an individual to enact during a crisis because they want to maintain that identity/ies not only within the crisis context, but after the crisis as well. For example, in addition to PO/AG identity, identity

as a "mother" or a "father" could also be considered a "crisis core identity." Mothers and fathers want to protect their children during disasters, especially because children are more likely to experience psychological damage, post-traumatic stress disorder (PTSD), hindered development, and higher levels of fear and anxiety during and after a crisis (Abdeen, Qasrawi, Nabil, & Shaheen, 2008; Allen, Parrillo, Will, & Mohr, 2007; Martin, 2010). Thus, "crisis core identities" heavily influence individuals' informational needs and media uses during crises.

According to UGT, media choices are intentional and motivated by psychological and social needs (Blumler & Katz, 1974; Katz, Blumler, Gurevitch, 1974). Based on data from this research, I assert that being a PO/AG is a "crisis core identity" for many POs/AGs. The PO/AG crisis core identity impacted participants' informational needs and media uses, which are motivated by psychological and social needs associated with identity as a PO/AG. For the majority of participants, responsibility, commitment, obligation to care for their animal(s), and companionship with their animal(s) were important aspects of PO/AG identity (see Appendix F, Tables F9, F10). For many POs/AGs this translated to viewing their animal(s) as members of the family unit, which influences their psychological and social needs. As being a PO/AG influenced participants' psychological and social needs, it also influenced participants informational needs and media choices surrounding Hurricane Harvey according to UGT. Put simply, being a PO/AG is a crisis core identity that can influence individuals' informational needs and media uses surrounding a disaster.

"Crisis core identities" are *not as* porous and evolving as other identities that individuals hold. As Communication Theory of Identity (CTI) proposes, people have multiple identities that exist in relation to one another (Hecht, Jackson, & Ribeau, 2003; Jung & Hecht, 2004).

While conceptualizations and enactments of identity are porous in nature, I assert that "crisis core identities" are somewhat different. Identity/ies, like being a responsible and committed PO/AG, typically remain salient to individuals for an extended period of time in their life or for the entirety of their life. Conceptualizations and enactments of an identity may change, but the *prominence* of this identity is less likely to change—especially as related to crisis core identities. Further, in the *immediate* context of a crisis, an individual's "crisis core identity/ies" are unlikely to morph whilst they are embedded in the crisis context. However, based on the crisis, exigencies, and sense-making outcomes, it is certainly possible that an individual's "crisis core identity" in one crisis context morph and a different "crisis core identity" comes forward in a future crisis.

Individual variation in the experience of and processing of reality is largely due to identities that move *with* individuals across life experiences, such as being a responsible and committed PO/AG (Dervin, 1992; Foreman-Wernet & Dervin, 2017; Foreman-Wernet & Dervin, 2011). As informed by CTI, people have multiple identities that exist in relation to one another and "identity is both a sense of self and communication or enactment of self, resulting in the articulation of four different levels or frames of identity that merge the individual with the society around him/her" (Wadsworth, Hecht, & Jung, 2008, p. 67). The relational frame of identity is posited by CTI and explains that individuals can identify themselves through relationships with others (Hecht, Jackson, & Ribeau, 2003; Jung & Hecht, 2004).

Many POs/AGs considered their animal(s) as members of the family unit (see Appendix F, Table F10). Thus, human-animal relationships are a relational unit of identity for many participants. Being a PO/AG is also a personal and an enacted frame of identity that can become activated as a "crisis core identity," influencing decision- and sense-making in the disaster context. If the communication environment, however, is sparse in affirming the POs'/AGs' "crisis core

identity"—which is also a salient aspect of their self-conceptualization outside of the crisis context—then their sense-making abilities are strained and/or halted altogether (Dervin, 1998, 2003a; Dervin & Foreman-Wernet, 2012). In disaster contexts, this is extremely problematic and potentially life-threatening because people anchor their identities in family patterns and important identity/ies that they fulfill (see Lucas & Buzzanell, 2012), such as being a PO or AG. The lack of identity-affirming crisis and risk communication for POs/AGs surrounding Hurricane Harvey resulted in mitigatable and exuberated constraints, barriers, and hindrances, one of which was managing "identity gaps."

According to CTI, identity gaps are inconsistencies, disconnects, or discrepancies between individual's frames of identity (Jung & Hecht, 2004). Identity gaps can complicate decision- and sense-making in disaster contexts because individuals are not only managing and negotiating identity gaps, they are also trying to respond to the disaster event. Thus, identity gaps in the context of a disaster can lead to negative outcomes. In other contexts, high negative correlations between identity gaps and three communication outcomes—communication satisfaction, feeling understood, and conversational appropriateness and effectiveness—have been reported (Jung & Hecht, 2004).

If an identity gap is experienced by an individual, they likely feel excluded and unaffirmed. To some degree, identity gaps can point out exclusion of certain identity/ies within a particular communication environment or event, such as what POs/AGs experienced during Hurricane Harvey. Some situational variables can predict identity gaps (Jung & Hecht, 2008; Kam & Hecht, 2009). The content, structure, relevance, and dialogue/dissemination of crisis and risk communication are situational variables that can be analyzed to forecast identity gaps among disaster-affected individuals by identifying what crisis core identity/ies are excluded from crisis

and risk messaging. However, this would *first* require identifying and understanding publics' crisis core identities. Future research should explore this more, especially because when a disaster-affected individual experiences an identity gap due to the exclusionary crisis and risk communication it is likely that a communication gap also exists and prompted the identity gap. This situation is problematic because trying to bridge a communication gap during a disaster in tandem with trying to negotiate an identity gap could collapse sense-making abilities. It would be nearly impossible to identify such struggles without querying identity in relation to disaster sense-making and crisis and risk communication.

Dervin's (2003a) sense-making is useful for querying the relationship between identity, crisis communication, the different levels of analysis (micro, meso, macro) related to communicative phenomena in disasters, and an individual's sense-making process. Specifically, this approach is useful because:

> Sense-making explicitly enters the research situation in the 'in-between' spaces between order and chaos, structure and individual, culture and person, self 1 and self 2, and so on. Sense-Making focuses on how humans make and unmake, develop, maintain, resist, destroy, and change order, structure, culture, organization, relationships, and the self. (Dervin, 2003f, p. 332).

The "in-between" spaces are relevant to disasters. For example, individuals are attempting to move from chaos (disaster) to order (post-disaster recovery), while also navigating a structure(s) (work, disaster-relevant agencies and organizations) as an individual (self). As structures are typically responsible for crisis and risk communication, they are inherently embedded with power and ideology (Dervin, 2003f; Ulmer et al., 2019). Yet, the role of crisis and risk communication in these "in between" spaces *can* function as a "help," aiding individuals in achieving desired outcomes. However, this would require crisis and risk communication that is identity-affirming, relevant, and unbiased.

The Micro, Meso, and Macro Levels of Phenomena in Disasters

The micro, meso, and macro levels of analysis refer to the location of a unit of analysis (Barbour, 2017). For purposes of clarity, *micro-level* inquiry centers on the individual as the principal focus or unit of analysis and may focus on message production and interpretation as primary phenomena of interest. *Meso-level* inquiry focuses on interactions among micro- and macro-level phenomena and centers on groups/teams/networks as units of analysis. *Macro-level* inquiry typically focuses on organization(s) or institution(s) as the units of analysis and centers on communicative phenomena regarding organizations/institutions as producers of communication for publics and/or how external phenomena impact organizations/institutions (see Barbour, 2017). Dervin's (2003a) sense-making framework centers on micro-level inquiry and how micro-level sense-making is impacted by micro-, meso-, and macro-levels of phenomena. Specifically, Dervin's sense-making "provides the missing procedural link between the macro and micro levels of human communicative behavior, between larger social organization and individual actions" (Foreman-Wernet, 2003, p. 9). Sense-making, as proposed by Dervin (2003f), acknowledges all levels of phenomena and considers all units of analysis as individuals cannot make sense alone; micro-level sense-making requires accessing and interacting with others.

When one's sense of self is not affirmed, sense-making is triggered (Weick, 1995). In a disaster, this can occur when crisis and risk communication are not relevant or readily available for affected publics, such as what POs/AGs chronicled in their Hurricane Harvey experience. Not only were POs/AGs attempting to make sense of their unaffirmed identity/ies, but they were also attempting to make sense of the overall *experience* of Harvey. Therefore, when crisis and risk communication fail to affirm publics' "crisis core identities" and fail to provide them with relevant information to support informed decision-making, negative outcomes are likely. As crisis and risk

communication are multileveled phenomena that exert strong levels of influence on individuals and their identity/ies.

Identities are (co)created "in micropractices enacted within a macrosocial system" (Allen, 2005, p. 42; see also Foreman-Wernet, 2003). Based on this assertion, it becomes especially important that crisis and risk communicators (macrosocial system) are aware of micro-level "crisis core identities" and how they impact individuals' decision- and sense-making surrounding disasters (micropractices). To state simply, the interplay of macro-, meso-, and micro-levels of analysis regarding communicative phenomena in disasters must be understood and incorporated in crisis and risk communication practices and research. Such understanding and incorporation are essential for effective crisis and risk communication that functions to protect affected-individuals' health and safety.

The micro-, meso-, and macro-levels of communicative phenomena are interdependent, yet impact one another in various ways, perhaps even more so during crises. Individuals (micro) often expect organizations and officials (macro) to provide them with accurate and relevant crisis and risk communication (meso) during crises (Ulmer et al., 2019). Also, individuals aid organizations and officials during crises by supplying on-the-ground accounts, sharing emergent information, contributing to crisis response, scanning and monitoring, and much more (Sellnow & Seeger, 2013; Veil et al., 2011; Wilson et al., 2008). However, this usually requires dialogue between and between micro- and macro-levels within organizations as well as between/among organizations and publics (Barbour, 2017).

Crisis and risk communication typically originates from macro-level organizations or institutions and associated authority figures, experts, and/or scientists within these organizations or institutions (Ulmer et al., 2019). This communication contributes to decision- and sense-making

processes of individuals, which can function to affirm or fail to affirm individuals' identity/ies. Individuals learn about their identity/ies by projecting their conceptualization of said identity/ies into an environment and observing the consequence (Weick, 1995). POs'/AGs' projected their identity into the environment surrounding Hurricane Harvey and, as a result, experienced many negative consequences. As macro-level crisis and risk communication impacts micro-level identity, decisions, sense-making, and the overall experience of a disaster, it is important that practitioners and researchers strive to better understand the interplay among the various levels of analysis and communicative phenomena in disaster contexts.

Understanding the interplay among the levels of analysis and communicative phenomena in disasters should be a principal concern for crisis and risk communicators and researchers (e.g., Barbour, 2017). The interplay among the levels of POs'/AGs' experiences and the role of identity among the levels of communicative phenomena, however, was not well understood by officials and disaster-relevant organizations surrounding Hurricane Harvey. This lack of understanding was correlated to communication gaps for POs/AGs, which violated the communicative expectations that many POs/AGs had for officials' and organizations with crisis communication responsibilities. Specifically, many participants felt as though official communications failed to acknowledge and understand PO/AG identity, which registered as a violation to them. Identity was a central element that impacted POs/AGs communicative expectations and, thus, their experience of communication gaps, identity gaps, and sense-making process. Due to the influence that identity has on the sense-making process in disaster contexts, it is important that crisis communicators and researchers consider the incorporation of identity-based research in the study and practice of crisis and risk communication.

Identity-Based Research and Crisis Communication

Using identity-based research to inform crisis and risk communication practice and research would be a useful approach for many reasons. Traditionally, most crisis and risk communication research and practices have been informed by and practiced based on transmission-like models of communication (e.g., Spence et al., 2006). While dialogic models and practices are suggested (e.g., Botan, 2018; Seeger, 2006), their application is variant and difficult to identify. However, there are extant frameworks that offer a more dialogic approach for empirical research. SMM, for example, advocates a "communication-as-dialogue" approach (Dervin, 2003c). "Communication-as-dialogue" would help organizations and officials with crisis communication responsibilities better understand the various publics they serve and their communicative exigencies (Seeger, 2006). Taking the dialogic approach to crisis communication one step further, I assert that it is also necessary to understand individuals' identity/ies.

Identity has been largely absent from crisis communication research. Identity is important to consider for crisis communication because identity shapes how individuals respond to experiences and identity impacts "how people attend to phenomena," which influences their informational needs and media uses (Foreman-Wernet, 2003, p. 7). Although crisis communication is often spontaneous and reactive (Ulmer et al., 2019), demographics largely inform how crisis and risk communication are approached, practiced, and researched. Applying identity-based research (singularly, or in tandem with demographics-based research) would be beneficial for organizations and officials with crisis and risk communication responsibilities. SMM reminds us that individual experiences—which are foundational to conceptualizations of identity—are more likely to account for difference among research findings than other variables or dominant categories, like demographics (e.g., Foreman-Wernet, Dervin, & Funk, 2014; Reinhard & Dervin, 2011).

Demographics are not always accurate representations of individuals. Demographics are socially constructed categories, created by power structures and imposed on publics (Dervin, 2003b; Foreman-Wernet, 2003). The degree to which a person identifies with a demographic category,

> such as race, sex, or workgroup is a psychological construct that reflects the degree of similarity between the qualities attributed by individuals to a particular category (or its typical representative), whether good or bad, and the qualities that the individual currently incorporates in his or her self-image. (Chattopadhyay, Tluchowska, & George, 2004, p. 181).

As such, demographic categories may not accurately reflect an individual due to different conceptualization(s) of what a demographic category means to an individual, how they enact it, or the changes that manifest across time-space. Simply knowing that someone "fits into" the categories White, 30-year old, (human) childless, married, and female, may give some indicator as to what is important to that individual, but it fails to acknowledge other categories or identities that may be more influential in that individual's decision- and sense-making, such as being a PO/AG. Furthermore, what it means to be White, 30-year old, (human) childless, married, and female, is unique to each individual that identifies as such. It is also important to query if self-identification as White, 30-years old, (human) childless, married, and a female, is the *basis* for an individual's decision- and sense-making *during a crisis*? Or, have officials, organizations, and other power structures imposed that these demographic categories are the basis for individuals' decision- and sense-making during a crisis? What it means to *me* to be White, 30-years old, (human) childless, married, and female is unique to *me*, as another person with the same demographics likely conceptualizes and enacts these identities much differently than I do. Thus, how do officials, organizations, and other power structures understand how I conceptualize being White, 30-years old, (human) childless, married, and female? How would they know that being an

AG is an identity that is extremely important to me and one influences most of my (and my spouse's) decisions? Using demographic-based research *alone* would miss this key facet of my identity.

Demographics largely function to serve macro-level structures as the very nature of a demographic category is to easily label and categorize groups of people. In doing this, many micro-level nuances are missed. To clarify, I see benefits to demographics-based research and do not posit that it should be expelled from crisis and risk communication research and practice; rather, its use alongside identity-based research seems more appropriate. As there is a lack of micro-level research within crisis and risk communication (Spialek & Houston, 2017), applying identity-based research may help to bridge this gap. SMM research surrounding art experiences has exemplified this point.

SMM has been heavily used to examine micro-level experiences with art. Regardless of the way in which an individual is exposed to art, their experience of art is more impacted by personal characteristics and lived experiences than categories, like demographics (Foreman-Wernet, Dervin, & Funk, 2014). This exemplifies the importance of understanding individuals without the imposition of categories (i.e., demographics) because it can limit the micro-level perspective and experience in regard to the phenomena of inquiry (Dervin & Shields, 1999; Dow et al., 2015). Findings from these SMM applications suggest that SMM research can be useful for art organizations, helping them improve operations and more effectively listen to relevant publics by querying experiences of art *without* using imposed categories like demographics (Foreman-Wernet & Dervin 2016; Foreman-Wernet & Dervin, 2006).

SMM views reality from an individualistic point of view, acknowledging that different individuals perceive reality from multiple, subjective points-of-view. Simply, we all carry unique

identities that are specific to our conceptualizations of self. Rather than examine differences via demographics or other types of imposed, static categories, SMM focuses on "how" people attend to phenomena, how they connect information, how they make bridges, and thus, how they make sense of reality (Dervin, 2003b; Foreman-Wernet, 2003). Identities impact our "hows," our processes. This approach does not mean, however, that individuals do not carry static, rigid characteristics/qualities/schema/thoughts across time and space. SMM mandates that researchers are aware of "the conditions which foster flexibility, fluidity, and change as well as those that foster rigidity, stability, and inflexibility" (Dervin, 2003a, p. 140). SMM is also mindful of our inability to separate internal and external worlds, as both influence *how* we observe and experience reality (Dervin, 2003a). SMM asserts this, partially, because humans move through time and space influenced by elements beyond ourselves, such as power structures (Foreman-Wernet, 2003).

Expert and organizational knowledge informs and influences crisis and risk communication practices (Ulmer et al., 2019). SMM's metatheoretical grounding posits that "information" is inherently structural and defined by experts, which is directly related to crisis communication (Dervin, 2003a; Foreman-Wernet & Dervin, 2016; Ulmer et al., 2019). In the dominant, structural production of crisis communication, the influence of power is seemingly unquestioned; however, this is problematic because "information is a human tool designed by human beings to make sense of a reality assumed to be both chaotic and orderly" (p. 328). Not all humans view reality the same. Therefore, a power-based issue arises when experts, officials, organizations, etc., do not account for the multiple perspectives of publics.

Power is directly related to crisis communication, as it most often originates from (governmental) organizations and associated leaders (see Ulmer et al., 2019). During major disaster events, like Hurricane Harvey, governmental leaders and organizations are heavily

involved in the communication efforts and most individuals expect to receive information from these entities. As illuminated by POs/AGs, the current structure of mainstream, official crisis and risk communication practices operates according to the status quo; thus, power is exerted through crisis communication. Power is exercised in "the production and reproduction of, resistance to, or transformation of relatively fixed (sedimented) structures of communication and meaning that supports the interests (symbolic, political, and economic) of some organizational members or groups over others" (Mumby, 2001, p. 587). Power further problematized crisis situations for publics like POs/AGs because "power is exercised through a dynamic process in which relationships of interdependence exist between actors" (Mumby, 2013, pp. 159-160). Simply put, power is (re)produced by a system, through a structuration process, and requires interdependent parties. Publics and officials/governmental organizations are interdependent, especially in crisis contexts. Because the exercise of power typically supports certain values and ideas of those in power, ideology becomes an important concept to discuss in relation to crisis (and risk) communication.

Ideologies are frameworks for understanding reality and social systems. Ideologies provide individuals with a sense of identity and offer criteria for evaluating reality (Mumby, 2001). They are the foundation for power structures, such as those that influence the crisis and risk communication process. Ideology/ies influence experts', officials', and leaders' communication practices (or lack thereof). Here, it is important to note that ideology is a particular way of seeing reality, which is also a way of *not* seeing (other) reality/ies (e.g., Poggi, 1965).

Ideology can constrain a person's ability to consider other possibilities or assumptions within a social system. What is deemed as "important" to weave into crisis and risk communication typically lies with those in power, above the micro-level. In a disaster context, those in power are

(typically) experts, media, and officials (Dervin, 2003a; Ulmer et al., 2019). Their ideologies are important to consider as related to crisis communication because as SMM asserts, "information is created by human observers, is inherently a product of human self-interest and can never be separated from the observers who created it" (Dervin, 1999, p. 72). Crisis communicators cannot solely rely on their expertise when crafting and sending crisis/risk communication because publics make meaning and sense in various ways, using various cues, frames, experiences, etc. (Sjöberg, 2018). Above all, it is important that those in power realize how their ideologies influence their (in)actions, which impact publics. Most organizational practices are grounded in dominant ideologies (Allen, 2005; Trethewey, 2000), making it extremely important to recall that

> The discourses that form our identity are intimately tied to the structures and practices that are lived out in society day to day, and it is in the interest of relatively powerful groups that some discourses and not others receive the stamp of 'truth.' (Burr, 1995, p. 55).

As such, it is imperative that crisis and risk communicators understand that their language use and communication practices have "ramifications for identity development" of individuals (Allen, 2005, p. 35). Identity can be greatly impacted by ideologically-driven crisis and risk communication as "constructing social identities depend heavily on social, political, and historical factors, as humans rely on current ideologies to create social identity categories and their meanings" (Allen, 2005, p .37).

As a critical interpretivist, I take a critical stance towards the taken for granted, mundane ways of understanding our world(s). Communicative practices, like those surrounding Hurricane Harvey, are important to query and analyze because many of these practices arise from dominant ideologies, as "larger socio-historical discourses impinge upon organizational cultures and their members" (Trethewey, 2000, n.p.). Many of these practices, ideologies, and discourses do not often reflect the "life world" and the various publics embedded within it—such as POs and AGs.

It is vital that (re)evaluation of such practices takes place as social processes sustain and (re)create knowledge (Dervin, 1999). Communication is fundamental in these processes as it is used to (re)produce knowledge as individuals enact and perform various roles within various contexts (Allen, 2005; Dervin, 1999). To be specific, "language helps us make sense of the world; it allows us to share experiences and meaning with one another. Language is a system we use to objectify subjective meanings and to internalize socially constructed meanings" (Allen, 2005, p. 37-38). When communication fails to resonate with individuals, experiences and meaning cannot be (co)created. While much of my discussion seems critical, there are possibilities for change since knowledge and social action are interconnected, at least within my personal paradigmatic positioning (e.g., Allen, 2005).

Officials and organizations must (re)evaluate their communication practices surrounding crises. Officials and organizations must be aware of the power that they hold because "communication is understood to be ideological because it produces and reproduces particular power structures to the exclusion of alternate power configurations" (McPhee & Zaug, 2009, p. 26). The exclusion of POs/AGs in officials' and organizations' crisis and risk communication surrounding Hurricane Harvey is one such example. However, through micro-level inquiry of which was the focus of the present study, it is possible to begin to better understand how communication (or lack thereof) (re)produces certain ideologies and structures. I assert that this is possible because by critically examining the communicative practices and implications of officials and organizations, it possible to understand ideological standpoint(s), organizational structure, and self-delineating processes of such structure(s) (Deetz & Mumby, 1990; McPhee & Zaug, 2009; Weick, 1995). If officials and organizations fail to learn from past crises like Hurricane Harvey and fail to (re)evaluate their current practices, mitigatable risks will continue to exist, such as those

experienced by POs/AGs. It is imperative, therefore, that researchers, officials, and organizations become more cognizant about threats presented by unquestioned ideologies and practices and begin to (re)evaluate current crisis and risk communication practices and research approaches.

Practical Suggestions

As various practical implications intersected with and/or were woven into the theoretical implications (above), there are two practical implications that I would like to bring forward in this section. First, "pet preparedness" is an important implication for practice, for both officials/organizations and individual POs/AGs. Second, implementation of demographics-based *and* identity-based research and practices are important to consider moving forward.

"Pet preparedness" has been addressed (to a degree) by some disaster organizations. Ready.gov (n.d.) suggests that POs/AGs prepare for a disaster by: asking a trusted neighbor to check on their animals in the event that they are not home to do so, identify pet-friendly hotels as evacuation options since most public evacuation shelters are not animal-friendly, build a kit for your animal(s) that includes food and water for at least three days, stock necessary medications, have your animal's medical records (e.g., vaccination records) and important documents (e.g., adoption papers, microchip numbers), prepare a first aid kit, have a collar or harness with identification tags, rabies tags, and a leash, have a crate or pet carrier, stock sanitation supplies (e.g., litter, newspapers, trash bags, bleach), carry a picture of you and your animal(s) together, and bring familiar items for your animal(s) (e.g., toys, bedding, treats). The CDC (2018) has informational resources dedicated to "Disaster Preparedness for Your Pet," the American Red Cross (2019) also dedicates a webpage to "Pet Disaster Preparedness," and many other organizations also have webpages dedicated to "pet preparedness," such as the Humane Society of the United States (HSUS), the American Society for the Prevention of Cruelty to Animals

(ASPCA), Purina dogfood, FEMA, and others. Lastly, some organizations provide animal-specific disaster training, such as the International Fund for Animal Welfare (IFAW). IFAW sponsors animal responder trainings in disaster-prone areas, such as Baton Rouge, Louisiana (International Fund, 2012). As many "pet preparedness" resources exist, officials and organizations with crisis (and risk) communication responsibilities must help disseminate this information and better educate themselves on the population of POs and AGs. Long-term, such efforts could support risk mitigation and facilitate partnerships with the public. POs/AGs must also enact responsible pet ownership practices, which includes taking strides to learn about and formalize pet preparedness.

As explicated in the previous section, officials and organizations are more likely to better understand publics if they utilize demographics-based *and* identity-based research and practices. This suggestion is rather simple to implement as identity-based questions can be added onto extant demographics-based questionnaires and surveys, interview guides, activity planning documents, etc. For instance, after asking individuals to identify their demographic characteristics (e.g., sex/gender, race), an open-ended question that probes at "crisis core identity/ies" can be presented, such as "What is something that is important to you that would influence how you responded in a disaster?", or "What else is important to you that has not been identified through your demographic responses?", or "What else might you be concerned about during a disaster that has not been discussed in this survey?" Identity-based questions could be presented to publics in more explicit ways as well, such as "Are there any other important facts about who you are that would be important to know?" Such a shift in current crisis communication research and practices will likely require a shift in organizational practices, culture, and ideology and necessitate true dedication to understanding others.

Dedication to understanding publics on *their* terms is needed for effective crisis communication. Even if a crisis communicator does not agree with their publics' values—such as conceptualizing family as multispecies and valuing animals as family members—they should not judge their publics; rather, crisis communicators should accommodate their publics and craft crisis communication accordingly to facilitate shared meaning and relevancy. To achieve this level of understanding between crisis communicators and publics, pre-crisis engagement is essential (Novak et al., 2019). Pre-crisis engagement, however, is an area that is lacking in crisis management and crisis communication practice (Novak et al., 2019). Officials, practitioners, and other individuals/organizations with crisis communication responsibilities should develop pre-crisis engagement strategies, ones that actively acknowledge the importance of understanding, empathy, relationship-building, and (co)creating shared meaning with all publics.

Limitations

It is important to consider these research findings in the context of certain limitations. First, this research took place post-Hurricane Harvey; specifically, data collection began in March 2018. Some may suggest that recall bias as a limitation. However, I assert that recall bias is not an issue because sense-making is retrospective. Also, my research sought to have participants provide *their* perceptions of experiencing Hurricane Harvey as a PO/AG; so, subjectivity is inherently embedded (e.g., Adler, 2015). According to SMM, researchers must accept that individuals can be confused, while also strategic and intelligent because they are viewed as "theorists and are capable of self-reflection" (Foreman-Wernet, 2012, p. 8). Second, data collection for this project was, at times, under time constraints. I wanted Harvey to be recent and relevant enough to participants so that they wanted to share their insights. Although a maximum variation sampling technique was applied, there were some participants that I invited to complete an interview but I did not receive

a reply from. In these situations, I returned to the list of participants that they were interested in completing an interview and moved onto invite a different participant. Third, I am not from nor do I live in the geographical areas impacted by Hurricane Harvey. I believe that this is a relevant limitation to note because local knowledge is important as related to crises. Additionally, I want to make it clear that I am aware of the power differentials between "researcher" and "participant," "insider" and "outsider." To mitigate this issue, I made multiple trips to areas impacted by Harvey, met with participants in-person, collected participants' insights at multiple points in time (versus one-shot, cross sectional data collection), included official, organizational, and local leaders in the research, and updated participants on research findings and interpretations. Lastly, I am an AG and hold the personal and professional opinion that animals matter. While some may interpret this as a limitation or bias, I believe that this standpoint not only provided me with the opportunity to relate to participants and build rapport with them, but that it also provided me with a unique and novel perspective on the phenomena of interest.

Future Research

Findings from this research can be used to inform future research. Findings and results from this research can be used to develop and test animal-inclusive disaster risk reduction (DRR) messages/campaigns/programs/events. DRR aims to lessen damage and risk presented by natural hazards as well as "lessen the vulnerability of people and property, wise management of land and the environment, and improving preparedness and early warning for adverse events" (United Nations Office for Disaster Risk Reduction [UNISDR]), n.d., para. 2). Simply put, DRR is about supporting informed choices; however, informed choices are dependent on access to relevant, decodable information—much of which originates from governmental officials and organizations in a crisis context (Ulmer et al., 2019). It has been suggested that POs/AGs may be more willing

to engage with DRR if animals were included and/or addressed (Darroch & Adamson, 2016; Thompson et al., 2014). However, it is unknown as to how communication functions or should function within animal-inclusive DRR approaches. Moving forward, animal-inclusive DRR and the role of communication are worthy topics to explore.

Moving forward, it would be worthwhile to investigate whether "lessons learned" were assessed and applied by officials and organizations involved with Hurricane Harvey. For example, were POs/AGs and their animals included in after action reports (AARs)? If so, were communication challenges or issues specified in the AARs? If not, why? How, if at all, did Harvey AARs inform future disaster plans and communication efforts? As related to the micro-level, it would be useful to conduct future research surrounding individuals' use of information and media, influential frames of identity, decision-making, and sense-making surrounding disasters.

From a methodological standpoint, future crisis and risk communication research *must* prioritize working with publics and (co)creating meaning among/between individuals, groups, communities, officials, organizations, and stakeholders. Querying communicative elements that publics view as "helps" and "hindrances" in disaster contexts would help inform and improve future crisis and risk communication, planning, and preparedness efforts. It would also be beneficial to examine how other (vulnerable or understudied) populations utilize frames of identity in sense-making and the effect(s) of crisis and risk communication. If significant effects are illuminated, such as those showcased by POs/AGs in this research, it would be worthwhile to examine how disaster experiences can impact conceptualizations of identity/ies long-term and if persistent identity gaps or identity struggles are outcomes of disaster experiences.

Lastly, the role of power and ideology in crisis and risk communication are areas in need of future research and inquiry. Most major crisis events implicate communicative responsibilities

of governmental officials and organizations, which operate according to particular power structures and ideological frames. This mode of operation inevitably means that some realities are privileged over others; however, I question that this is the "best" approach. Therefore, future research should critically assess power dynamics and ideological assumptions within current crisis and risk communication approaches to better understand how these macro- and meso-level structures impact micro-level experiences.

Conclusion

The purpose of crisis communication is to create shared meaning with and between impacted individuals, groups, communities, and organizations in the context of crisis (Sellnow & Seeger, 2013). Crisis and risk communication function to support informed decision-making during times of crisis. However, there are various publics within crisis contexts, many of which have particular informational needs. POs/AGs are one such population, but crisis planning, preparedness, and communication efforts are sparse in including POs/AGs and their animals. This research affirms such an assertion. A lack of timely and relevant crisis and risk communication not only threatens health and safety, but it also impacted individuals' identity and, thus, their sense-making abilities. POs'/AGs' experiences provided the means to examine the larger context of disaster sense-making processes at the micro-level, the role of identity in disaster sense-making, and how this population was impacted by crisis and risk communication (or lack thereof). By focusing the individual POs'/AGs' perspectives as a means to assess the effectiveness of official/governmental/organizational crisis and risk communication, it was possible to critique the influence of power and ideology in crisis communication practices and the importance of micro-level inquiry for the field. However, it is important to note that *both* lay individuals and officials/government/organizations have responsibilities surrounding disaster preparedness.

Hurricane Harvey was one of the worst disasters in U.S. history. As the severity and occurrence of disasters are forecasted to increase in the future, working with disaster-affected populations' is crucial to ensure the health and safety of all publics, especially populations that are understudied and largely excluded, like POs/AGs. While findings of this research were consistent with some extant research regarding impacts of pet ownership during disasters, there were also nuances in the data. Such findings highlight the importance of bridging knowledge gaps within the field of crisis and risk communication and the need to achieve understanding, inclusion, and partnerships with *all* publics that are impacted by or potentially-impacted by risks and crises—even publics that conceptualize "family" as multispecies.

APPENDIX A

IRB Approval

WAYNE STATE UNIVERSITY

IRB Administration Office
87 East Canfield, Second Floor
Detroit, Michigan 48201
Phone: (313) 577-1628
FAX: (313) 993-7122
http://irb.wayne.edu

NOTICE OF EXPEDITED APPROVAL

To: Ashleigh Day
Deans Off Fine, Perf & Comm Arts

From: For Dr. Deborah Ellis or designee *S. Millis, Ph.D /SC*
Chairperson, Behavioral Institutional Review Board (B3)

Date: March 06, 2018

RE: IRB #: 025118B3E

Protocol Title: Human-Animal Relationships, Hurricane Harvey, and Sense-Making: The Role of Communication during Times of Disaster

Funding Source: Unit: Communication

Protocol #: 1802001240

Expiration Date: March 05, 2021

Risk Level / Category: Research not involving greater than minimal risk

---

The above-referenced protocol and items listed below (if applicable) were APPROVED following *Expedited Review* Category (#6 #7)* by the Chairperson/designee *for* the Wayne State University Institutional Review Board (B3) for the period of 03/06/2018 through 03/05/2021. This approval does not replace any departmental or other approvals that may be required.

- Revised Protocol Summary Form (revision received in the IRB Office 03/05/2018)
- Research Protocol (received in the IRB Office 02/20/2018)
- Medical records are not being accessed therefore HIPAA does not apply.
- A waiver of written documentation of consent has been granted according to 45CFR 46 117(c) and justification provided by the Principal Investigator in the Protocol Summary Form. This waiver satisfies: 1) risk is no more than minimal, 2) That the research involved no procedures for which written consent is normally required outside the research context 3) The consent process is appropriate, 4) An information sheet disclosing the required and appropriate additional elements of consent disclosure will be provided to participants.
- Research Information Sheet (revision dated 02/16/2018)
- Recruitment Post
- Semi-Structured Interview Schedule
- Receipt of Department of Homeland Security Non-Disclosure Agreement
- Data Collection Tool (1): (I) Hurricane Harvey Online Survey
- Please note: This submission was reviewed under the IRB Administration Office Flexible Review and Oversight Policy, therefore the expiration date is 03/05/2021.

---

* Federal regulations require that all research be reviewed at least annually. You may receive a *"Continuation Renewal Reminder"* approximately two months prior to the expiration date; however, it is the Principal Investigator's responsibility to obtain review and continued approval *before* the expiration date. Data collected during a period of lapsed approval is unapproved research and can never be reported or published as research data.

* All changes or amendments to the above-referenced protocol require review and approval by the IRB BEFORE implementation.

* Adverse Reactions/Unexpected Events (AR/UE) must be submitted on the appropriate form within the timeframe specified in the IRB Administration Office Policy (http://www.irb.wayne.edu/policies-human-research.php).

NOTE:

1. Upon notification of an impending regulatory site visit, hold notification, and/or external audit the IRB Administration Office must be contacted immediately.
2. Forms should be downloaded from the IRB website at each use.

*Based on the Expedited Review List, revised November 1998

Notify the IRB of any changes to the funding status of the above-referenced protocol.

WAYNE STATE UNIVERSITY

NOTICE OF EXPEDITED AMENDMENT APPROVAL

To: Ashleigh Day
Deans Off Fine, Perf & Comm Arts

From: Dr. Deborah Ellis or designee _____ *aacen, PhD/em*
Chairperson, Behavioral Institutional Review Board (B3)

Date: May 07, 2018

RE: IRB #: 025118B3E

Protocol Title: Human-Animal Relationships, Hurricane Harvey, and Sense-Making: The Role of Communication during Times of Disaster

Funding Source: Unit: Communication

Protocol #: 1802001240

Expiration Date: March 05, 2021

Risk Level / Category: Research not involving greater than minimal risk

---

The above-referenced protocol amendment, as itemized below, was reviewed by the Chairperson/designee of the Wayne State University Institutional Review Board (B3) and is APPROVED effective immediately.

- Recruitment Materials - Receipt of revised (I) Semi-Structured Interview Schedule and (I) Recruitment Post to reflect modified compensation as exact funding amount has been received from WSU Graduate School and the Department of Communication, and increase enrollment to 500 and increase in potential number of interviewees from 25 to 30 and 30 to 40.

- Protocol – Protocol modified to reflect accrual, data collection methods, and participant compensation changes. Changes include revised compensation to include a drawing for one of four Amazon.com e-gift cards valued at $50 each for participating in the online survey, each participant that completes an interview will receive an Amazon.com e-gift card $25, and each participant that agrees to complete a shorter, follow-up interview will receive an Amazon.com e-gift valued at $5. The research team will include pictures from participants of their pets/companion animals and damages participants proprerty may have incurred from Hurricane Harvey, photos are only used if participants willingly send them, they are not required. Invitiation to send photos is presented to participants at the end of the interview protocol and will not be solicated.

- Information Sheet and Oral Consent Script (revision dated 5/4/18) - Information Sheet and Oral Consent Script modified to reflect updated incentive amounts for participants as well as the number of participants enrolled to complete the online survey and interview, updated invitation for participants to send/include any photographs that they would like to share as part of their story.

- Funding Source - Revised funding to reflect approved funds from the WSU Graduate School in the amount of $1.000 and the Department of Commincation in the amount of $1,000.

- Receipt of revised Protocol Summary Form: Appendix B - Internet Use in Research

  Notify the IRB of any changes to the funding status of the above-referenced protocol.

APPENDIX B

Recruitment Post and Flyer

Hello,

My name is Ashleigh Day. I am a doctoral candidate in the Department of Communication at Wayne State University. I am recruiting potential participants for a study on how pet owners and animal guardians make sense of their experience with Hurricane Harvey and how any information that you received or sought-out surrounding Hurricane Harvey helped you make sense of that experience. I am looking for participants that are at least 18 years of age, a pet owner or animal guardian at the time of Hurricane Harvey and were residing and/or geographically located in areas impacted by Hurricane Harvey.

If you meet the criteria to participate, I would greatly appreciate if you would complete an online survey, which can be accessed at this link: https://waynestate.az1.qualtrics.com/jfe/form/SV_0V9MzUAz66Z4WnH

The survey should take approximately 25 minutes. At the end of the survey, you will be asked if you are willing to participate in an interview. If you are interested, you can provide your contact information so that I can schedule a time to talk with you. The interview will take approximately 30 to 60 minutes and we can complete the interview either in-person, via telephone, or via Skype.

As a way to thank you for your participation, you can elect to be placed in a drawing for one of four Amazon.com e-gift cards valued at $50 each for completing the online survey. Four recipients will be randomly selected. If you agree and complete an interview, you will receive an Amazon.com e-gift card valued at $25 each. If you agree to complete a shorter, follow-up interview that will take place approximately two to three months after the first interview, you will receive an Amazon.com e-gift card valued at $5 each.

Participation is completely voluntary. You are free to withdraw from the study at any time.

If you would like to participate, please complete the survey at: https://waynestate.az1.qualtrics.com/jfe/form/SV_0V9MzUAz66Z4WnH
or contact me (Ashleigh.Day@wayne.edu) to see if you are a fit for the study and/or to ask me any question that you may have about this research.

Thank you very much!

Ashleigh M. Day
Ph.D. Candidate
Communication Department
906 W. Warren Ave.
508 Manoogian
Wayne State University

Detroit, MI 48201
IRB #: 025118B3E
Protocol #: 1802001240

ARE YOU A PET OWNER
OR ANIMAL GUARDIAN
THAT EXPERIENCED HURRICANE
HARVEY? ARE YOU AT
LEAST 18 YEARS OF AGE? IF
SO, CONSIDER TAKING MY
ONLINE SURVEY TO SHARE
YOUR EXPERIENCE(S) [SEE
THE SURVEY LINK IN THE POST].

THE SURVEY SHOULD TAKE APPROX.
25-30 MINUTES. AS A WAY TO THANK
YOU FOR YOUR PARTICIPATION, YOU
CAN ELECT TO BE PLACED IN A DRAWING
FOR ONE OF FOUR AMAZON.COM E-GIFT
CARDS THIS RESEARCH IS BEING
CONDUCTED AS PART OF MY PHD DISSERTATION.

APPENDIX C

Online Survey

Q1 Are you 18 years of age or older?

○ Yes

○ No

Q2 Did you experience Hurricane Harvey?
Specifically, were you in an area that was geographically affected Hurricane Harvey?

○ Yes

○ No

Q3 At the time of Hurricane Harvey, did you care for or own an animal(s)?

○ Yes

○ No

Research Information Sheet

<u>Title of Study:</u> Human-Animal Relationships, Hurricane Harvey, and Sense-Making: The Role of Communication during Times of Disaster

Principal Investigator (PI):   Ashleigh Day
                                Department of Communication
                                (313) 577-2943
IRB #: 025118B3E
IRB Protocol #: 1802001240

Purpose

You are being asked to be in a research study about your experience as an animal owner/guardian during a natural disaster and how you made sense of this experience and the type of information that helped you do so (i.e., the local news, online articles or posts, talking to friends, etc.) because you live in an area or were located in an area impacted by Hurricane Harvey when it made landfall in the southern United States and you indicated that you are (or were at the time) an owner/guardian of an animal(s). This study is being conducted at Wayne State University. The estimated number of participants for this research is approximately 500 participants for the survey portion and approximately 30 to 40 participants for the interview portion of this research. **Please read this form and ask any questions you may have before agreeing to be in the study.**

In this research study, I am trying to better understand the disaster experience(s) and sense-making process(es) of pet owners (also referred to as "animal guardians") that were affected by Hurricane Harvey. More specifically, this research will pay close attention to the role and function of communication in animal owners'/guardians' sense-making of their disaster experience with Hurricane Harvey, focusing on "how" animal owners/guardians connected, interpreted, and came to understand information and communication surrounding Hurricane Harvey. This research aims to better understand how received and/or sought-out information surrounding Hurricane Harvey and animal ownership/guardianship played a role in individuals' sense-making about their Hurricane Harvey experience, with an anticipated outcome being to better understand how owners'/guardians' sense-making after experiencing a natural disaster relates to their future natural disaster planning and preparedness intentions. This could help to identify areas in need for future research and/or topics that people need more information about.

Study Procedures
If you agree to take part in this research study, you will be asked to complete an online survey. At the end of the online survey, you will be asked if you are interested and willing to participate in an interview. If you are interested, you will be asked to provide contact information, so the researcher can contact you to schedule a time for the interview. The interview can be scheduled to take place at a public location of your choosing, via telephone, or via Skype video chat. At the end of the interview, you will be asked if you would like to receive a follow-up email that summarize your interview responses and my initial analyses. You will also be invited to participate in a follow-up interview (approximately two to three months from the date of the first interview). You are also welcome to keep the lines of communication open via email by writing the primary researcher any additional comments or insights that you have about your Hurricane Harvey experience that may not have been discussed in the first interview. This is to ensure that your experience(s) and answers are represented in an accurate and appropriate way. Once these portions of the research are complete all identifying information will be removed and pseudonyms (i.e., a code number or fake name) will be used in all research documents and materials.

Below, I have identified the research procedures in a chronological list:

1. Fill out the online survey via Wayne State University's subscription to Qualtrics. (Qualtrics is an online survey platform). The survey should take you approximately 25 minutes to fill out, depending on the length of your answers. There is only one, online survey to complete for this research.

2. For the survey, questions will ask you about the animal(s) in your life at the time of Hurricane Harvey, your relationship with them, your evacuation decision, what information and media channels relevant to Hurricane Harvey information you found helpful (or not) as an animal owner/guardian, how and why such information was helpful (or not) in making disaster-related decisions, and there are seven demographic questions at the end of the survey (e.g., state of residence during Harvey, sex, age, household income, race or Hispanic origin, children in the home, household transportation). At the very end of the survey, you will be asked if you are willing to participate in an interview. If you are interested, you will be asked to provide contact information, so the researcher can contact you to schedule a time for the interview. Lastly, if you are interested in being placed in a random drawing to receive a survey participation incentive (e.g., an Amazon.com e-gift card), you will be asked to provide your contact information in the event that your name is randomly drawn as a winner. Any contact information that you provide at any point in this research will not be shared with anyone or any organization. You can opt out of answering any of the survey questions, at any time.

3. If you agree to participate in an interview (after you complete the online survey), you will be asked to describe your Hurricane Harvey experience, specifically as related to you being an animal owner or guardian during that time. The interview questions will ask you to explain the steps as to what happened during/surrounding Hurricane Harvey, the value of received and/or sought-out information relevant to Hurricane Harvey, how you bridged any gaps in information pertaining to Hurricane Harvey and decisions you made or wanted to make as an animal owner/guardian during that time, and how your experience with Hurricane Harvey has prompted you to think about future natural disaster planning and preparedness. You can opt out of answering any of the interview questions, at any time. The interview should take approximately 30 to 60 minutes, depending on the length and the amount of detail that you provide in your answers.

4. At the end of interview, you will be asked if you are willing to participate in a shorter follow-up interview in approximately two to three months as well as if you are interested in receiving a summary of your responses from the first interview and my initial analyses. You are also welcome to keep the lines of communication open via email by writing to me with any additional comments or insights that you have about your Hurricane Harvey experience that may not have been discussed in the first interview. This is to ensure that your experience(s) and answers are represented in an accurate and appropriate way.

5. Once I have collected your survey and interview responses, your identifying information will be removed and only pseudonyms will be used in the research documents. If you desire, pseudonyms can also be used to refer to your animal(s). In addition to using pseudonyms, data will be stored on the principal investigator's (PI's) personal laptop, which is password protected. Your information will not be shared with anyone or any organization.

Benefits
As a participant in this research study, there will be no direct benefit for you; however, information from this study may benefit other people now or in the future.

Risks
There are no known risks at this time for participating in this study; however, there may be risks involved from taking part in this study that are not known to researchers at this time.

Study Costs
Participation in this study will be of no cost to you.

Compensation
You will not be "paid" for taking part in this study. For taking part in this research study, you will be compensated for your time.

Specifically, if you complete the online survey, you can opt-in to a drawing for one of four Amazon.com e-gift cards ($50 each). You will need to provide contact information for this. Each recipient of the Amazon.com e-gift cards will be randomly chosen.

If you complete the interview, you will be compensated in the form of an Amazon.com e-gift card ($25 each). Each participant that completes an interview will be compensated.

If you agree to complete a shorter, follow-up interview that will take place approximately two to three months after the first interview, you will receive an Amazon.com e-gift card ($5 each). Each participant that completes a follow-up interview will be compensated.

Confidentiality
All information collected about you during the course of this study will be kept confidential to the extent permitted by law. You will be identified in the research records by a code name or number (i.e., pseudonym). Information that identifies you personally will not be released without your written permission. However, the study sponsor, the Institutional Review Board (IRB) at Wayne State University, or federal agencies with appropriate regulatory oversight [e.g., Food and Drug Administration (FDA), Office for Human Research Protections (OHRP), Office of Civil Rights (OCR), etc.) may review your records.

When the results of this research are published or discussed in conferences, no information will be included that would reveal your identity.

With your consent, the interviews will be audio recorded. This is only for the purposes of writing a transcript. Once the transcript had been written, the audio recording will be permanently deleted. In the transcript, you will be referred to by a code name or number (i.e., pseudonym). All identifying information will be deleted. Only I will have access to these documents (i.e., the PI for this research) and/or a transcriptionist that may help transcribe the audio recordings. Any transcriptionists that are hired will sign a nondisclosure agreement (NDA) to protect your confidentiality.

Voluntary Participation/Withdrawal
Taking part in this study is voluntary. You have the right to choose not to take part in this study. You are free to only answer questions that you want to answer. You are free to withdraw from

participation in this study at any time. Your decisions will not change any present or future relationship with Wayne State University or its affiliates, or other services you are entitled to receive.

The PI may stop your participation in this study without your consent. The PI will make the decision and let you know if it is not possible for you to continue. The decision that is made is to protect your health and safety, or because you did not follow the instructions to take part in the study

Questions

If you have any questions about this study now or in the future, you may contact Ashleigh Day at the following phone number: (313) 577-2943.If you have questions or concerns about your rights as a research participant, the Chair of the Institutional Review Board can be contacted at (313) 577-1628. If you are unable to contact the research staff, or if you want to talk to someone other than the research staff, you may also call the Wayne State Research Subject Advocate at (313) 577-1628 to discuss problems, obtain information, or offer input.

Participation

By completing the online survey and/or interview you are agreeing to participate in this study.

The data that you provide may be collected and used by Qualtrics per its privacy agreement. Additionally, participation in this research is for residents of the United States over the age of 18; if you are not a resident of the United States <u>and/or</u> under the age of 18, please do not complete this online survey and/or interview.

- o Yes, I understand the information above and consent to participation.
- o No, I do not understand the information above and do not consent to participation.

Q5 In the future, I hope to conduct more research in this area. Would you be willing to participate in an interview about your Hurricane Harvey experience in the future?
Each participant who completes an interview will receive a participation incentive in the form of a gift card. If you are interested, *please provide your name and email address below.* Your contact information will *only* be used to contact you about future research and will not be shared with anyone.

_____

_____

_____

_____

_____

Q6 What type of animal(s) did you care for or own during Hurricane Harvey? (Check all that apply):

Cat

Dog

Horse

Bird

Other (please specify in the text box)

_____

Q7 Please tell me about <u>your</u> relationship with your animal(s).

_____

_____

_____

_____

_____

Q8 Please indicate the extent of your feelings on the scale shown (1= lowest, 10= highest)

	Lowest 1	2	3	4	5	6	7	8	9	Highest 10
Your sense of responsibility/commitment to your animals	○	(	(	(	(	(	(	(	(	○
Your sense of attachment/bond to your animals	○	(	(	(	(	(	(	(	(	○

Q9 Please indicate how much you agree or disagree with the following statements.

	Strongly agree	Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree	Strongly disagree
I feel that my animals are a part of my family	○	○	○	○	○	○	○
My animals are a source of stress in my life	○	○	○	○	○	○	○
I believe that loving animals helps me stay healthy	○	○	○	○	○	○	○
My animals make me happy	○	○	○	○	○	○	○
I believe that my animals should have the same rights and privileges as my human family members	○	○	○	○	○	○	○
I consider my animals to be great companions	○	○	○	○	○	○	○
I play and interact with my animals often	○	○	○	○	○	○	○

I think animals are just animals	○	○	○	○	○	○	○
During Hurricane Harvey, I felt a strong sense of obligation to care for my animals	○	○	○	○	○	○	○
During Hurricane Harvey, my animals helped me relieve stress	○	○	○	○	○	○	○

Q10 Can you describe your experience with Hurricane Harvey, as it relates to you and your animal(s)?

_____

_____

_____

_____

_____

Q11 In your experience with Hurricane Harvey, what stood in your way when it came to caring for your animal(s)?

_____

_____

_____

_____

_____

- -

Q12 How did available information help (or not help) you make decisions for you and your animal(s) when it came to Hurricane Harvey? Please explain.

_____

_____

_____

_____

_____

- -

Q13 Was there enough available information surrounding Hurricane Harvey to help you make sense of what you should do to protect *you and your animal(s)*? Please explain.

_____

_____

_____

_____

_____

- -

Q14 Was there any information relating to Hurricane Harvey that you tried to search for, but could not find?

○ Yes

○ No

○ Unsure

- -

Q15 In the previous question, you indicated that there was information relating to Hurricane Harvey that you tried to search for but could not find.

Could you explain:
1. What this information related to
2. Where you searched for it
3. How you moved on to make decisions *without* the information

_____

_____

_____

_____

_____

Q16 Please indicate how you got information about Hurricane Harvey (check all that apply):

	Family Member	Friend	Co-worker	Someone I did not know	I did not get information for any of these sources
Face-to-face conversations					
Phone Call					
Email					
Texting					

Q17 Please indicate how you got information about Hurricane Harvey (check all that apply):

Facebook

Instagram

Twitter

Snapchat

Other social media (please specify in the space provided)
_____

I did not get information from social media

Q18 Please indicate how you got information about Hurricane Harvey (check all that apply):

Radio

Television

Print newspaper

Online newspaper

Website (not an on online newspaper)

Other media (please specify in the space provided)
_____

I did not get information from media

Q19 Please indicate how you got information about Hurricane Harvey (check all that apply):

     Written notice or flyer in my neighborhood

     Written notice or flyer at work

     Written notice or flyer in shops/at the mall

     Written notice or flyer in the mail

     Written notice or flyer from another place (please specify in the space provide)
     _____

     I did not get information from a written notice or flyer

Q20 Please indicate if you got information about Hurricane Harvey from any of the following sources (check all that apply):

     My town's Mayor

     State officials or a State agency

     Federal officials or a Federal agency

     Local police department

     Local fire department

     A different public official (please specify in the space provided)
     _____

     I did not get information from any public official(s)

Q21 Please indicate how you got information about Hurricane Harvey *from Public Officials* (check all that apply):

Face-to-face

Phone call

Television

Radio

U.S. Mail

Email

Text

Social media

Public meeting

Other (please specify in the space provided)

_____

I did not get information from public official(s)

Q22 Did you seek-out information during Hurricane Harvey that focused on animals in disasters? (Such as: how to care for them, evacuation and sheltering options for animals, or any other animal-related topics)

○ Yes

○ No

○ Unsure

Skip To: Q23 If Did you seek-out information during Hurricane Harvey that focused on animals in disasters? (Such... = Yes

Q23 In the previous question you indicated that you sought-out information during Hurricane Harvey that focused on animals in disasters (Such as: how to care for them, evacuation and sheltering options for animals, or another animal-related topics).

Could you please describe where you got this information from and how it was helpful for you.

_____

_____

_____

_____

_____

Q24 Please choose <u>one</u> of the options below that best describes your evacuation situation during Hurricane Harvey.

○ I evacuated my home with all of my animal(s)

○ I evacuated my home without all of my animal(s)

○ I did not evacuate my home.

○ Other (please specify below) _____

Q25 What happened to your animal(s) when you evacuated? (Check all that apply).

    They stayed with me

    They stayed with me or a member of the household at our house (someone stayed behind with the animals)

    They went to a separate place (e.g., at a friend or family member's house; at a shelter)

    They were left by themselves in the house, caged, and/or leashed

    They were released so they could escape

    Some animals escaped, ran away, and/or couldn't be caught

    Other (please specify below) _____

- -

Q26 How does your experience with Hurricane Harvey prompt you to plan or prepare for future natural disasters?

    _____

    _____

    _____

    _____

    _____

- -

Q27 Imagine that you *did not* have any animals.
Do you think that your response to Hurricane Harvey would have been any different? Please explain.

    _____

    _____

    _____

    _____

_____

Q28 Where do you live?

○ Texas

○ Louisiana

○ Oklahoma

○ Other (please specify) _____

Q29 Are you...

○ Female

○ Male

○ Other _____

Q30 How old are you?

○ 18 - 24 years

○ 25 - 44 years

○ 45 - 64 years

○ 65 years of age or older

Q31 Approximately, what is your yearly *household* income?

○ Less than $25,000

○ $25,000 - $49,999

○ $50,000 - $74,999

○ $75,000 - $99,999

○ Over $100,000

- -

Q32 Please select your race(s) and/or Hispanic origin.

Alaska Native or American Indian

Asian

Black or African American

Hispanic or Latino

Native Hawaiian or Other Pacific Islander

White

Other (please specify in the text box)

_____

- -

Q33 How many children (under the age of 18) live in your household?

○ 0

○ 1

○ 2

○ 3

○ 4 or more

- -

Q34 Do you or anyone in your household have a car or motor vehicle that can be used for transportation purposes?

○ Yes

○ No

Q35 Do you have any further comments you'd like to make about the survey, your experiences, or about your animal(s)? If so, please use the space below.

_____

_____

_____

_____

_____

Q36 Would you like to be entered into a drawing to receive one of four Amazon.com e-gift cards for completing this survey?
Each e-gift card is in the amount of $50.00 and winners will be randomly selected.

○ Yes

○ No

Display This Question:

If Would you like to be entered into a drawing to receive one of four Amazon.com e-gift cards for co... = Yes

Q37 **Since you selected "yes" to be entered to receive one of the four Amazon.com e-gift cards, _please provide your name and email address_ so you can be contacted if you are randomly selected as a winner.**

_____

_____

_____

_____

_____

End of Block: Default Question Block

APPENDIX D

Interview Guide

Hello, I am Ashleigh Day and I will be interviewing you today. I am a Ph.D. candidate in the Department of Communication at Wayne State University. I am conducting a study to attempt to better understand disaster experiences and sense-making process(es) of companion animal guardians that were affected by Hurricane Harvey. More specifically, my research aims to pay close attention to the role and function of communication in animal guardians' sense-making of their disaster experience.

As you may already know, the entire interview will take approximately 30 to 60 minutes. I will ask you a series of questions to find out about your experience as an animal guardian during Hurricane Harvey. First, I will ask you about your animals and then move on to ask you to describe any issues you experienced as an animal guardian during Harvey. I will then ask you about the information you received or sought-out surrounding Harvey, as it relates to you and your animals. The following set of questions will explore what gaps in information you thought existed and how you made decisions without such information. Then, I will ask you about what you think could be changed or done better surrounding natural disasters and including animals and their guardians.

But before we get into all of that, we need to take care of some general housekeeping sorts of things:

1) First, as you may already know, in order for me to be able to pay careful attention to what you are saying, I will record the interview. Is that alright with you? (*if YES, start recording*). Your name and identity will not be linked to the information you provide me in the interview. I will use pseudonyms for any names that you use, and a fictional or generalized location for any towns/cities/etc. (e.g., the southern United States, a large metropolitan city in the southern part of the United States).
2) Second, all research conducted at Wayne State University requires that participants read a standard Informed Consent document prior to participation. Will you (or have you already) read this sheet and let me know if you are willing to participate in the study?
3) Remember, participating in this interview is voluntary and you do not have to answer any questions that make you uncomfortable. Do you have any questions before we begin?

To begin the interview:
1. Can you describe the animals in your life (or those that were in your life during the time of Hurricane Harvey)?
2. What was your relationship with your animals like?
   a. What did this relationship mean to you?
   b. What were some daily activities you did with your animals?

To tap the situation:
1. In your own experience with Hurricane Harvey, can you explain what happened?

    a. As an animal guardian, what was this like?
    b. Can you tell me if you think Harvey compromised your ability to care for your animals?
        i. How did this make you feel?
        ii. Why did you feel that way?
    c. Can you tell me how any problems arose when it came to you and your animals??
    d. Can you tell me about what your interactions were like with your animal(s) during Harvey? (*Focus on the communicative elements for this questions*).
    PROBES:
        i. How did your relationship with your animal(s) impact your experience with Hurricane Harvey?

2. What stood in your way as an animal guardian during this experience?
    PROBES:
    a. Was there enough information available for you?
    b. What topics did you need more information on?
    c. Who should have provided this information?
    d. Where should the information have been disseminated (e.g., television, radio)?

3. What informational sources were most helpful to you surrounding Hurricane Harvey?
    PROBES:
    a. Why?
    b. How did you get this information?
    c. From whom?
    d. What topics did you search for before Harvey?
        i. Where?
        ii. Did you get the information you needed?
    e. What topics did you search for after Harvey?
        i. Where?
        ii. Did you get the information you needed?

4. What informational sources were most helpful in regard to caring for your animal(s) during this time?
    PROBES:
    a. Why?
    b. Were animals specifically mentioned in this information? In the context of disasters?
    c. How did you get this information?
    d. From whom?

To tap gaps:
1. What were your big questions surrounding Hurricane Harvey?
    PROBES:
    a. Why were these big questions for you?
    b. How did you make decisions without answers to those questions?
    c. Who do you think was responsible for answering your questions?

    d. If you could have had it your way, what would have been provided or changed to help you more in this situation?

2. What did you struggle trying to make sense of surrounding Hurricane Harvey?
   PROBES:
   a. Did you ever figure these things out?
   b. Can you describe what helped you figure these things out?
       i. Did you talk to anyone about these things?
       ii. Did you seek-out information about these things?

To tap bridges:
1. In your experience surrounding Hurricane Harvey and being an animal guardian during this time, what conclusions did you come to about your experience?
   a. What led you to that conclusion?
   b. Can you describe the process of getting to your conclusion?

2. What feelings did you experience at the end of your experience with Harvey?
   a. What led you to those feelings?
   b. Can you describe the process of getting to those feelings?

To tap outcomes sought and/or obtained:
1. If you could wave a magic wand, what would have helped you and your animals more during Hurricane Harvey?
   a. And, how would have this helped more?
   b. What would this have allowed you to do/achieve/think?

2. Did you have a disaster preparedness plan or kit in your household before Harvey?
   IF YES:
   a. What prompted you to make a plan or a kit?
   b. Was it useful during Harvey?
   c. If so, please explain how/why.
   IF NO:
   a. Why didn't you have a plan or a kit?

3. How has this experience made you think about future natural disasters?
   a. What does your experience with Hurricane Harvey make you think about future disaster planning?
   b. What does your experience with Hurricane Harvey make you think about future disaster preparedness?

To close the interview:
1. Overall, how do you see the decisions you made for your animal(s) surrounding Hurricane Harvey?
   PROBES:
   a. Do you think your animal(s) were confused during this time?
       i. How could you tell?

        ii.   Did you try to comfort them? How? Why?

        iii.   Do you think they tried to comfort you in any way? How? Why?

2. How do you think that your animals/pets influenced your response to Hurricane Harvey?
   a. Do you think your response to Harvey would have been different if you had no animals/pets?
   b. Why / why not?

3. Do you think animals are included enough in messages surrounding natural disasters?

4. In your own words, can you tell me why you think animals should be *(or should not be)* included in messages surrounding natural disaster planning, response, & recovery?
   a. Who is responsible for this?
   b. How do you think this could be accomplished?

5. Before we end, is there anything that you would like to add or discuss that I may not have asked you during the interview?

6. When I am done transcribing our interview and start to review your answers, if I have questions or perhaps need clarification on anything you said (to ensure that your perspective is capture accurately), would you be open to me contacting you?
   IF YES:
   a. What is the best way to contact you?
   b. Would you be willing to participate in a follow-up interview in approximately two to three months?

**Ask if they'd like to receive a participation incentive for completing the interview.
**Verify their email address to send their participation incentive.
**Also, if you'd like to add anything to your story that you may have left out today or would like to send any photographs that supplement your story or that you believe add more details to your story, please feel free to contact me at Ashleigh.Day@wayne.edu

Thank you for your participation!

Your participation incentive will be sent to you in the next few days, via email.

APPENDIX E

Follow-up

WAYNE STATE UNIVERSITY

Default Question Block

Research Information Sheet

Title of Study: *Human-Animal Relationships, Hurricane Harvey, and Sense- Making: The Role of Communication during Times of Disaster*

Principal Investigator (PI): Ashleigh M. Day, Department of Communication, (313) 577-2943

Purpose

You are being asked to be in a research study about your experience as an animal owner/guardian during a natural disaster and how you made sense of this experience and the type of information that helped you do so (i.e., the local news, online articles or posts, talking to friends, etc.) because you live in an area or were located in an area impacted by Hurricane Harvey when it made landfall in the southern United States and you indicated that you are (or were at the time) an owner/guardian of an animal(s). This study is being conducted at Wayne State University. The estimated number of participants for this research is approximately 500 participants for the survey portion and approximately 30 to 40 participants for the interview portion of this research. **Please read this form and ask any questions you may have before agreeing to be in the study.**

In this research study, I am trying to better understand the disaster experience(s) and sense-making process(es) of pet owners (also referred to as "animal guardians") that were affected by Hurricane Harvey. More specifically, this research will pay close attention to the role and function of communication in animal owners'/guardians' sense-making of their disaster experience with Hurricane Harvey, focusing on "how" animal owners/guardians connected, interpreted, and came to understand information and communication surrounding Hurricane Harvey. This research aims to better understand how received and/or sought-out information surrounding Hurricane Harvey and animal ownership/guardianship played a role in individuals' sense-making about their Hurricane Harvey experience, with an anticipated outcome being to better understand how owners'/guardians' sense-making after experiencing a natural disaster relates to their future natural disaster planning and preparedness intentions. This could help to identify areas in need for future research and/or topics that people need more information about.

Study Procedures

If you agree to take part in this research study, you will be asked to complete an online survey. At the end of the online survey, you will be asked if you are interested and willing to participate in an interview. If you are interested, you will be asked to provide contact information, so the researcher can contact you to schedule a time for the interview. The interview can be scheduled to take place at a public location of your choosing, via telephone, or via Skype video chat. At the end of the interview, you will be asked if you would like to receive a follow-up email that summarize your interview responses and my initial analyses. You will also be invited to participate in a follow-up interview (approximately two to three months from the date of the first interview). You are also welcome to keep the lines of communication open via email by writing the primary researcher any additional comments or insights that you have about your Hurricane Harvey experience that may not have been discussed in the first interview. This is to ensure that your experience(s) and answers are represented in an accurate and appropriate way. Once these portions of the research are complete all identifying information will be removed and pseudonyms (i.e., a code number or fake name) will be used in all research documents and materials.

Below, I have identified the research procedures in a chronological list:

1. Fill out the online survey via Wayne State University's subscription to Qualtrics. (Qualtrics is an online survey platform). The survey should take you approximately 25 minutes to fill out, depending on the length of your answers. There is only one, online survey to complete for this research.

2. For the survey, questions will ask you about the animal(s) in your life at the time of Hurricane Harvey, your relationship with them, your evacuation decision, what information and media channels relevant to Hurricane Harvey information you found helpful (or not) as an animal owner/guardian, how and why such information was helpful (or not) in making disaster-related decisions, and there are seven demographic questions at the end of the survey (e.g., state of residence during Harvey, sex, age, household income, race or Hispanic origin, children in the home, household transportation). At the very end of the survey, you will be asked if you are willing to participate in an interview. If you are interested, you will be asked to provide contact information, so the researcher can contact you to schedule a time for the interview. Lastly, if you are interested in being placed in a random drawing to receive a survey participation incentive (e.g., an Amazon.com e-gift card), you will be asked to provide your contact information in the event that your name is randomly drawn as a winner. Any contact information that you provide at any point in this research will not be shared with anyone or any organization. You can opt out of answering any of the survey questions, at any time.

3. If you agree to participate in an interview (after you complete the online survey), you will be asked to describe your Hurricane Harvey experience, specifically as related to you being an animal owner or guardian during that time. The interview questions will ask you to explain the steps as to what happened during/surrounding Hurricane Harvey, the value of received and/or sought-out information relevant to Hurricane Harvey, how you bridged any gaps in information pertaining to Hurricane Harvey and decisions you made or wanted to make as an animal owner/guardian during that time, and how your experience with Hurricane Harvey has prompted you to think about future natural disaster planning and preparedness. You can opt out of

answering any of the interview questions, at any time. The interview should take approximately 30 to 60 minutes, depending on the length and the amount of detail that you provide in your answers.

4. At the end of interview, you will be asked if you are willing to participate in a shorter follow-up interview in approximately two to three months as well as if you are interested in receiving a summary of your responses from the first interview and my initial analyses. You are also welcome to keep the lines of communication open via email by writing to me with any additional comments or insights that you have about your Hurricane Harvey experience that may not have been discussed in the first interview. This is to ensure that your experience(s) and answers are represented in an accurate and appropriate way.

5. Once I have collected your survey and interview responses, your identifying information will be removed and only pseudonyms will be used in the research documents. If you desire, pseudonyms can also be used to refer to your animal(s). In addition to using pseudonyms, data will be stored on the principal investigator's (PI's) personal laptop, which is password protected. Your information will not be shared with anyone or any organization.

Benefits

As a participant in this research study, there will be no direct benefit for you; however, information from this study may benefit other people now or in the future.

Risks

There are no known risks at this time for participating in this study; however, there may be risks involved from taking part in this study that are not known to researchers at this time.

Study Costs

Participation in this study will be of no cost to you.

Compensation

You will not be "paid" for taking part in this study. For taking part in this research study, you will be compensated for your time.

Specifically, if you complete the online survey, you can opt-in to a drawing for one of four Amazon.com e-gift cards ($50 each). You will need to provide contact information for this. Each recipient of the Amazon.com e-gift cards will be randomly chosen.

If you complete the interview, you will be compensated in the form of an Amazon.com e-gift card ($25 each). Each participant that completes an interview will be compensated.

If you agree to complete a shorter, follow-up interview that will take place approximately two to three months after the first interview, you will receive an Amazon.com e-gift card. Each participant that completes a follow-up interview will be compensated.

Confidentiality

All information collected about you during the course of this study will be kept confidential to the extent permitted by law. You will be identified in the research records by a code name or number (i.e., pseudonym). Information that identifies you personally will not be released without your written permission. However, the study sponsor, the Institutional Review Board (IRB) at Wayne State University, or federal agencies with appropriate regulatory oversight [e.g., Food and Drug Administration (FDA), Office for Human Research Protections (OHRP), Office of Civil Rights (OCR), etc.) may review your records.

When the results of this research are published or discussed in conferences, no information will be included that would reveal your identity.

With your consent, the interviews will be audio recorded. This is only for the purposes of writing a transcript. Once the transcript had been written, the audio recording will be permanently deleted. In the transcript, you will be referred to by a code name or number (i.e., pseudonym). All identifying information will be deleted. Only I will have access to these documents (i.e., the PI for this research) and/or a transcriptionist that may help transcribe the audio recordings. Any transcriptionists that are hired will sign a nondisclosure agreement (NDA) to protect your confidentiality.

Voluntary Participation/Withdrawal

Taking part in this study is voluntary. You have the right to choose not to take part in this study. You are free to only answer questions that you want to answer. You are free to withdraw from participation in this study at any
time. Your decisions will not change any present or future relationship with Wayne State University or its affiliates, or other services you are entitled to receive.

The PI may stop your participation in this study without your consent. The PI will make the decision and let you know if it is not possible for you to continue. The decision that is made is to protect your health and safety, or because you did not follow the instructions to take part in the study

Questions

If you have any questions about this study now or in the future, you may contact Ashleigh Day at the following phone number: (313) 577-2943.If you have questions or concerns about your rights as a research participant, the Chair of the Institutional Review Board can be contacted at (313) 577-1628. If you are unable to contact the research staff, or if you want to talk to someone other than the research staff, you may also call the Wayne State Research Subject Advocate at (313) 577-1628 to discuss problems, obtain information, or offer input.

Participation

By completing the online survey and/or interview you are agreeing to participate in this study.

The data that you provide may be collected and used by Qualtrics per its privacy agreement. Additionally, participation in this research is for residents of the United States over the age of 18; if you are not a resident of the United
States and/or under the age of 18, please do not complete this online survey and/or interview.

○ Yes, I understand and I consent to participation.
○ No, I do not understand and I do not consent to participation.

Q1. Since we last spoke (during the phone interview), have your thoughts about your experience with Hurricane Harvey changed at all? Please explain why or why not.

Q2. In your opinion, how were you impacted by the availability of communication (or the lack of communication) surrounding Hurricane Harvey?

Q3. As it is currently hurricane season in the United States, has your experience with Hurricane Harvey prompted you to do anything new or different for the current hurricane season?

Q4. Have you developed or modified your disaster plans or disaster kits since Hurricane Harvey to better include your animal(s)? Please explain.

Q5. What would get you to participate in a disaster preparedness event or program? What would you want included in the event or program?

Q6. Would you participate in a disaster preparedness event or program if it was an animal-friendly event or program (i.e., meaning that you could possibly bring your animal(s) or be around other people's animals)?

Q7. If there is anything else that you would like to add or discuss, please use the space below to do so.

As a way to thank you for your time today, you can opt-in to receive a $10 Amazon.com e-gift card. *If you would to receive an e-gift card, please indicate the best email to send it to in the space below:*

APPENDIX F

Survey Respondents' Demographic Information & Response Information

Table F1

Types of Animals Cared for During Harvey by Survey Participants

Animal	N	Percent
Cat	105	48.4
Dog	191	88
Horse	17	7.8
Bird	20	9.2
Other Types of Animals (Goats, cows/cattle, bearded dragon, salamanders, geckos, fish, invertebrates, chickens, ducks, donkey, sheep, snakes, rabbits, jack rabbit, pigs, turtle, turkey, Guinea pigs, bees/bee hive)	30	13.8
Participants with multiple animals, same species (e.g., two dogs)	124	70.5
Participants with multiple animals, different species (e.g., one dog and one bird)	100	46.1

*Not*e. Totals will not sum to *n*=217 as many participants had more than one animal during the time of Hurricane Harvey.

Table F2

Survey Participants' Demographics

Demographic	N	Percent
Female	146	67.3
Male	10	4.6
Gender-Preferred not to answer/identify	61	28.1
18-24 years of age	5	2.3
25-44 years of age	72	33.2
45-64 years of age	69	31.8
65 years of age or more	10	4.6
Age-Preferred not to answer/identify	61	28.1
Total	**217**	**100**

Table F3

Survey Participants' Yearly Household Income

Income Range	N	Percent
Less than $25,000	15	6.9
$25,000-$49,999	31	14.3
$50,000-$74,999	37	17.1
$75,000-$99,999	17	7.8

	N	Percent
Over $100,000	54	24.9
Preferred not to answer/identify	63	29
Total	**217**	**100**

Table F4

Survey Participants' State of Residence During Harvey

State	N	Percent
Texas	215	99.1
Louisiana	2	0.9
Total	**217**	**100**

Table F5

Number of Children (Under of Age of 18) Living in Survey Participants' Household During Harvey

Number of Children	N	Percent
0	94	43.3
1	23	10.6
2	24	11.1
3	10	4.6
4 or more	4	1.8
Preferred not to answer/identify	62	28.6
Total	**217**	**100**

Table F6

Survey Participants' that had a Car/Motor
Vehicle for Transportation in their Household

Vehicle	N	Percent
Yes	151	69.6
No	4	1.8
Did not answer	62	28.6
Total	**217**	**100**

Table F7

Survey Participants' Racial/Ethnic Identity

Race/Ethnicity	N	Percent
Asian	1	0.5
Black/African American	2	0.9
Hispanic/Latino	8	3.7
White	135	62.2
Other ("American" and "West Indian")	2	0.9
Alaska Native/American Indian and White	2	0.9
Asian and White	1	0.5
Hispanic/Latino and White	4	1.8

Preferred not to identify	62	28.6
Total	**217**	**100**

Table F8

Survey Participants' Indication of Willingness to Participate in an Interview

Responses	N	Percent
Yes, I am willing to be contacted for an interview in the future	148	68.2
No, I am willing to be contacted for an interview in the future	69	31.8
Total	**217**	**100**

Table F9

Survey Participants' Perspective on their Animal(s): 1=Lowest, 10=Highest

Topic	N	Mean	Standard Deviation
Sense of responsibility/commitment to their animal(s)	196	9.80	0.65
Sense of attachment/bond to their animal(s)	195	9.72	0.95

Table F10

Survey Participants' Indication of (Dis)Agreement on
Topics about their Animal(s): 1=Strongly agree,
10=Strongly disagree

Topic	N	Mean	Standard Deviation
I feel that my animals are a part of my family	193	1.28	1.33
My animals are a source of stress in my life	193	6.62	3.13
I believe that loving animals helps me stay healthy	190	1.39	0.93
My animals make me happy	191	1.28	0.8
I believe that my animals should have the same rights and privileges as my human family members	193	2.74	2.24
I consider my animals to be great companions	193	1.27	0.79
I play and interact with my animals often	191	1.26	0.79

I think animals are just animals	191	8.06	2.61
During Hurricane Harvey, I felt a strong sense of obligation to care for my animals	191	1.21	0.99
During Hurricane Harvey, my animals helped me relieve stress	193	2.53	2.14

Table F11

Survey Participants' Informational Sources surrounding Harvey (n=159)

Source	N (Yes)	Percent (Yes)
Face-to-face conversations with a family member	78	49.1
Face-to-face conversations with a friend	87	54.7
Face-to-face conversations with a co-worker	45	28.3
Face-to-face conversations with someone I did not know	40	25.2

I did not get information from any face-to-face conversations	35	22

Note. Totals will not sum to _n_=159 as the categories were not mutually exclusive (e.g., "check all that apply") and/or not all participants chose to answer the questions.

Table F12

Survey Participants' Informational Sources surrounding Harvey (n=139)

Source	N (Yes)	Percent (Yes)
Phone call with a family member	71	51.1
Phone call with a friend	58	41.7
Phone call with a co-worker	32	23
Phone call with someone I did not know	17	12.2
I did not get information from phone calls	36	25.9

Note. Totals will not sum to _n_=139 as the categories were not mutually exclusive (e.g., "check all that apply") and/or not all participants chose to answer the questions.

Table F13

Survey Participants' Informational Sources surrounding Harvey (n=119)

Source	N (Yes)	Percent (Yes)
Email from a family member	25	21
Email from a friend	27	22.7
Email from a co-worker	23	19.3
Email from someone I did not know	15	12.6
I did not get information from an email	65	54.6

Note. Totals will not sum to *n*=119 as the categories were not mutually exclusive (e.g., "check all that apply") and/or not all participants chose to answer the questions.

Table F14

Survey Participants' Informational Sources surrounding Harvey (n=138)

Source	N (Yes)	Percent (Yes)
Texting with a family member	77	55.8

	N	Percent
Texting with a friend	83	60.1
Texting with a co-worker	48	34.8
Texting with someone I did not know	23	16.7
I did not get information from texting	26	18.8

Note. Totals will not sum to *n*=138 as the categories were not mutually exclusive (e.g., "check all that apply") and/or not all participants chose to answer the questions.

Table F15

Survey Participants' Social Media Use (n=164)

Source	N (Yes)	Percent (Yes)
Facebook	143	87.2
Instagram	16	9.8
Twitter	20	12.2
SnapChat	29	17.7
Other Social Media	16	9.8
I did not get information from social media	0	0

Note. Totals will not sum to *n*=164 as the categories were not mutually exclusive (e.g., "check all that apply") and/or not all participants chose to answer the questions.

Table F16

Survey Participants' Traditional Informational Sources(n=164)

Source	N (Yes)	Percent (Yes)
Radio	72	43.9
Television	133	81.1
Print newspaper	9	5.5
Online newspaper	52	31.7
Website (not an online newspaper)	97	59.1
Other media source	34	20.7
I did not get information from traditional media	6	3.7

Note. Totals will not sum to *n*=164 as the categories were not mutually exclusive (e.g., "check all that apply") and/or not all participants chose to answer the questions.

Table F17

Survey Participants' Information from Public Officials/Entities (n=161)

Source	N (Yes)	Percent (Yes)

Town's Mayor	76	47.2
State Officials/Agency	94	58.4
Federal Officials/Agency	67	41.6
Local Police Department	83	51.6
Local Fire Department	54	33.5
A Different Public Official	30	18.6
I did not get information from public officials/entities	28	17.4

Note. Totals will not sum to *n*=161 as the categories were not mutually exclusive (e.g., "check all that apply") and/or not all participants chose to answer the questions.

Table F18

Survey Participants' Source of Information from Public Officials/Entities (n=162)

Source	N (Yes)	Percent (Yes)
Face-to-face with Public Officials	31	19.1
Phone Call with Public Official	33	20.4

Television from Public Official	96	59.3
Radio from Public Official	43	26.5
US Mail from Public Officials	6	3.7
Email from Public Official	22	13.6
Text from Public Official	40	24.7
Social Media from Public Official	117	72.2
Public Meeting with Public Official	11	6.8
Other from Public Official	8	4.9
I did not get information from public officials/entities	11	6.8

Note. Totals will not sum to *n*=162 as the categories were not mutually exclusive (e.g., "check all that apply") and/or not all participants chose to answer the questions.

Table F19

Survey Participants' Evacuation Decisions (N = 217)

Decision	N	Percent
I evacuated my home with all of my animal(s)	80	36.9
I evacuated my home without all of my animal(s)	15	6.9
I did not evacuate my home	16	7.4
Other	106	48.8

APPENDIX G

Demographic Information & Responses for Interview Participants

Table G1

Types of Animals Cared for During Harvey by Interviewees

Animal	N	Percent
Cat	15	50
Dog	27	90
Horse	6	20
Bird	3	10
Other Types of Animals (Goats, cows/cattle, bearded dragon, rabbit, chickens)	4	13.3
Participants with multiple animals, same species (e.g., two dogs)	24	80
Participants with multiple animals, different species (e.g., one dog and one bird)	17	56.7

Note. Totals will not sum to *n*=30 as many participants had more than one animal during the time of Hurricane Harvey.

Table G2

Interviewee Demographics

Demographic	N	Percent

Female	25	83.3
Male	3	10
Gender-Preferred not to answer/identify	2	6.7
18-24 years of age	0	0
25-44 years of age	11	36.7
45-64 years of age	13	43.3
65 years of age or more	2	6.7
Preferred not to answer/identify	4	13.3

Table G3

Interviewees' Yearly Household Income

Income Range	N	Percent
Less than $25,000	5	16.7
$25,000-$49,999	5	16.7
$50,000-$74,999	3	10
$75,000-$99,999	3	10
Over $100,000	10	33.3
Preferred not to answer/identify	4	13.3
Total	**30**	**100**

Table G4

Interviewees State of Residence During Harvey

State	N	Percent
Texas	29	96.7
Louisiana	1	3.3
Total	**30**	**100**

Table G5

Number of Children (Under of Age of 18) Living in Interviewees' Household During Harvey

Number of Children	N	Percent
0	13	43.3
1	6	20
2	5	16.7
3	1	3.3
4 or more	1	3.3
Preferred not to answer/identify	4	13.3
Total	**30**	**100**

Table G6

Interviewees that had a Car/Motor Vehicle for Transportation in their Household

Vehicle	N	Percent

	N	Percent
Yes	24	80
No	1	3.3
Did not answer/indicate	5	16.7
Total	**30**	**100**

Table G7

Interviewees' Racial/Ethnic Identity

Race/Ethnicity	N	Percent
Asian	1	3.3
Black/African American	0	0
Hispanic/Latino	2	6.7
White	19	63.3
Other ("American")	1	3.3
Alaska Native/American Indian and White	1	3.3
Hispanic/Latino and White	1	3.3
Preferred not to answer/identify	5	16.7
Total	**30**	**100**

Table G8

Response Rate of Potential Interviewees

	N

(Potential) Interviewee Responses		Percent
Yes, an interview was scheduled and completed	30	37.5
No, I no longer wish to participate in an interview	1	1.2
Did not respond to my email request to schedule an interview	49	61.3
Total	**80**	**100**

Table G9

Interviewees' Perspective on their Animal(s): 1=Lowest, 10=Highest

Topic	N	Mean	Standard Deviation
Sense of responsibility/commitment to their animal(s)	27	9.85	0.53
Sense of attachment/bond to their animal(s)	27	9.41	1.89

Table G10

Interviewees' Indication of (Dis)Agreement on Topics about their Animal(s): 1=Strongly agree, 10=Strongly disagree

Topic	N	Mean	Standard Deviation
I feel that my animals are a part of my family	27	1.44	1.76
My animals are a source of stress in my life	27	6.85	3.22
I believe that loving animals helps me stay healthy	24	1.21	0.66
My animals make me happy	26	1.12	0.43
I believe that my animals should have the same rights and privileges as my human family members	27	2.3	2.07
I consider my animals to be great companions	27	1.07	0.27
I play and interact with my animals often	25	1.08	0.28
I think animals are just animals	26	8.00	2.97

During Hurricane Harvey, I felt a strong sense of obligation to care for my animals	26	1.08	0.39
During Hurricane Harvey, my animals helped me relieve stress	27	2.26	2.35

Table G11

Interviewees' Informational Sources surrounding Harvey (n=25)

Source	N (Yes)	Percent (Yes)
Face-to-face conversations with a family member	11	44
Face-to-face conversations with a friend	14	56
Face-to-face conversations with a co-worker	7	28
Face-to-face conversations with someone I did not know	12	48
I did not get information from any face-to-face conversations	5	20

Note. Totals will not sum to *n*=25 as the categories were not mutually exclusive (e.g., "check all that apply").

Table G12

Interviewees' Informational Sources surrounding Harvey (n=24)

Source	N (Yes)	Percent (Yes)
Phone call with a family member	11	45.8
Phone call with a friend	13	54.2
Phone call with a co-worker	7	29.2
Phone call with someone I did not know	4	16.7
I did not get information from phone calls	7	29.2

Note. Totals will not sum to *n*=24 as the categories were not mutually exclusive (e.g., "check all that apply").

Table G13

Interviewees' Informational Sources surrounding Harvey (n=20)

Source	N (Yes)	Percent (Yes)

	N	Percent
Email from a family member	3	15
Email from a friend	5	25
Email from a co-worker	3	15
Email from someone I did not know	5	25
I did not get information from an email	11	55

Note. Totals will not sum to *n*=20 as the categories were not mutually exclusive (e.g., "check all that apply").

Table G14

Interviewees' Informational Sources surrounding Harvey (n=23)

Source	N (Yes)	Percent (Yes)
Texting with a family member	10	43.5
Texting with a friend	15	65.2
Texting with a co-worker	6	26.1

	N	Percent
Texting with someone I did not know	5	21.7
I did not get information from texting	6	26.1

Note. Totals will not sum to *n*=23 as the categories were not mutually exclusive (e.g., "check all that apply").

Table G15

Interviewees' Social Media Use (n=26)

Source	N (Yes)	Percent (Yes)
Facebook	22	84.6
Instagram	4	15.4
Twitter	4	15.4
SnapChat	3	11.5
Other Social Media	4	15.4
I did not get information from social media	0	0

Note. Totals will not sum to *n*=26 as the categories were not mutually exclusive (e.g., "check all that apply") and/or not all participants chose to answer the questions.

Table G16

Interviewees' Traditional Informational Sources(n=26)

Source	N (Yes)	Percent (Yes)
Radio	10	38.5
Television	23	88.5
Print newspaper	4	15.4
Online newspaper	6	23.1
Website (not an online newspaper)	15	57.7
Other media source	2	7.7
I did not get information from social media	1	3.8

Note. Totals will not sum to *n*=26 as the categories were not mutually exclusive (e.g., "check all that apply") and/or not all participants chose to answer the questions.

Table G17

Interviewees' Information from Public Officials/Entities (n=25)

Source	N (Yes)	Percent (Yes)
Town's Mayor	10	40
State Officials/Agency	18	72

Federal Officials/Agency	11	44
Local Police Department	10	40
Local Fire Department	9	36
A Different Public Official	4	16
I did not get information from public officials/entities	6	24

Note. Totals will not sum to *n*=25 as the categories were not mutually exclusive (e.g., "check all that apply") and/or not all participants chose to answer the questions.

Table G18

Interviewees' Source of Information from Public Officials/Entities (n=26)

Source	N (Yes)	Percent (Yes)
Face-to-face with Public Officials	6	23.1
Phone Call with Public Official	6	23.1
Television from Public Official	20	76.9
Radio from Public Official	5	19.2

US Mail from Public Officials	1	3.8
Email from Public Official	3	11.5
Text from Public Official	5	19.2
Social Media from Public Official	16	61.5
Public Meeting with Public Official	2	7.7
Other from Public Official	0	0
I did not get information from public officials/entities	1	3.8

Note. Totals will not sum to *n*=26 as the categories were not mutually exclusive (e.g., "check all that apply") and/or not all participants chose to answer the questions.

Table G19

Interviewees' Evacuation Decisions (n=30)

Decision	N	Percent
I evacuated my home with all of my animal(s)	8	26.7

I evacuated my home without all of my animal(s)	2	6.6
I did not evacuate my home	5	16.7
Other	15	50

APPENDIX H

Example Analytic Reflection, Analytic Memo, Methods Journal Excerpt, and Data Analysis Visuals

Analytic Reflection Examples

Analytic Reflection
April 12, 2018

RQ1: How do individuals understand themselves, in the context of a disaster, as it relates to their identity as an animal guardian?

In relation to RQ1, I have a hunch that participants come to know (aspects of) themselves from knowing and loving the animal(s) in their lives. Perhaps these are new aspects of their identity from forth by their human-animal relationships, or perhaps they are more extenuated by the human-animal relationship; regardless, I think this links to how and why participants get so upset and emotion (i.e., Moira & Arwa) when they reflect on their Harvey experience. Even though not all participants lost animals due to Harvey, I think that they thought of losing their animals mixed with their perception that informational needs were not met—especially for pet owners—makes them feel as though they are not valued by the "dominant" power structures/experts that get to make the decisions about what messages are sent, who they are crafted for, and why (i.e., importance of certain demographics). It is apparent to me, as a researcher and pet owner myself, that being a person in a disaster that loves and cares for animals is a disadvantage and requires more/additional skills to ensure health and safety—not just for oneself but also one's animals (e.g., information seeking skills, knowledge of media and its use, etc.).

Facebook Use:
Greta noted how other pet owners (previously known and strangers) were the biggest help to her and how Facebook was a primary facilitator to that. It also facilitated ongoing relationships with other pet owners that she met via Facebook. This talks to Dervin's notion that while we make sense individually, we cannot fully do so without connecting with, talking with, exploring the "collective." Social media helps people gain access to the collective. Also, see Lupita's interview on how useful Facebook was.
> "Facebook was a lifesaver at that time. Facebook was really a lifesaver because we were able to communicate with family members and strangers that really helped us. None of the main stream media or government information did not include information about animals or pets. I know 'cause I went on the websites and even my website [her employer's; the state of Texas] actually had nothing. Nothing at all."

From JICRC Article, Issue 2 on STREMII: "According to the Pew Research Center's *Social Media Update 2016* published November 11, 2016, roughly just one month after the hurricane, Facebook continues to be the most popular social networking platform in America. With nearly 79% of adult American Internet users maintaining social presence on Facebook, this is greater than Twitter (24%), Pinterest (31%), Instagram (32%) or LinkedIn (29%) (Greenwood, Perrin, & Duggan, 2016). Facebook users typically visit the

platform more regularly than users of other social media sites, with 76% of all active Facebook users report that they visit the site daily, 55% visiting several times a day, and 22% visit about once per day" (Greenwood et al., 2016).

Of note is the "modest but statistically significant increase" in 2016 from 2015 when only 70% of Facebook users indicated daily visits to the social networking site. On Instagram, 51% of users access the site daily and 35% visit several times a day. On Twitter, 42% of users are daily visitors and 23% visit more multiple times day (Greenwood et al., 2016)."

Greenwood, S., Perrin, A., & Duggan, M. (2016, November 11). *Social media update 2016: Facebook usage and engagement is on the rise, while adoption of other platforms holds steady.* Retrieved from Pew Research Center Internet & Technology website http://www.pewinternet.org/2016/11/11/social-media-update-2016/

Chaos Theory:
Strange attractors are "the fundamental points of connection and order, or lines of force and influence that exert a continual regulation on the form and behavior of a system regardless of the specific conditions. They are the points to which a complex system naturally and continually returns" (Seeger, 2002, p. 334). Usually, established organizations express value(s) that represent strange attractors. In the case of Harvey, this may have been the Humane Society of the United States, local and state animal rescues/shelters, and/or some local officials (but these were not on a far-reaching scale). Yet, it is also plausible that affected pet owners/animal guardians self-organized in such a way as to represent strange attractor values; thus, serving as a catalyst for self-organization. As it seems, pet owners/animal guardians could not rely on government agencies, officials, and even most relief organizations; so, they had to improvise when it came to finding ways to response and create order within the chaos. A major element in this self-organization was social media. To put simply, the established organizations and authorities involved with risk and crisis communication and disaster response and relief failed to represent the values (of pet owners/animal guardians to facilitate strange attractors at the intuitional level) and failed to provide this population with a sense of order; hence, the population initiated its own form of self-organizing. Much of the shared values that facilitated self-organizing revolved around the importance of animals to humans, whether that be for companionship and the animals' status as family members, (economic) livelihood (e.g., cattle, pigs, chickens, etc. raised for sale and/or food), animals that have partial status as family members but more so serve the role of facilitate human family interactions (e.g., horses the families ride together), etc. (see Trigg's human-animal typology).

I think that pets are strange attractors for people experiencing a natural hazard; specifically, a hurricane in this case. Seeger (2002) said that attractors can take many forms, such as family, community, and even economic ties that help facilitate recovery and rebuilding in post-crisis. Freimuth (2006) went on to say that "an attractor is an organizing principle such as a common set of values to which a system will return even as it moves through bifurcation" (p. 145). In drawing from this, strange attractors are those things present in the chaotic system that help the system and those within it find (new) order and begin the process of self-organization.

This relates to pet owners use of Facebook to begin self-organization!

As Venette, Sellnow, and Lang (2003) contend, "crisis is a process of transformation in which the old system can no longer be maintained" (p. 224). Thus, we MUST change how we think about animals, their place(s) in human families and, perhaps most importantly as related to my research, how we include/exclude them in disaster planning, preparation, mitigation, response, and recovery.

Different from other instances of strange attractors and how the process of self-organization begins, pet owners affected by Harvey were not prompted by government agencies or officials. In other disasters, like the Red River floods, the National Guard and FEMA served as am embodiment of organizing principles for citizens to being to move away from "bifurcation" towards self-organization (see Sellnow et al., 2002).

Strange attractors exist during crises as well as after crises. Getcehell (2018, JICRC) states "They help a system begin the process of moving from bifurcation and a cosmology episode into the process of self-organization that eventually pulls the system out of chaos. The system that emerges often looks and functions differently than it did prior to bifurcation because of the changes that the system underwent during the chaos and self-organization periods, which will be described below."

On Self-organization, Getchell writes, "Self-organization is often referred to as the "anti-chaos" mechanism. In the crisis lifecycle, this is the point at which the recovery and renewal phases begin as the system moves away from chaos/bifurcation and towards stability. Seeger (2002) defined self-organization as "a natural process whereby order re-emerges out of the chaotic state brought on through bifurcation. This reordering process is sometimes characterized as the antithesis of chaos and as the outgrowth or consequence of bifurcation" (p. 332). Wheatley (2006) describes the nature of self-organizing systems as adept and that, "self-organizing systems are never passive, hapless victims forced to react to their environments…[the system] uses available resources more effectively, sustaining and strengthening itself" (p. 83).

Wheatley (2006) stated "the viability and resiliency of self-organizing systems comes from its great capacity to adapt as needed…neither form nor function alone dictates how the system is organized. Instead they are process structures, reorganizing into different forms in order to maintain their identity…it is capable of organizing into whatever form it determines best suits the present situation" (p. 82). Chaotic systems do not remain in chaos forever because of the process of self-organization and the presence of strange attractors. In other words, these systems can be self-healing. Self-organization is not inherent in chaotic systems, however, and sometimes strange attractors fail to produce the necessary conditions for self-organization to occur.

Harvey differs from other cases that have employed chaos theory because officials and response agencies were largely absent from crisis response that involved animals or failed to provide useful information and pertinent messages for self-protection to affected and potentially affected pet owners and animal guardians. Thus, affected pet owners/animal guardians turned to other sources for information; or, in some worse-case-scenarios, they did not turn anywhere. These sources took the form of emergent organizations using social media, primarily Facebook. The following definition was used to describe emergent organizations/organizing: an organization that did not exist prior to Hurricane Harvey on August 25, 2018 (US-Texas landfall date), but was formed in response to it and used some form of information communication technology (ICT) to carry out the majority of its functions.

As Weick (1993) notes, when people experience a collapse in sensemaking, individuals attempts to makes sense of the new chaos by comparing it to past events that they have experienced; however, oftentimes individuals have not experienced similar events because crises—even if they reoccur or individuals have experienced multiple crises—are unique and do not resemble one another from time one to time two. As such, individuals typically experience a cosmology episode.

Freimuth, V. S. (2006). Order out of chaos: The self-organization of communication following the Anthrax attacks. *Health communication*, *20*(2), 141-148.

Seeger, M. W. (2002). Chaos and crisis: Propositions for a general theory of crisis communication. *Public Relations Review*, *28*(4), 329-337.

Sellnow, T. L., Seeger, M. W., & Ulmer, R. R. (2002). Chaos theory, informational needs, and natural disasters. *Journal of Applied Communication Research*, *30*(4), 269-292.

Venette, S. J., Sellnow, T. L., & Lang, P. A. (2003). Metanarration's role in restructuring perceptions of crisis: NHTSA's failure in the Ford-Firestone crisis. *The Journal of Business Communication (1973)*, *40*(3), 219-236.

Wheatley, M.J. (3rd ed). (2006). *Leadership and the new science: Discovering order in a chaotic world.* San Francisco, CA: Berrett-Kohler Publishers, Inc.

Messages and Outcomes—Expert Driven

Many participants expressed frustrations with officials and agencies that were involved with Harvey (before, during, and after). For agencies and government officials that focus so much on "outcomes" related to disaster preparedness, recovery, etc., I often find myself asking "*how can we posit that the issue of pets, their owners, and associated (negative) outcomes change for the better when the messages remain unaltered, or what seems more prevalent, the messages are even nonexistent or are not placed in the/on the media and sources RELEVANT to pet owners?*"

Thus, this mindset almost mandates the need for self-organizing/facilitating community among pet owners/guardians/lovers/etc. While I don't think that we can or ever will be able to fully depend/rely on the government and response agencies in natural hazards, I do think that self-organizing due to the lack of concern or care for certain demographics is hostile. Barbaric. Inhumane. There is responsibility on owners/guardians. I believe that; however, when they adopt/purchase/etc. their pets and animals, there is not any information provided—to my knowledge—about pet disaster preparedness. This could be a simple step to take. Or even have vets and vaccine clinics hand out flyers.

I think that holding disaster preparedness interventions/activities/workshops with pet owners in disaster-prone areas could entice participation—even more so than generic preparedness events (that don't use pets as an incentive for people to attend).

Dervin & Weick

I think that Weick and Dervin have overlaps with one another, but also notable difference. I want to focus on the overlaps.

Based on participant responses/interviews, I do think that sensemaking about a disaster experience is retrospective, as Weick posits. I say this because before/leading up to an impending hurricane, participants seem to just try to function. To survive. To do what is necessary to "make" and to care for their animals. Thus, there may be micro-moments of sensemaking or perhaps the better way to describe this is "information gathering" or "functioning" or "functional processing of essential information," perhaps it is not COMPLETE sensemaking as Dervin posits because the complete assessment of "outcomes in the situation [of Harvey]" have not been processed because 1) Harvey would not be over, 2) "stability" in their lives has not been restored (I am purposively not using "normal"), 3) not all consequences of choices/information/etc. can be known until later in the context of disaster (see SMM metaphor) perhaps until the disaster has ended and affected-individuals can see how such decisions pan out in their lives (e.g., evacuating vs not; leaving pets behind vs not), and 4) the effects of a disaster, like a hurricane, can last far beyond when their physical manifestation subside—such as mental health effects, flooding, water damage, mold, rebuilding, figuring out the weaknesses in individual and communal/official responses and messages, etc.

- pet owners make "functional/mini" sensemaking in pre-crisis, crisis, and post-crisis and then once things are more stable for them, they move onto larger sensemaking about Harvey experience
- *The larger, overarching sensemaking about experiencing Harvey: what does this involve? What are the diameters and characteristics of this process of larger sensemaking? What role does mass communication play? What role does interpersonal communication play? How much does the process change from time to time, or does it? How does this outcome of this sensemaking change as time goes on for those affected, or does it change at all?*

With the previously (above) notes, I think that recall bias is not an issue in my research. Dervin (2003) notes that the Time-Live Interview, specifically, "does not impose a linear time order on the respondent's recollection—the respondent may recollect things in whatever order is relevant to him or her at the telling" (p. 224). Thus, this speaks to the importance of my research and its foci: WHAT IS RELEVANT TO THE PARTICIPANT AND THEIR EXPERIENCE AND SENSEMAKING OF HARVEY. Decentralize the tendency for linear progression; for discrediting individuals' ability to recall their experience(s); for hyper-attention towards experts and (government) officials—they clearly don't have it all figured out when it comes to disasters (and pets!); for

Although I am collecting data from affected guardians during post-crisis, it is appropriate because one characteristic of the post-crisis phase is the storytelling function; development of narratives and the sharing of disaster experiences (Seeger & Sellnow, 2016; Spialek & Houston, 2017). Further, storytelling and narratives ARE after-the-fact. They take place after the event that they are "RECALLING." There is always interpretation involved in crafting a story/narrative, telling, it and then another round of interpretation by those listening.

Thus, recall is typical of this phase (post) and although recall-bias may be an issue, sensemaking can be described as retrospective (Weick, 1995)—which although my research is grounded by Dervin's rendition, I think that my data also highlights the retrospective notion of Weick and puts the two conceptualizations in dialogue with each other.

Analytic Reflection

June 8, 2018

I believe I am at (or coming very close to saturation) as many of the last few interviews have not brought new topics/concepts/etc. to the surface. Furthermore, hurricane season in the southern parts of the US is nearing close to its peak time and so, I want to wrap up data collection for the purposes of participant recall, logistics (e.g., could I interview people during an impending hurricane—electricity access, etc.), and perhaps media bias/framing effects.

In terms of what to ask in the **follow-up interviews** with participants (likely via email), I think it is important to ask if they had animals growing up because this may provide insight in how and why, for example, participants have close relationships with their animals and view animals in certain ways.

Animal NGOs
A frequent comment made by many participants was the importance and aid provided by NGOs (which many said was much better than any governmental entity). While I see many issues with relying on NGOs to address (partially, only due to the nature of there being so many animals in the world), animals in disasters they are an extremely relevant and vital source during these times. For example, the Humane Society of the United States' Annual Report (2017), they stated that they "evacuated 1,007 adoptable animals from Texas, which freed up space in local shelters for the influx of displaced and lost animals who arrived in the storm's wake" (p. 6). They conducted 16 air and ground transports, coordinated the delivery of 8 tons of feed among other animal supplied to an equine center in Galveston, helped local authorities rescue 138 animals that were stranded in homes post-Harvey, and partnered with vet clinics in Houston to provided affected animal guardians with access to free veterinary care for their animals for up to three months post-Harvey. Again, this is only a small description of some of the aid that HSUS provided and it is important to keep in mind that this is only an account of one animal NGOs' service during Harvey.

Also, while these organizations provide much-needed services and response efforts, how do they inform publics about disaster preparedness, response, and recovery as it pertains to animals? Even if they attempt to, are they reaching those at-risk? Further, is this a solution or an interim drag-our-feet along approach to wholistic disaster preparedness…I think so.

Animal NGOs, as I believe, are not seriously partnered with by non-animal related agencies surrounding disasters. This harkens back to anthropocentrism, but in such a seriously flawed way because humans and animals are interconnected in so many was—but as my research focuses on, particularly in relational ways when it comes to domesticated companion animals.

Analytic Memo Example

Analytic Memo
March 27, 2018

In reflecting on Sable and Lupita's interviews, both indicated that they thought about health

implications surrounding Harvey, their animals, as well as themselves. However, the sense-making

processes about their overall Harvey experience morphed across their recollection of pre-crisis, crisis, and post-crisis stages, as their mention of health implications suggestions. Specifically, Sable indicated that she learned about health issues concerning stagnant water that could impact her dogs (i.e., Swamp Flu, fleas/ticks, heartworm, respiratory infections, mold treatments) after Harvey had passed. So, while she had already made sense of her experience with Harvey, as a pet owner, the access to new information post-Harvey sparked new/additions to her sense-making of that experience. She "learned" about effects from Harvey after the fact; thus, morphing her sense-making of that experience.

Perhaps learning that lasted beyond the initial event (and into post-crisis—such as health effects, explanation of reasons for decisions by officials, etc.) morphs the sense-making process of their crisis experience AND perhaps begins to link to the pre-crisis stage—which further supports the notion that the pre-crisis, crisis, and post-crisis stages are cyclical versus linear. As much of the reasoning about crisis details (and causes, decision of official, etc.) do not become available until post-crisis and/or once individuals find safety, the sense-making process is fluid. This seems to be consistent with SMM's time-space continuum. The process of making sense about a crisis experience is dynamic. And, perhaps, like Julie and I's Crisis Model, there is a shift in primacy in the TYPES of gaps that individuals must make sense about when it comes to crises—ebbing and flowing with the three-stage model of crisis. The gaps the individuals face (to make sense of) are also dependent on access to and understanding of information, which pet-centric information tends to be sought for rather than "received." There seems to be sense-making as related to 1) oneself and family, 2) hypothesizing about their animals' perspective and empathizing, and 3) their perspective as an animal guardian.

What are the types of gaps that pet owners/animal guardians face in their crisis experience with Harvey? Do certain media/informational sources/networks influence the (un)sense-making process of these gaps more than others? Is a typology possible (of gaps and processes)? Is this linked to the three-stage model?

Micro-moments of sense-making—or is it a part of the PROCESS of sense-making—contribute to the larger outcome of making sense of crisis experience due to emergent information surrounding crises and for each individual (as they have unique needs, gaps, context, etc.), the emergent information that they need or desire is subjective/contextual to their situation.

Six interviews have been completed thus far: Sable, Lupita, Heather, Ameera, Simon, and Honour. I see a lot of stuff going on in the data and interesting insights that I may want to specifically follow up on in forthcoming interviews. Below I explain:

EMERGENT ORGANIZING

Participants use of emergent Facebook groups that specifically focused on pets/Harvey/and-or pets and Harvey. Simon also used Reddit; Instagram; Twitter. Collectives coming together around a common cause like Harvey and/or Harvey and pets. Many participants are still involved in these groups and/or are in contact with members they met in the groups—that were previously strangers. Simon also used his truck to help strangers that were stranded in flooding from the dam release operations.

Honour used Zello as well as the organization that she worked for. Zello is a mobile app that operates like a walkie talkie.

RESILIENCY

USES AND GRATIFICATIONS THEORY

Some of the frustration with the lack of animal-inclusivity in crisis and risk communication may link to participants' feeling like a part of their identity/ies are not being validated by larger power structures who do not include pets in their messages or services (or perhaps do not do so adequately in their minds). This may link to participants' view of their animals as family members, which is not acknowledged or respected by government/authorities.

Methods Journal Excerpt

3/21/18

Before participant interviews, I have been reviewing their online surveys. I am doing this so that I can follow up with any insights that perhaps need additional information, to better understand where they are coming from, and to "go deeper" into their experience during the interviews. It has also been useful because participants see that I have read their response, and I believe that this signals to them that I want to hear their stories/perspectives; thus, I think it helps establish rapport and dialogue with participants.

I am selecting participants to be interviewed based on contextual elements, such as what types of animals they have, their demographic characteristics, what they did with their animals surrounding Harvey, their relationships/view of their animals, gender (as most interviewees that have agreed are female as of now), etc.

I also made the decision a week or so ago to *move the question on the survey* about their willingness to participate in an interview up in the survey (to Q5). This was because, it seemed as though participants—even those that completed most of the survey—were fatigued at the end (where the question about interviews was originally) and/or they thought that the majority of "content" questions were done and that only "housekeeping/administrative" questions remained and they may have perceived those as less important and exited the survey.
In addition, I think having the interview question in the beginning of the survey lets participants know that my research is aiming to capture their story; I want to hear their story. In crises, people want to share their stories (see Seeger & Sellnow's book on narratives), thus this methodological decision can, indirectly, be supported by extant research.

3/22/18

As indicated in the design and IRB, I am asking interviewees if they'd be willing to participate in a follow-up interview in about four months. This is primarily to see if their perspectives have changed or developed over time. Taking the notion that (new) information can emerge well after a crisis event (e.g., health effects, decisions from insurance companies), this may also play a role in participants having new and/or morphed ideas. Also, Weick says that sensemaking is retrospective…but HOW long that retrospective sensemaking takes is unknown—I think it is likely different person-to-person.

Also, participants have offered to share photos with me, which I think is a rich addition to their stories and overall data. Further, photos help decentralize the prominent role of my (researcher) written textual account. It can help humanize this experience.
Heather sent me a lot of photos after her interview. I thanked her for these and sent her a photo of my three dogs as well. She replied that she was more comfortable with speaking to me now that she knew I was a dog-lover and treated my dogs like family; like she did. One specific thing she said was "Aww your dogs are too sweet!! Glad to meet another big dog lover!! Just let me know if you need anything else from me!!"

This co-creation and sharing between researcher and participant is important, especially within SMM. I believe it also helps to minimize the possible perception of "distance" between myself and the participants.

Many people seem to prefer telephone versus Skype (based on the three interviews thus far). Perhaps it is due to not having Skype, internet access, preference to speak about their experience in somewhat of a private setting (i.e., not being physically visible). While this limits my ability to read their nonverbal, I believe for the context of the research (perhaps being an emotionally sensitive topic for some or perhaps they do not want me to see their personal space—may it's embarrassing as much is still damaged from Harvey), telephone is actually serving as an enabler versus an inhibitor to speaking with participants. Although I would like to be in-person or at least Skype, I think phone is more convenient for participants and that is consistent with SMM—using media/information that is relevant for individuals.

3/27/18

I think having the survey precede the interviews has been a positive methodological decision because 1) it allows me to review answers from participants to ask for additional detail in the interview (if they didn't bring it up or whatever), 2) purposeful sampling, 3) it helps build rapport because I can be more specific, such as "I see on your survey that you indicated that you had a dog named Biscuit, is that correct?" and here, participants are able to see that I care and want to hear what they say and I am paying attention to their response—this could also help bridge the gap between researchers and participants and make willingness to partake in research more desirable and approachable. To say simply, I can come to the interview with more perspective about their lives and what is important to them, which is important in an iterative qualitative process

I began *first-level* coding of the first three interviews. This consisted of going line-by-line (using Tracy, 2013 as a guide) in ATLAS.ti. I attempted to "describe" what was going on versus being too analytic and striving to "show" versus "tell." I am also tracking *analytic asides* during this in my "initial thoughts/memos/asides" document. Once I complete first-level coding, I will also begin to code my "initial thoughts/memos/asides" document as well as begin to write more detailed *analytic memos*—although I already have a few written (that should also be coded).
I am also organizing the data into folders that specify the type of data: photos/Facebook posts sent by participants, interviews, surveys, my notes throughout data collection/analysis.

4/11/18

When interviewing Arwa and Moira how did I handle their emotional responses (i.e., crying)
Pausing, being comfortable with silence, giving them agency to still attach their emotions to their story/rejecting Western tendency to reject emotion

As reflect on the interviews with Arwa and Miora, I find it important to note how I handled their emotional responses to recalling their experiences and losses. For Moira, she also experienced the loss of multiple animals (i.e., horses and foals) due to Harvey. I did write my personal reactions to these interview in my "Initial Thoughts Memos" document, but from a method(ology) standpoint there are a few things to note:

- When both started to cry, I told them how sorry I was for their loss/experience and offered that we did not have to continue talking or could change the subject
- After offering this, I just remained quiet. I did not want them to feel rushed or any more discomfort than what they already were. I also wanted to let them have time to recover and be able to process and make a decision (about continuing or not)

I think that as a researcher, I have been trained to minimize the role of (negative or sad) emotions in and during the research process, which I have come to firmly reject—especially as related to disaster experiences. Especially institutionally, I think that the IRB and other entities want researchers to minimize "harm," etc., which I understand but such emotions are strongly tied to such different, tumultuous, life-altering experiences like crises. It is OK to feel; to express emotions. Why don't we have this same reaction to when participants are overjoyed, eccentric, etc.?

Their emotions are a part of their story. Their story would be (interpreted) different if they were not included or minimized or the research was halted due to their emotional expression. It is important, especially as this topic is not always taken seriously, for others to see/read/imagine/etc. these emotions. They are a part of the participants' LIVED REALITY and should not be minimized. This would also take about from the richness and in-depth understanding, I believe.

4/17/18

In reflecting on why I think qualitative methods are important in crisis research, I have become very passionate and attached to my perspective. I truly believe that quantitative AND qualitative methods are important; however, quantitative methods are most vastly privileged. Moreover, I think we miss A LOT of important insights if we only use one primary method of data collection. Let me explain:
- Context is not represented (well) in quantitative research methods, especially surveys like the Media Uses and Informational Sources Survey
  - EX: If a respondent checks that they used "radio" most during a disaster and we do not as the "why" questions, we could miss the fact that they, for example, used it because the winds from the hurricane knocked over their television or they evacuated to a friend's house who did not have a TV/cable subscription, etc.
- Perhaps MOST IMPORTANT, failing to personally talk to crisis affected individuals seems wrong. It seems minimizing. It seems dehumanizing…to limit their traumatizing, life-altering experience(s) to numbers, correlations, regressions, etc. and not have their voices represented. THEIR words. While I can acknowledge that writing/typing a person's experience to text and an academic report is limiting in and of itself, it is not comparable to quantitative minimization. Qualitative approaches WANT to highlight the diversity; the richness; in-depthness; the array of voices. Furthermore, could we truly generalize what a crisis experience, like a hurricane, is like (i.e., quantitatively)?
- They two approaches complement one another: we can find out from a quantitative survey what media and informational sources people use and then a qualitative interview can investigate why they use those, how, for what reasons, etc.

Data Analysis Visuals

First-level coding of initial interviews

Examples of first-level codes and frequencies

		Name				Comm...	Creator	Creation Date	Modifier
◇	○	Comparing Harvey to previous disaster...	51	0	0		Ashleigh Day	Apr 13, 2018	Ashleigh Day
◇	○	Learning from Harvey applied to future...	41	0	0		Ashleigh Day	Apr 2, 2018	Ashleigh Day
◇	○	Information gap	33	0	0		Ashleigh Day	Mar 30, 2018	Ashleigh Day
◇	○	Pets as family	33	0	0		Ashleigh Day	Mar 30, 2018	Ashleigh Day
◇	○	Facebook use	32	0	0		Ashleigh Day	Apr 2, 2018	Ashleigh Day
◇	○	Feeling a sense of community around...	30	0	0		Ashleigh Day	Jul 21, 2018	Ashleigh Day
◇	○	Learning applied from previous disaste...	30	0	0		Ashleigh Day	Jun 25, 2018	Ashleigh Day
◇	○	Emergent organizing around specific di...	29	0	0		Ashleigh Day	Mar 30, 2018	Ashleigh Day
◇	○	Previous disaster experience(s)	29	0	0		Ashleigh Day	Apr 13, 2018	Ashleigh Day
◇	○	Using proper s/he pronoun for animals...	28	0	0		Ashleigh Day	Jun 26, 2018	Ashleigh Day
◇	○	Lacking animal-inclusive disaster mess...	27	0	0		Ashleigh Day	Apr 2, 2018	Ashleigh Day
◇	○	Surprise at Harvey's magnitude/serious...	27	0	0		Ashleigh Day	Apr 13, 2018	Ashleigh Day
◇	○	Unwillingness to evac without pets	27	0	0		Ashleigh Day	Mar 30, 2018	Ashleigh Day
◇	○	Loss of homes	25	0	0		Ashleigh Day	Jun 25, 2018	Ashleigh Day
◇	○	Conclusion of experience with Harvey	23	0	0		Ashleigh Day	Jun 25, 2018	Ashleigh Day
◇	○	frustrations with official response(s)	23	0	0		Ashleigh Day	Mar 30, 2018	Ashleigh Day
◇	○	Lack of animal-inclusive preparedness...	23	0	0		Ashleigh Day	Apr 2, 2018	Ashleigh Day
◇	○	Lack of relevant info. from officials/exp...	23	0	0		Ashleigh Day	Apr 2, 2018	Ashleigh Day
◇	○	Telling the story of how pet came into t...	23	0	0		Ashleigh Day	Jun 27, 2018	Ashleigh Day
◇	○	Flooding concern	22	0	0		Ashleigh Day	Apr 3, 2018	Ashleigh Day
◇	○	Pets viewed as children	22	0	0		Ashleigh Day	Mar 30, 2018	Ashleigh Day
◇	○	Receiving donations	22	0	0		Ashleigh Day	Jul 20, 2018	Ashleigh Day
◇	○	Lasting issues, far into post-crisis	21	0	0		Ashleigh Day	Mar 30, 2018	Ashleigh Day
◇	○	Health concerns from flood water for pet	20	0	0		Ashleigh Day	Jun 25, 2018	Ashleigh Day
◇	○	People abandoned animals during Harv...	20	0	0		Ashleigh Day	Apr 13, 2018	Ashleigh Day
◇	○	Rural vs. city living	20	0	0		Ashleigh Day	Jul 11, 2018	Ashleigh Day
◇	○	Uncertainty	20	0	0		Ashleigh Day	Mar 22, 2018	Ashleigh Day
◇	○	Importance of being self-reliant and re...	19	0	0		Ashleigh Day	Jun 26, 2018	Ashleigh Day
◇	○	Facebook as top social media during H...	18	0	0		Ashleigh Day	Jul 5, 2018	Ashleigh Day
◇	○	Preparedness supplies	18	0	0		Ashleigh Day	Mar 30, 2018	Ashleigh Day
◇	○	Social media as one of the most useful...	18	0	0		Ashleigh Day	Apr 16, 2018	Ashleigh Day
◇	○	Caring for stray/other peoples' animals...	17	0	0		Ashleigh Day	Apr 3, 2018	Ashleigh Day
◇	○	Lack of foresight by officials	17	0	0		Ashleigh Day	Apr 2, 2018	Ashleigh Day
◇	○	traumatizing experience	17	0	0		Ashleigh Day	Apr 13, 2018	Ashleigh Day
◇	○	Difficulty with logistics of pets and evac	16	0	0		Ashleigh Day	Mar 30, 2018	Ashleigh Day
◇	○	Emergent organizing by lay people on F...	16	0	0		Ashleigh Day	Jul 23, 2018	Ashleigh Day
◇	○	Future planning that is inclusive to pets	16	0	0		Ashleigh Day	Mar 30, 2018	Ashleigh Day
◇	○	Housing issues post-Harvey	16	0	0		Ashleigh Day	Jul 11, 2018	Ashleigh Day
◇	○	Officials communicated too late surrou...	16	0	0		Ashleigh Day	Jul 1, 2018	Ashleigh Day

End of second-level coding, displaying codes with the second-level code of "Previous disaster experience"

REFERENCES

Abdeen, Z., Qasrawi, R., Nabil, S., & Shaheen, M. (2008). Psychological reactions to Israeli occupation: Findings from the national study of school-based screening in Palestine. *International Journal of Behavioral Development, 32*(4), 290-297. doi:10.1177/0165025408092220

Acosta, J., Chandra, A., & Madrigano, J. (2017, February). *An agenda to advance integrative resilience research and practice: Key themes from a resilience roundtable.* Santa Monica, CA: RAND Corporation.

Adler, K. F. (2015). *Natural disasters as a catalyst for social capital: The study of the 500-year flood in Cedar Rapids, Iowa*. Lanham, MD: University Press of America, ® Inc.

Afifi, W. A., & Metts, S. (1998). Characteristics and consequences of expectation violations in close relationships. *Journal of Social and Personal Relationships, 15*(3), 365-392. doi:10.1177/0265407598153004

Allen, B. J. (2005). Social constructionism. In S. May & D. K. Mumby (Eds.), *Engaging organizational communication theory & research: Multiple perspectives* (pp.35-54)*.* Thousand Oaks, CA: Sage.

Al□Saggaf, Y. (2006). The online public sphere in the Arab world: The war in Iraq on the Al Arabiya website. *Journal of Computer□Mediated Communication, 12*(1), 311-334. doi:10.1111/j.1083-6101.2006.00327.x

Al-Saggaf, Y., & Simmons, P. (2015). Social media in Saudi Arabia: Exploring its [sic] use during two natural disasters. *Technological Forecasting & Social Change, 95*, 3-15. doi:10.1016/j.techfore.2014.08.013

Agarwal, V., & Buzzanell, P. M. (2015). Communicative reconstruction of resilience labor: Identity/Identification in disaster-relief workers. *Journal of Applied Communication Research, 43*(4), 408.

Ajzen, I., Brown, T. C., & Carvajal, F. (2004). Explaining the discrepancy between intentions and actions: The case of hypothetical bias in contingent valuation. *Personality and Social Psychology Bulletin, 30*(9), 1108-1121. doi:10.1177/0146167204264079

Alexander, D. E. (2014). Social media in disaster risk reduction and crisis management. *Science and Engineering Ethics, 20*(3), 717-733. doi:10.1007/s11948-013-9502-z

Allen, G. M., Parrillo, S. J., Will, J., & Mohr, J. A. (2007). Principles of disaster planning for the pediatric population. *Prehospital and Disaster Medicine, 22*(6), 537-540. doi:10.1017/S1049023X00005392

American Pet Products Association (APPA). (n.d.). Pet industry market size and ownership statistics. Retrieved March 23, 2019 from https://www.americanpetproducts.org/press_industrytrends.asp

American Pet Products Association (APPA). (2013). APPA national pet owners survey 2013/2014. Retrieved from http://www.americanpetproducts.org/pubs_survey.asp

American Red Cross. (2019). Pet disaster preparedness. Retrieved January 4, 2019 from https://www.redcross.org/get-help/how-to-prepare-for-emergencies/pet-disaster-preparedness.html

American Society for the Prevention of Cruelty to Animals (ASPCA). (n.d.). Pet statistics. Retrieved October 11, 2016 from http://www.aspca.org/animal-homelessness/shelter-intake-and-surrender/pet-statistics

American Veterinarian Medical Association (AVMA). (2016, May 15). Spending on pets

surpasses $60 billion. Retrieved May 23, 2016 from

https://www.avma.org/News/JAVMANews/Pages/160515g.aspx

American Veterinarian Medical Association (AVMA). (2012). U.S. pet ownership statistics.

Retrieved September 4, 2016 from

https://www.avma.org/KB/Resources/Statistics/Pages/Market-research-statistics-US-pet-

ownership.aspx

Amiot, C. E., & Brock, B. (2017). Solidarity with animals: Assessing a relevant dimension of

social identification with animals. *PLoS One, 12*(1) doi:10.1371/journal.pone.0168184

Andone, D. (2017, August 29). Houston knew it was at risk of flooding, so why didn't they city

evacuate? *CNN.* Retrieved September 4, 2017 from

http://www.cnn.com/2017/08/27/us/houston-evacuation-hurricane-harvey/index.html

Anthony, K. E., & Sellnow, T. L. (2011). Information acquisition, perception, preference, and

convergence by Gulf Coast residents in the aftermath of the Hurricane Katrina

crisis. *Argumentation and Advocacy*, *48*(2), 81-96. doi:

10.1080/00028533.2011.11821756

Ardalan, A., Naieni, K. H., Mahmoodi, M., Zanganeh, A-M., Keshtkar, A-A, Honarvar, M-R., &

Kabir, M. J. (2010). Flash flood preparedness in Golestan province of Iran: A community

intervention trial. *American Journal of Disaster Medicine, 5,* 197-214.

doi:10.5055/ajdm.2010.0022

Argyris, C. (1993). *Knowledge for action*. San Francisco, CA: Jossey-Bass.

Argyris C., & Schön D. (1996). *Organizational learning II*. Reading, MA: Addison-Wesley.

Austin, L., Fisher Liu, B., & Jin, Y. (2012). How audiences seek out crisis information: Exploring the social-mediated crisis communication model. *Journal of Applied Communication Research, 40*(2), 188-207. doi:10.1080/00909882.2012.654498

Baran, B. E., & Scott, C. W. (2010). Organizing ambiguity: A grounded theory of leadership and sensemaking within dangerous contexts. *Military Psychology, 22*(sup1), S42-S69. doi:10.1080/08995601003644262

Barbour, J. B. (2017). Micro/meso/macrolevels of analysis. In C. R. Scott & L. K. Lewis (Eds.), *The International Encyclopedia of Organizational Communication.* Wiley-Blackwell: Hoboken, NJ. doi:10.1002/9781118955567.wbieoc140

BBC News. (2011, March 11). Google aids Japan quake victims. BBC News. Retrieved from www.bbc.com/news/technology-12711244

Bean, H. (2018). National resilience. *Journal of Applied Communication Research, 46*(1), 23. doi:10.1080/00909882.2018.1426709

Beaver, B. V., Gros, R., Bailey, E. M., & Lovern, C. S. (2006). Report of the 2006 National Animal Disaster Summit. *Journal of the American Veterinary Medical Association, 229*(6), 943-948.

Bengtsson, L., Lu, X., Thorson, A., Garfield, R., von Schreeb, J. (2011). Improved response to disasters and outbreaks by tracking population movements with mobile phone network data: A post-earthquake geospatial study in Haiti. *PLoS Medicine, 8*(8), e1001083. doi:10.1371/journal.pmed.1001083

Berger, P. L., & Luckmann, T. (1966). *The social construction of reality*. New York, NY: Penguin Books.

Berkes, F., Colding, J., & Folke, C. (2000). Rediscovery of traditional ecological knowledge as

adaptive management. *Ecological Applications, 10*(5), 1251-1262. doi:10.2307/2641280

Betts, N. M., Pingree, S., Amos, R. J., Ashbrook, S., Fox, H. M., Newell, K., . . . Voichick, J. (1989). The sense-making approach for audience assessment of adolescents. *Adolescence, 24*(94), 393-402.

Bhattarai, A. (2016, September 13). Millennials are picking pets over people. *The Washington Post.* Retrieved December 2, 2016 from https://www.washingtonpost.com/news/business/wp/2016/09/13/millennials-are-picking-pets-over-people/?utm_term=.f7706c1c7f75

Bimber, B., Flanagin, A. J., & Stohl, C. (2005). Reconceptualizing collective action in the contemporary media environment. *Communication Theory, 15*(4), 365-388. doi:10.1111/j.1468-2885.2005.tb00340.x

Bimber, B., Flanagin, A. J., & Stohl, C. (2012). *Collective action in organizations: Interaction and engagement in an era of technological change.* New York, NY: Cambridge University Press.

Bird, D., Ling, M., & Haynes, K. (2012). Flooding Facebook : The use of social media during the Queensland and Victorian floods. *Australian Journal of Emergency Management, the, 27*(1), 27-33.

Blake, E. S., & Zelinsky, D. A. (2018, May 9). National Hurricane Center tropical cyclone report Hurricane Harvey AL092017: 17 August – 1 September 2017. Retrieved June 1, 2018 from https://www.nhc.noaa.gov/data/tcr/AL092017_Harvey.pdf

Blendon, R. J., Benson, J. M., DesRoches, C. M., Lyon-Daniel, K., Mitchell, E. W., & Pollard, W. E. (2007). The public's preparedness for hurricanes in four affected regions. *Public Health Reports (1974-), 122*(2), 167-176. doi:10.1177/003335490712200206

Blumler J. G., & Katz, E. (1974). *The uses of mass communications: Current perspectives on gratifications research.* Beverly Hills, CA: Sage.

Borgi, M., & Cirulli, F. (2016). Pet face: Mechanisms underlying human-animal relationships. *Frontiers in Psychology, 7*, 298. doi:10.3389/fpsyg.2016.00298

Borgi, M., & Cirulli, F. (2013). Children's preferences for infantile features in dogs and cats. *Hum. Anim. Interact. Bull., 1*, 1–15.

Borodzicz, E., & Van Haperen, K. (2002). Individual and group learning in crisis simulations. *Journal of Contingencies and Crisis Management, 10*(3), 139-147. doi:10.1111/1468-5973.00190

Botan, K. H. (2018). Risk and preparedness communication. In. C. H. Botan (Ed.), *Strategic communication theory and practice: The cocreational model* (pp. 137-152). Hoboken, NJ: John Wiley & Sons, Inc.

Bowen, T. (2018). Becoming professional: Examining how WIL students learn to construct and perform their professional identities. *Studies in Higher Education, 43*(7), 1148-1159. doi:10.1080/03075079.2016.1231803

Bowen, G. A. (2008). Naturalistic inquiry and the saturation concept: A research note. *Qualitative Research, 8*(1), 137-152. doi:10.1177/1468794107085301

Bowman, S., & Willis, C. (2010). We Media: How Audiences are Shaping the Future of News and Information (2003). *The Media Center, American Press Institute*.

Brackenridge, S., Zottarelli, L. K., Rider, E., & Carlsen-Landy, B. (2012). Dimensions of the human-animal bond and evacuation decisions among companion animal guardians during Hurricane Ike. *Anthrozoös, 25,* 229-238.

Brand, F. S., & Jax, K. (2007). Focusing the meaning(s) of resilience: Resilience as a descriptive

concept and a boundary object. *Ecology and Society, 12*, 23. Retrieved from http://www. ecologyandsociety.org/vol12/iss1/art23/

Broekema, W., Kleef, D., & Steen, T. (2017). What factors drive organizational learning from crisis? Insights from the Dutch food safety services' response to four veterinary crises. *Journal of Contingencies and Crisis Management, 25*(4), 326-340. doi:10.1111/1468-5973.12161

Brown, A. D., & Toyoki, S. (2013). Identity work and legitimacy. *Organization Studies, 34*(7), 875-896. doi:10.1177/0170840612467158

Brown, K. C., Horner, N., Fankhauser, M., Jr, J. R., Victoroff, T., & Centers for Disease Control and Prevention (CDC). (2012). Assessment of household preparedness through training exercises — two metropolitan counties, Tennessee, 2011. *Morbidity and Mortality Weekly Report, 61*(36), 720-722.

Burgoon, J. K. (1993). Interpersonal expectations, expectancy violations, and emotional communication. *Journal of Language and Social Psychology, 12,* 30-48.

Burgoon, J. K. (1978). A communication model of personal space violations: Explication and an initial test. *Human Communication Research, 4,* 129-142.

Burns, W. J., Peters, E., & Slovic, P. (2012). Risk perception and the economic crisis: A longitudinal study of the trajectory of perceived risk: Risk perception and the economic crisis. *Risk Analysis, 32*(4), 659-677. doi:10.1111/j.1539-6924.2011.01733.x

Burr, V. (1995). *An introduction to social constructionism.* London: Routledge.

Buzzanell, P. M. (2010). Resilience: Talking, resisting, and imagining new normalcies into being. *Journal of Communication, 60*, 1–14. doi:10.1111/j.1460-2466.2009.01469.x

Carman, K., Dardess, P., Maurer, M., Sofaer, S., Adams, K., Bechtel, C., & Sweeney, J. (2013).

Patient and family engagement: A framework for understanding the elements and developing interventions and policies. *Health Affairs, 32*(2), 223-231. doi:10.1377/hlthaff.2012.1133

Catino, M. (2008). A review of literature: Individual blame vs. organizational function logics in accident analysis. *Journal of Contingencies and Crisis Management, 16*(1), 53-62. doi:10.1111/j.1468-5973.2008.00533.x

Center for Advancing Health. (2010). A new definition of patient engagement: What is engagement and why is it important? Retrieved November 28, 2016 from http://www.cfah.org/pdfs/CFAH_Engagement_Behavior_Framework_current.pdf

Centers for Disease Control and Prevention (CDC). (2018). Disaster preparedness for your pet. Retrieved January 4, 2019 from https://www.cdc.gov/features/petsanddisasters/index.html

Centers for Disease Control and Prevention (CDC). (2017). Zoonotic diseases. Retrieved December 3, 218 from https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html

Centers for Disease Control and Prevention (CDC). (2010). *Public health workbook to define, locate and reach special, vulnerable, and at-risk populations in an emergency*. Atlanta, GA. Retrieved January 2, 2019 from https://emergency.cdc.gov/workbook/pdf/ph_workbookFINAL.pdf

Chattopadhyay, P., Tluchowska, M., & George, E. (2004). Identifying the ingroup: A closer look at the influence of demographic dissimilarity on employee social identity. *Academy of Management Review*, *29*(2), 180-202.

Chandra, A., & Acosta, J. D. (2010). Disaster recovery also involves human recovery. *Jama, 304*(14), 1608-1609. doi:10.1001/jama.2010.1456

Chandra, A., Williams, M., Plough, A., Stayton, A., Wells, K. B., Horta, M., & Tang, J. (2013). Getting actionable about community resilience: The Los Angeles county community disaster resilience project. *American Journal of Public Health, 103*, 1181-1189. doi:10.2105/ AJPH.2013.301270

Charles, N. (2014). 'Animals just love you as you are': Experiencing kinship across the species barrier. *Sociology, 48*(4), 715-730. doi:10.1177/0038038513515353

Charles, N. (2016). Post-human families? dog-human relations in the domestic sphere. *Sociological Research Online, 21*(3), 1-12. doi:10.5153/sro.3975

Choo, C. W., & Nadarajah, I. (2014). Early warning information seeking in the 2009 Victorian bushfires. *Journal of the Association for Information Science and Technology, 65*(1), 84-97. doi:10.1002/asi.22952

Clarke, C. E., & McComas, K. (2012). Seeking and processing influenza vaccine information: A study of health care workers at a large urban hospital. *Health Communication, 27*(3), 244–256. http://dx.doi.org/10.1080/10410236.2011.578332

Clerveaux, V., Spence, B., & Katada, T. (2010) Promoting disaster awareness in multicultural societies: The DAG approach. *Disease Prevention and Management, 19,* 199-218. doi: 10.1108/09653561011038002

CNN Library. (2017, September 19). 2017 Atlantic hurricane season fast facts. *CNN*. Retrieved September 20, 2017 from http://www.cnn.com/2017/05/15/us/2017-atlantic-hurricane-season-fast-facts/index.html

Cochrane, E., & Fernandez, M. (2017, September 8). Two hurricanes in two weeks bring two very different reactions. *The New York Times*. Retrieved September 30, 2017 https://www.nytimes.com/2017/09/08/us/irma-harvey-evacuations.html

Cohen, E. L., Vijaykumar, S., Wray, R., & Karamehic-Muratovic, A. (2008). The minimization of public health risks in newspapers after Hurricane Katrina. *Communication Research Reports, 25*(4), 266-281. doi:10.1080/08824090802440162

Comes, T. (2016, March). Cognitive biases in humanitarian sensemaking and decision-making lessons from field research. In *Cognitive Methods in Situation Awareness and Decision Support (CogSIMA), 2016 IEEE International Multi-Disciplinary Conference* (pp. 56-62). IEEE.

Coombs, W. T. (1999). Information and compassion in crisis responses: A test of their effects. *Journal of Public Relations Research, 11*(2), 125-142. doi:10.1207/s1532754xjprr1102_02

Coombs, S., Eberlein, A., Mantafa, K., Turnhout, A., & Smith, C. M. (2015). Did dog guardianship influence perceptions of adult health and wellbeing during and following the Canterbury earthquakes? A qualitative study. *Australasian Journal of Disaster and Trauma Studies, 19,* 67-76.

Cordasco, K. M., Eisenman, D. P., Golden, J. F., Glik, D. C., & Asch, S. M. (2007). "They blew the levee": Distrust of authorities among Hurricane Katrina evacuees. *Journal of Health Care for the Poor and Underserved, 18*(2), 277-282. doi:10.1353/hpu.2007.0028

Cornelissen, J. P., Mantere, S., & Vaara, E. (2014). The contraction of meaning: The combined effect of communication, emotions and materiality on sensemaking in the Stockwell shooting. *Journal of Management Studies, 51*(5), 699-736. doi:10.1111/joms.12073

Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches* (3rd ed.). Los Angeles, CA: Sage.

Crist, E., & Kopnina, H. (2014). Unsettling anthropocentrism. *Dialectical Anthropology, 38*(4), 387-396. doi:10.1007/s10624-014-9362-1

Crouse Quinn, S. (2008). Crisis and emergency risk communication in a pandemic: A model for building capacity and resilience of minority communities. *Health Promotion Practice, 9*(4_suppl), 18S-25S. doi:10.1177/1524839908324022

Dahlberg, K., Dahlberg, H., & Nystrom, M. (2008). *Reflective lifeworld research* (2nd ed.). Lund, Sweden: Studentlitteratur. ISBN: 978-91-44-04925-0

Dalton, S., Madden, H., Chamberlain, K., Carr, S., & Lyons, A. C. (2008). 'It's gotten a bit old, charity': Young adults in New Zealand talk about poverty, charitable giving and aid appeals. *Journal of Community & Applied Social Psychology, 18*(5), 492-504. doi:10.1002/casp.966

Danner, U. N., Aarts, H., & de Vries, N. K. (2008). Habit vs. intention in the prediction of future behaviour: The role of frequency, context stability and mental accessibility of past behaviour. *British Journal of Social Psychology, 47*(Pt 2), 245-256. doi:10.1348/014466607X230876

Darroch, J., & Adamson, C. (2016). Companion animals and disasters: The role of human services organisations. *Aotearoa New Zealand Social Work, 28*(4), 100. doi:10.11157/anzswj-vol28iss4id189

Davis, J. L. (2017). Curation: a theoretical treatment. *Information, Communication & Society, 20*(5), 770-783. doi: 10.1080/1369118X.2016.1203972

Davidson, J. E., Sekayan, A., Agan, D., Good, L., Shaw, D., & Smilde, R. (2009). Disaster dilemma: Factors affecting decision to come to work during a natural disaster. *Advanced Emergency Nursing Journal, 31*(3), 248-257. doi:10.1097/TME.0b013e3181af686d

Day, A. M. (2017). Companion animals and natural disasters: A systematic review of literature. *International Journal of Disaster Risk Reduction, 24,* 81-90. https://doi.org/10.1016/j.ijdrr.2017.05.015

Day, A. M., O'Shay-Wallace, S., Seeger, M. W., & McElmurry, S. (2019). Informational sources, social media use, and race in Flint, Michigan's water crisis. *Communication Studies.*

de Chesnay, M., & Anderson, B. A. (2016). *Caring for the vulnerable: Perspectives in nursing theory, practice, and research* (4th ed.). Burlington, MA: Jones & Bartlett Learning.

Deeny, P., & McFetridge, B. (2005). The impact on culture, self, and identity: Increased awareness by health care professionals is needed. *Nursing Clinics of North America, 40*(3), 431–440.

Deetz, S. A. (1992). *Democracy in an age of corporate colonization.* Albany, NY: State University Press of New York Press.

Deetz, S., & Mumby, D. (1990). Power, discourse, and the workplace: Reclaiming the critical tradition. In J. A. Anderson (Ed.), *Communication yearbook, 13* (pp. 18-47). London: Sage.

Dekker, S. W. A. (2009). Just culture: Who gets to draw the line? *Cognition, Technology & Work, 11*(3), 177-185. doi:10.1007/s10111-008-0110-7

Dellarocas, C. (2003). The digitization of word of mouth: Promise and challenges of online feedback mechanisms. *Management Science, 49*(10), 1407-1424. doi:10.1287/mnsc.49.10.1407.17308

Department of Homeland Security (DHS). (n.d.). Plan and prepared. Retrieved February 15, 2017 from https://www.dhs.gov/topic/plan-and-prepare-disasters

Dervin, B. L. (2010a). Clear.   .   .unclear? accurate.   .   .inaccurate? objective.   .

.subjective? research.　　.practice? why polarities impede the research, practice and design of information systems and how Sense☐Making methodology attempts to bridge the gaps. part 1. *Journal of Evaluation in Clinical Practice, 16*(5), 994-997. doi:10.1111/j.1365-2753.2010.01530.x

Dervin, B. L. (2010b). Clear.　　.unclear? accurate.　　.inaccurate? objective.　　.subjective? research.　　.practice? why polarities impede the research, practice and design of information systems and how Sense☐Making methodology attempts to bridge the gaps. part 2. *Journal of Evaluation in Clinical Practice, 16*(5), 998-1001. doi:10.1111/j.1365-2753.2010.01531.x

Dervin, B. (2003a). Sense-Making's journey from metatheory to methodology to method: An example using information seeking and use as research focus. In B. Dervin & L. Foreman-Wernet (with E. Lauterbach) (Eds.), *Sense-Making Methodology reader: Selected writings of Brenda Dervin* (pp. 133-164). Cresskill, NJ: Hampton.

Dervin, B. (2003b). Users as research inventions: How research categories perpetuate inequities. In B. Dervin & L. Foreman-Wernet (with E. Lauterbach) (Eds.), *Sense-Making Methodology reader: Selected writings of Brenda Dervin* (pp. 47-60). Cresskill, NJ: Hampton.

Dervin, B. (2003c). Audience as listener and learner, teacher and confidante: The Sense-Making approach. In B. Dervin & L. Foreman-Wernet (with E. Lauterbach) (Eds.), *Sense-Making Methodology reader: Selected writings of Brenda Dervin* (pp. 215-232). Cresskill, NJ: Hampton.

Dervin, B. (2003d). Given a context by any other name: Methodological tools for taming the unruly beast. In B. Dervin & L. Foreman-Wernet (with E. Lauterbach) (Eds.), *Sense-*

Making Methodology reader: Selected writings of Brenda Dervin (pp. 111-132).

Cresskill, NJ: Hampton.

Dervin, B. (2003e). Information < > Democracy: An examination of underlying assumptions. In

B. Dervin & L. Foreman-Wernet (with E. Lauterbach) (Eds.), *Sense-Making*

Methodology reader: Selected writings of Brenda Dervin (pp. 73-100). Cresskill, NJ:

Hampton.

Dervin, B. (2003f). Chaos, order, and sense-making: A proposed theory for information design.

In B. Dervin & L. Foreman-Wernet (with E. Lauterbach) (Eds.), *Sense-Making*

Methodology reader: Selected writings of Brenda Dervin (pp. 325-340). Cresskill, NJ:

Hampton.

Dervin, B. (2003g). A theoretic perspective and research approach for generating research

helpful to communication practice. In B. Dervin & L. Foreman-Wernet (with E.

Lauterbach) (Eds.), *Sense-Making Methodology reader: Selected writings of Brenda*

Dervin (pp. 251-268). Cresskill, NJ: Hampton.

Dervin, B. (2003h). Communication gaps and inequities: Moving towards a reconceptualization.

In B. Dervin & L. Foreman-Wernet (with E. Lauterbach) (Eds.), *Sense-Making*

Methodology reader: Selected writings of Brenda Dervin (pp. 17-46). Cresskill, NJ:

Hampton.

Dervin, B. (1999), Chaos, order and sense-making: A proposed theory for information design. In

R. Jacobson (Ed.), *Information design*. MIT Press: Cambridge, MA.

Dervin, B. (1998). Sense-making theory and practice: An overview of user interests in

knowledge seeking and use. *Journal of Knowledge Management, 2*(2), 36-46.

doi:10.1108/13673279810249369

Dervin, B. (1992). From the mind's eye of the 'user': The sense-making qualitative-quantitative methodology. In J.D. Glazer & R.R. Powell (Eds.), *Qualitative research in information management* (pp. 61-84). Englewood, CO: Libraries Unlimited.

Dervin, B. (1976). Strategies for dealing with human information needs: Information or communication? *Journal of Broadcasting, 20*(3), 323-333. http://dx.doi.org/10.1080/08838157609386402

Dervin, B., & Clark, K. D. (1993). Communication and democracy: A mandate for procedural invention. In S. Splichal & J. Wasko (Eds.), *Communication and democracy* (pp. 103-140). Norwood, NJ: Ablex.

Dervin, B., & Dewdney, P. (1986). Neutral questioning: A new approach to the reference interview. *RQ, 25*(4), 506-513.

Dervin, B., & Frenette, M. (2003). Sense-Making Methodology: Communicating communicatively with campaign audiences. In B. Dervin & L. Foreman-Wernet (with E. Lauterbach) (Eds.), *Sense-Making Methodology reader: Selected writings of Brenda Dervin* (pp. 233-250). Cresskill, NJ: Hampton.

Dervin, B., & Shields, P. (1999). Adding the missing user to policy discourse: Understanding US user telephone privacy concerns. *Telecommunications Policy, 23*(5), 403-435. doi:10.1016/S0308-5961(99)00022-1

Dewey, J. (1922). *Human nature and conduct.* Mineola, NY: Dover.

DeYoung, S. E., Wachtendorf, T., Farmer, A. K., & Penta, S. C. (2016). NOAA radios and neighbourhood networks: Demographic factors for channel preference for hurricane evacuation information. *Journal of Contingencies and Crisis Management, 24*(4), 275-285. doi:10.1111/1468-5973.12123

Dow, M. J., Boettcher, C. A., Diego, J. F., Karch, M. E., Todd-Diaz, A., & Woods, K. M. (2015). Case-based learning as pedagogy for teaching information ethics based on the Dervin sense-making methodology. *Journal of Education for Library and Information Science, 56*(2), 141.

Drabek, T. E., & McEntire, D. A. (2003). Emergent phenomena and the sociology of disaster: Lessons, trends and opportunities from the research literature. *Disaster Prevention and Management: An International Journal, 12*(2), 97-112. doi:10.1108/09653560310474214

Drury, J., Brown, R., González, R., & Miranda, D. (2016). Emergent social identity and observing social support predict social support provided by survivors in a disaster: Solidarity in the 2010 Chile earthquake. *European Journal of Social Psychology, 46*(2), 209-223. doi:10.1002/ejsp.2146

Dufty, N. (2012). Using social media to build community disaster resilience. *Australian Journal of Emergency Management, 27*(1), 40-45.

Dugan, B. (2007). Loss of identity in disaster: How do you say goodbye to home? *Perspectives in Psychiatric Care, 43*(1), 41-46. doi:10.1111/j.1744-6163.2007.00105.x

Durkheim, E. (1933/1964). *The division of labor in society.* New York: Free Press.

Dwyer, G., & Hardy, C. (2016). We have not lived long enough: Sensemaking and learning from bushfire in Australia. *Management Learning, 47*(1), 45-64. doi:10.1177/1350507615577047

Dynes, R. (1970). *Organized Behavior in Disaster*. Lexington, MA: Lexington Books.

Ehling, J. (2017, September 4). New evacuation orders issued in epic flooding emergency. *ABC13 KTRK-TV*. Retrieved September 21, 2017 from http://abc13.com/traffic/mayor-residents-in-flooded-w-houston-homes-go-now/2337616/

Eisenman, D. P., Glik, D., Gonzalez, L., Maranon, R., Zhou, Q., Tseng, C-H., & Asch, S. M. (2009). Improving Latino disaster preparedness using social networks. *American Journal of Preventive Medicine, 37,* 512-517. doi:10.1016/j.amepre.2009.07.022

Eisenman, D. P., Cordasco, K. M., Asch, S., Golden, J. F., & Glik, D. (2007). Disaster planning and risk communication with vulnerable communities: Lessons from Hurricane Katrina. *American Journal of Public Health, 97*(Supplement 1), S109-S115. doi:10.2105/AJPH.2005.084335

Ellingson, L. L. (2009). *Engaging in crystallization in qualitative research: An introduction.* Thousand Oaks, CA: Sage.

Enarson, E., Fothergill, A., & Peek, L. (2007). Gender and disaster: Foundations and directions. In E. L. Quarantelli, R. Dynes, and H. Rodriguez (Eds.), *Handbook of Disaster Research* (pp. 130–46). New York: Springer.

Eriksson, M., Olsson, E., (2016). Facebook and twitter in crisis communication: A comparative study of crisis communication professionals and citizens. *Journal of Contingencies and Crisis Management, 24*(4), 198-208. doi:10.1111/1468-5973.12116

Faas, A. J., Jones, E., Whiteford, L., Tobin, G., & Murphy, A. (2014). Gendered access to formal and informal resources in postdisaster development in the Ecuadorian Andes. *Mountain Research and Development, 34*(3), 223-234. doi:10.1659/MRD-JOURNAL-D-13-00100

Falconi, M., Fahim, C., & O'Sullivan, T. (2012). Protecting and supporting high risk populations in pandemic: Drawing from experiences with influenza A (H1N1). *International Journal of Child Health and Human Development*, *5*(3), 373-381.

Farmer, A. K., DeYoung, S. E., & Wachtendorf, T. (2016). Pets and evacuation: an ongoing challenge in disasters. *Journal of Homeland Security and Emergency Management, 13*(4), 1-13. doi: 10.1515/jhsem-2016-0051

Fatima, Y., Kazmi, S., King, S., Solomon, S., & Knight, S. (2018). Positive placement experience and future rural practice intentions: Findings from a repeated cross-sectional study. *Journal of Multidisciplinary Healthcare, 11*, 645-652. doi:10.2147/JMDH.S178138

Federal Emergency Management Agency [FEMA]. (2013). *National strategy recommendations: Future disaster preparedness*. Washington, DC: U.S. Department of Homeland Security.

Federal Emergency Management Agency [FEMA]. (2017, September 22). Historic disaster response to Hurricane Harvey in Texas. Retrieved September 23, 2017 from https://www.fema.gov/news-release/2017/09/22/historic-disaster-response-hurricane-harvey-texas

Finch, C., Emrich, C. T., & Cutter, S. L. (2010). Disaster disparities and differential recovery in New Orleans. *Population and Environment, 31*(4), 179-202. doi:10.1007/s11111-009-0099-8

Foreman-Wernet, L., & Dervin, B. (2017). Hidden depths and everyday secrets: How audience sense- making can inform arts policy and practice. *Journal of Arts Management, Law, and Society, 47*(1), 47-63.

Foreman-Wernet, L., & Dervin, B. (2016). Everyday encounters with art: Comparing expert and Novice Experiences. *Curator: The Museum Journal, 59*(4), 411-425. doi:10.1111/cura.12181

Foreman-Wernet, L., & Dervin, B. (2011). Cultural experience in context: Sense-making the

arts. *The Journal of Arts Management, Law, and Society, 41*(1), 1-37. doi:10.1080/10632921.2011.545725

Foreman-Wernet, L., & Dervin, B. (2006). Listening to learn: "Inactive" publics of the arts as exemplar. *Public Relations Review, 32*(3), 287-294. doi:10.1016/j.pubrev.2006.05.001

Foreman-Wernet, L., Dervin, B., & Funk, C. (2014). Standing in two worlds looking at an art exhibition: Sense-making in the millennial generation. *The Journal of Arts Management, Law, and Society, 44*(2), 101-117. doi:10.1080/10632921.2014.905813

Foreman-Wernet, L. (2003). Rethinking communication: Introducing the Sense-Making Methodology. In B. Dervin & L. Foreman-Wernet (with E. Lauterbach) (Eds.), *Sense-Making Methodology reader: Selected writings of Brenda Dervin* (pp. 3-16). Cresskill, NJ: Hampton.

Foreman-Wernet, L., & Dervin, B. (2005). Comparing arts and popular culture experiences: Applying a common methodological framework. *Journal of Arts Management, Law, and Society, 35*(3), 169-187.

Foucault, M. (1990). *The Order of Discourse.* In Bizzell & Herzberg (Eds). *The Rhetorical Tradition: Readings from Classical Times to the Present.* Boston, MA: Bedford Books of St. Martin's Press.

Foucault, M. (1982). Is it really important to think? An interview. *Philosophical and Social Criticism, 9,* 29-40. (T. Kennan, Trans.).

Francione, G. (2010). The abolition of animal exploitation. In G. Francione & R. Garner (Eds.), *The animal rights debate: Abolition or regulation?* (pp. 1-103). New York, NY: Columbia University Press.

Fry, R. (2016, April 25). Millennials overtake Baby Boomers as America's largest generation. *Pew Research Center*. Retrieved August 12, 2017 from http://www.pewresearch.org/fact-tank/2016/04/25/millennials-overtake-baby-boomers/

Fuller, T. (2017, January 21). San Francisco asks: Where have all the children gone? *The New York Times*. Retrieved January 22, 2017 from https://www.nytimes.com/2017/01/21/us/san-francisco-children.html

Fugate, C. (2018, February 15). Government crisis communication: Maintaining public confidence in government during a crisis. Presented at the PIO and the Right to Know: A 2018 Communications Summit, Detroit, MI.

Genuis, S. K., & Bronstein, J. (2017). Looking for "normal": Sense making in the context of health disruption. *Journal of the Association for Information Science and Technology, 68*(3), 750-761. doi:10.1002/asi.23715

Gergen, K. J. (1999). *An invitation to social construction.* London: Sage.

Given, J. (2016). "There will still be television but I Don't know what it will be called!": Narrating the end of television in Australia and New Zealand. *Media and Communication, 4*(3), 109. doi:10.17645/mac.v4i3.561

Glik, D. C., Eisenman, D. P., Zhou, Q., Tseng, C., & Asch, S. M. (2014). Using the precaution adoption process model to describe a disaster preparedness intervention among low-income Latinos. *Health Education Research, 29*(2), 272-283. doi:10.1093/her/cyt109

Goldsmith, R. E., & Horowitz, D. (2006). Measuring motivations for online opinion seeking. *Journal of Interactive Advertising, 6*(2), 3-14. doi:10.1080/15252019.2006.10722114

Goto, T., Wilson, J. P., Kahana, B., & Slane, S. (2006). The Miyake Island volcano disaster in

    japan: Loss, uncertainty, and relocation as predictors of PTSD and depression. *Journal of*

    Applied Social Psychology, 36(8), 2001-2026. doi:10.1111/j.0021-9029.2006.00091.x

Graffigna, G., & Barello, S. (2015). Innovating healthcare in the era of patient engagement:

    Challenges, opportunities, & new trends. In G. Graffigna, S. Barello, and S. Triberti

    (Eds.) *Patient engagement: A consumer-centered model to innovate healthcare* (pp. 1-

    12). Warsaw, Berlin: De Gruyter Open.

Greenebaum, J. (2004). It's a dog's life: Elevating status from pet to "fur baby" at Yappy Hour.

    Society & Animals, 12(2), 117-135.

Greve, H. R., & Yue, L. Q. (2017). Hereafter: How crises shape communities through learning

    and institutional legacies. *Organization Science, 28*(6), 1098-1114.

    doi:10.1287/orsc.2017.1157

Griggs, B., & Cai, L. (2017, September 1). Harvey's devastating impact by the numbers. *CNN*.

    Retrieved September 22, 2017 from http://www.cnn.com/2017/08/27/us/harvey-impact-

    by-the-numbers-trnd/index.html

Griswold, A. (2013). Digital detectives and virtual volunteers: Integrating emergent online

    communities into disaster response operations. *Journal of Business Continuity &*

    Emergency Planning, 7(1), 13-25.

Gross, D. (2012, October 30). Google maps, Sandy flooding, power outages. *CNN*. Retrieved from

    http://www.cnn.com/2012/10/30/tech/web/sandy-crisis-map-google/index.html

Gustafson, P. E. (1998).Gender differences in risk perception: Theoretical and methodological

    perspectives. *Risk Anal., 18*(6), 805-811. doi:10.1111/j.1539-6924.1998.tb01123.x

Haddow, G., & Haddow, K. S. (2014). *Disaster communications in a changing media world* (2nd ed.). Waltham, MA: Butterworth-Heinemann.

Halbwachs, M. (1925/1980). *The collective memory.* New York: Harper & Row Colophon Books.

Hall, S. (1996). Who needs 'identity'? In S. Hall & D. P. Gay (Eds.) *Cultural identity* (pp. 1-17). SAGE: Thousand Oaks, CA.

Heath, S. E., Kass, P. H., Beck, A. M., & Glickman, L. T. (2001). Human and pet-related risk factors for household evacuation failure during a natural disaster. *American Journal of Epidemiology, 153*(7), 659-665. doi:10.1093/aje/153.7.659

Heath, S. E., & Linnabary, R. D. (2015). Challenges of managing animals in disasters in the U.S. *Animals: An Open Access Journal from MDPI, 5*(2), 173-192. doi:10.3390/ani5020173

Hecht, M. L. (1993). 2002—a research odyssey: Toward the development of a communication theory of identity. *Communication Monographs, 60*(1), 76-82. doi:10.1080/03637759309376297

Hecht, M .L., & Choi, H-J. (2012). The communication theory of identity as a framework for health message design. In H. Cho (Ed.), *Health communication message design: Theory and practice* (pp. 137-152). Thousand Oaks, CA: Sage.

Hecht, M. L., Jackson, R. L., & Ribeau, S. (2003). *African American communication: Exploring identity and culture (*2nd ed.). Mahwah, NJ: Lawrence Erlbaum.

Hecht, M. L., & Yu, L. (2014). Communication theory of identity. In T. Thompson (Ed.), *Encyclopedia of health communication* (pp. 226-228). Thousand Oaks, CA: Sage.

Henkel, K. E., Dovidio, J. F., & Gaertner, S. L. (2006). Institutional discrimination, individual

    racism, and hurricane Katrina. *Analyses of Social Issues and Public Policy, 6*(1), 99-124.

    doi:10.1111/j.1530-2415.2006.00106.x

Hesterberg, U. W., Huertas, G., & Appleby, M. C. (2012). Perceptions of pet owners in urban

    Latin America on protection of their animals during disasters. *Disaster Prevention and*

    Management: An International Journal, 21(1), 37-50. doi:10.1108/09653561211202692

Heverin, T., & Zach, L. (2012). Use of microblogging for collective sense-making during violent

    crises: A study of three campus shootings. *Journal of the American Society for*

    Information Science and Technology, 63(1), 34-47. 10.1002/asi.21685

Hipper, T. J., Davis, R., Massery, P. M., Turchi, R., Lubell, K. M., Pechta, L. E., et al. (2018).

    The disaster information needs of families of children with special healthcare needs: A

    scoping review. *Health Secur., 16*(3), 178-192. doi:10.1089/hs.2018.0007

Hong, L., Fu, C., Wu, J., & Frias-Martinez, V. (2018). Information needs and communication

    gaps between citizens and local governments online during natural disasters. *Information*

    Systems Frontiers, 20(5), 1027-1039. doi:10.1007/s10796-018-9832-0

Houston, J. B. (2015). Bouncing forward: Assessing advances in community resilience

    assessment, intervention, and theory to guide future work. *American Behavioral Scientist,*

    59, 175–180. doi:10.1177/0002764214550294

Houston, J. B. (2018). Community resilience and communication: Dynamic interconnections

    between and among individuals, families, and organizations. *Journal of Applied*

    Communication Research, 46(1), 19. doi:10.1080/00909882.2018.1426704

Houston, J. B., Hawthorne, J., Perreault, M. F., Park, E. H., Goldstein Hode, M., Halliwell, M.

    R., . . . Griffith, S. A. (2015). Social media and disasters: A functional framework for

social media use in disaster planning, response, and research. *Disasters, 39*(1), 1-22. doi:10.1111/disa.12092

Houston J. B., Pfefferbaum B., Rosenholtz C. E. (2012). Disaster news: Framing and frame changing in coverage of major U.S. natural disasters, 2000-2010. *Journalism & Mass Communication Quarterly, 89*, 606-623. doi:10.1177/1077699012456022

Hovden, J., Størseth, F., & Tinmannsvik, R. K. (2011). Multilevel learning from accidents – case studies in transport. *Safety Science, 49*(1), 98-105. doi:10.1016/j.ssci.2010.02.023

Hunt, M. G., Bogue, K., & Rohrbaugh, N. (2012). Pet ownership and evacuation prior to hurricane Irene. *Animals, 24*(2), 529-539. https://doi.org/10.3390/ani2040529

Hunt, M., Al-Awadi, H., & Johnson, M. (2008). Psychological sequelae of companion animal loss following Hurricane Katrina. *Anthrozoös, 21*(2), 109-121. doi:10.2752/75303708X305765

International Fund for Animal Welfare. (2012). IFAW training bolsters animal rescue skills in disaster-prone gulf region. *Investment Weekly News,* 532. Retrieved June 21, 2017 from http://search.proquest.com.proxy.lib.wayne.edu/docview/1015383797?accountid=14925

Irvine, L. (2013). *My dog always eats first: Homeless people and their animals.* Boulder, CO: Lynne Rienner.

Irvine, L. (2009). *Filling the ark: Animal welfare in disasters.* Philadelphia, PA: Temple University Press.

James, W. (1890). *The principles of psychology.* New York, NY: Dover.

Jin, Y., Liu, B. F., & Austin, L. L. (2014). Examining the role of social media in effective crisis management: The effects of crisis origin, information form, and source on publics' crisis responses. *Communication Research, 41*(1), 74-94. doi:10.1177/0093650211423918

John, P. B., Russell, P. S. S., & Russell, S. (2007). The prevalence of posttraumatic stress

    disorder among children and adolescents affected by tsunami disaster in Tamil Nadu.

    Disaster Management & Response, 5(1), 3-7. doi:10.1016/j.dmr.2006.11.001

Jung, E. (2011). Identity gap: Mediator between communication input and outcome variables.

    Communication Quarterly, 59(3), 315–338. doi:10.1080/01463373.2011.583501

Jung, E. (2013). Delineation of a threefold relationship among communication input variables,

    identity gaps, and depressive symptoms. *Southern Communication Journal, 78*(2), 163–

    184. doi:10.1080/1041794X.2012.741652

Jung, E., & Hecht, M. L. (2008). Identity gaps and level of depression among Korean

    immigrants. *Health Communication, 23*, 313–325. doi:10.1080/10410230802229688

Jung, E., & Hecht, M. L. (2004). Elaborating the communication theory of identity: Identity gaps

    and communication outcomes. *Communication Quarterly, 52*(3), 265-283.

Kam, J. A., & Hecht, M. L. (2009). Investigating the role of identity gaps among communicative

    and relational outcomes within the grandparent–Grandchild relationship: The young-adult

    grandchildren's perspective. *Western Journal of Communication, 73*, 456–480.

    doi:10.1080/10570310903279067

Kapucu, N. (2008). Collaborative emergency management: Better community organizing, better

    public preparedness and response, *Disasters, 32*, 239-232. doi:10.1111/j.0361-

    3666.2008.01037.x

Kapucu, N. (2007). Non-profit response to catastrophic disasters. *Disaster Prevention and*

    Management: An International Journal, 16(4), 551-561.

    doi:10.1108/09653560710817039

Katz, E., Blumler, J. G., Gurevitch, M. (1974). Utilization of mass communication by the
individual. In J. G. Blumer & E. Katz (Eds.), *The uses of mass communications: Current
perspectives on gratifications research* (pp. 19-32). Beverly Hills, CA: Sage.

Kim, S. (2014). The role of prior expectancies and relational satisfaction in crisis. *Journalism &
Mass Communication Quarterly, 91*(1), 139-158. doi:10.1177/1077699013514413

Kita, S. M. (2017). Urban vulnerability, disaster risk reduction and resettlement in Mzuzu city,
Malawi. *International Journal of Disaster Risk Reduction, 22*, 158-166.
doi:10.1016/j.ijdrr.2017.03.010

Klein, G., & Eckhaus, E. (2017). Sensemaking and sensegiving as predicting organizational
crisis. *Risk Management, 19*(3), 225-244. doi:10.1057/s41283-017-0019-7

Kragie, A., & Zelinski, A. (2017, August 25). Abbott advises Houstonians to evacuate; local
officials disagree. *Houston Chronicle.* Retrieved August 29, 2017 from
http://www.chron.com/news/houston-texas/texas/article/Abbott-advises-Houstonians-to-
evacuate-local-11959607.php

Krieger, J. L., Palmer-Wackerly, A. L., Krok-Schoen, J. L., Dailey, P. M., Wojno, J. C.,
Schoenberg, N., . . . Dignan, M. (2015). Caregiver perceptions of their influence on
cancer treatment decision making: Intersections of language, identity, and illness. *Journal
of Language and Social Psychology, 34*(6), 640-656. doi:10.1177/0261927X15587556

Kusenbach, M., Simms, J. L., & Tobin, G. A. (2010). Disaster vulnerability and evacuation
readiness: Coastal mobile home residents in Florida. *Natural Hazards, 52*(1), 79-95.
doi:10.1007/s11069-009-9358-3

Lachlan, K., & R. Spence, P. (2014). Does message placement influence risk perception and
affect? *Journal of Communication Management, 18*(2), 122-130. doi:10.1108/JCOM-12-

2012-0097

Lachlan, K. A., & Spence, P. R. (2011). Crisis communication and the underserved: The case for partnering with institutions of faith. *Journal of Applied Communication Research, 39*(4), 448-451. doi:10.1080/00909882.2011.608692

Lachlan, K. A., Spence, P. R., Lin, X., Najarian, K., & del Greco, M. (2016). Social media and crisis management: CERC, search strategies, and Twitter content. *Computers in Human Behavior, 54*, 647-652. doi:10.1016/j.chb.2015.05.027

Lai, C. (2017). A study of emergent organizing and technological affordances after a natural disaster. *Online Information Review, 41*(4), 507-523. doi:10.1108/OIR-10-2015-0343

Lai, C., Chib, A., & Ling, R. (2018). Digital disparities and vulnerability: Mobile phone use, information behaviour, and disaster preparedness in southeast Asia. *Disasters, 42*(4), 734-760. doi:10.1111/disa.12279

Lai, C-H., & Tang, T. (2018a). Disaster information seeking and sharing in the U.S. and China: Which channels do you use and with whom? Paper presented at the meeting of the International Communication Association, Prague, Czech Republic.

Lai, C., & Tang, T. (2018b). From information behaviors to disaster preparedness: Navigating individuals' general and disaster curation in U.S., China, and Australia. *Computers in Human Behavior,* doi:10.1016/j.chb.2018.06.023

Lev-On, A. (2012). Communication, community, crisis: Mapping uses and gratifications in the contemporary media environment. *New Media & Society, 14*(1), 98-116. doi:10.1177/1461444811410401

Lewis, Y. (2003). The self as a moral concept. *The British Journal of Social Psychology, 42(Pt 2),* 225-237. doi:10.1348/014466603322127229

Lin, L., Savoia, E., Agboola, F., & Viswanath, K. (2014). What have we learned about communication inequalities during the H1N1 pandemic: a systematic review of the literature. *BMC Public Health*, *14*(1), 484-497. http://www.biomedcentral.com/1471-2458/14/484

Lindlof, T. R., & Taylor, B. C. (2011). *Qualitative communication research methods* (3rd ed.). Thousand Oaks, CA: Sage.

Liu, B. F., Bartz, L., & Duke, N. (2016). Communicating crisis uncertainty: A review of the knowledge gaps. *Public Relations Review, 42*(3), 479-487. doi:10.1016/j.pubrev.2016.03.003

Liu, B. F., Fraustino, J. D., & Jin, Y. (2016). Social media use during disasters: How information form and source influence intended behavioral responses. *Communication Research, 43*(5), 626-646. doi:10.1177/0093650214565917

Lofstedt, R. (2013). Communicating food risks in an era of growing public distrust: Three case studies. *Risk Analysis, 33*(2), 192-202. doi:10.1111/j.1539-6924.2011.01722.x

Lotz, A. (2017). *Portals: A treatise on internet-distributed television.* Ann Arbor, MI: University of Michigan Press.

Lowe, S. R., Rhodes, J. E., Zwiebach, L., & Chan, C. S. (2009). The impact of pet loss on the perceived social support and psychological distress of hurricane survivors. *Journal of Traumatic Stress, 22*(3), 244-247. doi:10.1002/jts.20403

Lucas, K., & Buzzanell, P. M. (2012). Memorable messages of hard times: Constructing short- and long-term resiliencies through family communication. *Journal of Family Communication, 12*, 189–208. doi:10.1080/15267431.2012.687196

Lukic, D., Margaryan, A., & Littlejohn, A. (2010). How organisations learn from safety incidents: A multifaceted problem. *Journal of Workplace Learning, 22*(7), 428-450. doi:10.1108/13665621011071109

Lwin, M. O., Lu, J., Sheldenkar, A., & Schulz, P. J. (2018). Strategic uses of Facebook in Zika outbreak communication: Implications for the crisis and emergency risk communication model. *International Journal of Environmental Research and Public Health, 15*(9), 1974. doi:10.3390/ijerph15091974

Ma, B. H., Yong, H., Borland, R., McNeill, A., & Hitchman, S. C. (2018). Factors associated with future intentions to use personal vaporisers among those with some experience of vaping: Predictors of future intentions to vape. *Drug and Alcohol Review, 37*(2), 216-225. doi:10.1111/dar.12574

Macias, W., Hilyard, K., & Freimuth, V. (2009). Blog functions as risk and crisis communication during Hurricane Katrina. *Journal of Computer-Mediated Communication, 15*(1), 1-31. doi:10.1111/j.1083-6101.2009.01490.x

Maitlis, S., & Christianson, M. (2014). Sensemaking in organizations: Taking stock and moving forward. *Academy of Management Annals, 8*(1), 57–125. http://dx.doi.org/10.1080/19416520.2014.873177

Majchrzak, A., Jarvenpaa, S. L., & Hollingshead, A. B. (2007). Coordinating expertise among emergent groups responding to disasters. *Organization Science, 18*(1), 147-161. doi:10.1287/orsc.1060.0228

Maki, A., Dwyer, P. C., Blazek, S., Snyder, M., González, R., & Lay, S. (2019). Responding to natural disasters: Examining identity and prosociality in the context of a major earthquake. *British Journal of Social Psychology, 58*(1), 66-87. doi:10.1111/bjso.12281

Martin, M. (2010). Child participation in disaster risk reduction: The case of flood-affected

children in Bangladesh. *Third World Quarterly, 31*(8), 1357-1375.

doi:10.1080/01436597.2010.541086

Mei, E. T. W., Lavigne, F., Picquout, A., de Bélizal, E., Brunstein, D., Grancher, D., Sartohadi,

J., Cholik, N., & Vidal, C. (2013). Lessons learned from the 2010 evacuations at Merapi

volcano. *Journal of Volcanology and Geothermal Research, 261*, 348-365.

doi:10.1016/j.jvolgeores.2013.03.010

McKerrow, R. E. (1989). Critical rhetoric: Theory and praxis. In C.R. Burgchardt (Ed.),

Readings in Rhetorical Criticism (4th ed.) (pp. 96-118). State College, PA: Strata

Publishing, Inc.

McPhee, R. D., & Zaug, P. (2009). The communicative constitution of organizations: A

framework for explanation. In L. L. Putnam & A. M. Nicotera (Eds.), *Building theories

of organization: The constitutive role of communication* (pp. 21-47). New York, NY:

Routledge.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis*. Thousand Oaks, CA: Sage.

Montibeller, G., & von Winterfeldt, D. (2015). Cognitive and motivational biases in decision and

risk analysis. *Risk Anal., 35,* 1230–1251. https://doi.org/10.1111/risa.12360.

Morioka, R. (2014). Gender difference in the health risk perception of radiation from Fukushima

in Japan: The role of hegemonic masculinity. *Social Science & Medicine, 107*, 105-112.

doi:10.1016/j.socscimed.2014.02.014

Mumby, D. (2013). *Organizational communication: A critical approach.* Los Angeles, CA:

Sage.

Mumby, D. (2001). Power and politics. In F. M. Jablin & L. L. Putnam (Eds.), *The new

handbook of organizational communication: Advances in theory, research, and methods (pp. 585-623). Thousand Oaks, CA: Sage.

Mundorf, A. R., Willits-Smith, A., & Rose, D. (2015). 10 Years later: Changes in food access disparities in New Orleans since Hurricane Katrina. *Journal of Urban Health, 92*(4), 605-610. doi:10.1007/s11524-015-9969-9

Munyua, H. M., & Stilwell, C. (2013). Three ways of knowing: Agricultural knowledge systems of small-scale farmers in Africa with reference to Kenya. *Library and Information Science Research, 35*(4), 326-337. doi:10.1016/j.lisr.2013.04.005

Nagasawa, M., Kikusui, T., Onaka, T., and Ohta, M. (2009). Dog's gaze at its owner increases owner's urinary oxytocin during social interaction. *Horm. Behav., 55*, 434–441. doi: 10.1016/j.yhbeh.2008.12.002

Nagasawa, M., Mitsui, S., En, S., Ohtani, N., Ohta, M., Sakuma, Y., et al. (2015). Social evolution. Oxytocin-gaze positive loop and the coevolution of human-dog bonds. *Science, 348*, 333–336. doi: 10.1126/science.1261022

Nakayachi, K. (2015). Examining public trust in risk managing organizations after a major disaster. *Risk Analysis, 35*(1), 57-67. doi:10.1111/risa.12243

National Oceanic and Atmospheric Administration [NOAA] (2017a, May 25). Above-normal Atlantic hurricane season most likely this year. Retrieved August 29, 2017 from http://www.noaa.gov/media-release/above-normal-atlantic-hurricane-season-is-most-likely-year

National Oceanic and Atmospheric Administration [NOAA] (2017b, September 1). Monthly Atlantic tropical weather summary. Retrieved September 17, 2017 from http://www.nhc.noaa.gov/text/MIATWSAT.shtml

National Weather Service. (n.d.). Major hurricane Harvey – August 25-29, 2017. Retrieved July 11, 2018 from https://www.weather.gov/crp/hurricane_harvey

Navarro, C., Moreno, A., & Al-Sumait, F. (2017). Social media expectations between public relations professionals and their stakeholders: Results of the ComGap study in Spain. *Public Relations Review, 43*(4), 700-708. doi:10.1016/j.pubrev.2016.12.008

Navarro, J., Pulido, R., Berger, C., Arteaga, M., Osofsky, H., Martinez, M., Osofsky, J. D., & Hansel, T. (2016). Children's disaster experiences and psychological symptoms: An international comparison between the Chilean earthquake and tsunami and Hurricane Katrina. *International Social Work, 59*(4), 545-558. doi:10.1177/0020872814537850

Nilsson, J., & Eriksson, K. (2008). The role of the individual – A key to learning in preparedness organizations. *Journal of Contingencies and Crisis Management, 16*(3), 135-142. doi:10.1111/j.1468-5973.2008.00542.x

Novak, J. M., Day, A. M., Sopory, P., WIlkins, L., Padgett, D. R., Eckert, S., Noyes, J., Allen, T., Alexander, N., Vanderford, M., & Gamhewage, G. (2019). Engaging communities in emergency risk and crisis communication: A systematic review and evidence synthesis. *Journal of International Crisis and Risk Communication Research, 2*(1), 61-96. https://doi.org/10.30658/jicrcr.2.1.4

Novak, J. M., & Vidoloff, K. G. (2011). New Frames on Crisis: Citizen Journalism Changing the Dynamics of Crisis Communication. *International Journal of Mass Emergencies & Disasters*, *29*(3), 181-202.

Nsiah-Kumi, P. A. (2008). Communicating effectively with vulnerable populations during water contamination events. *J Water Health*, 6, 63-75.

Ntontis, E., Drury, J., Amlôt, R., Rubin, G. J., & Williams, R. (2018). Emergent social identities

in a flood: Implications for community psychosocial resilience. *Journal of Community &*
Applied Social Psychology, 28(1), 3-14. doi:10.1002/casp.2329

Office of the Texas Governor. (2017a, September 4). Governor Abbott adds 7 Texas counties to
presidential disaster declaration in response to Harvey. Retrieved September 18, 2017
from https://gov.texas.gov/news/post/governor-abbott-adds-7-texas-counties-to-
presidential-disaster-declaration-

Office of the Texas Governor. (2017b, August 28). Governor Abbott again adds additional
counties for Hurricane Harvey disaster declaration. Retrieved September 18, 2017 from
https://gov.texas.gov/news/post/governor-abbott-again-adds-additional-counties-for-
hurricane-harvey-disaste

Office of the Texas Governor. (2017c, September 14). Governor Abbott adds counties and
extends his disaster proclamation. Retrieved September 18, 2017 from
https://gov.texas.gov/news/post/governor-abbott-adds-counties-and-extends-his-disaster-
proclamation

Ogedegbe, C., Nyirenda, T., DelMoro, G., Yamin, E., & Feldman, J. (2012). Health care workers
and disaster preparedness: Barriers to and facilitators of willingness to respond.
International Journal of Emergency Medicine, 5(1), 1-9. doi:10.1186/1865-1380-5-29

Oliver-Smith, & A.,Sherbinin, A. d. (2014). Something old and something new: Resettlement in
the twenty first century. In S. F. Martin, S. Weerasinghe, and A. Taylor (Eds.),
Humanitarian crises and migration: Causes, consequences and responses (pp. 243-264).
New Your, NY: Routledge.

Olsson, E., (2014). Crisis communication in public organisations: Dimensions of crisis
communication revisited. *Journal of Contingencies and Crisis Management, 22*(2), 113-

125. doi:10.1111/1468-5973.12047

Osiel, M. (1999). *Obeying orders: Atrocity, military discipline, and the law of war.* New Brunswick, NJ: Transaction Publishers.

Paek, H-J., Hilyard, K., Freimuth, V., Barge, J. K., & Mindlin, M. (2010). Theory-based approaches to understanding public emergency preparedness: Implications for effective health and risk communication. *Journal of Health Communication, 15,* 428-444. doi:10.1080/10810731003753083

Palen, L., & Liu, S. B. (2007). Citizen communications in crisis: Anticipating a future of ICT-supported public participation. *Presented at CHI 2007*, San Jose, CA, USA, April 28-May 3, 2007.

Palttala, P., Boano, C., Lund, R., & Vos, M. (2012). Communication gaps in disaster management: Perceptions by experts from governmental and Non□Governmental organizations. *Journal of Contingencies and Crisis Management, 20*(1), 2-12. doi:10.1111/j.1468-5973.2011.00656.x

Parrott, R. (2004). Emphasizing "communication" in health communication. *Journal of Communication, 54*(4), 751-787. doi:10.1093/joc/54.4.751

Patton, M. Q. (2015). *Qualitative research & evaluation methods* (4th ed.). Thousand Oaks, CA: Sage.

Perko, T., van Gorp, B., Turcanu, C., Thijssen, P., & Carle, B. (2013). Communication in nuclear emergency preparedness: A closer look at information reception. *Risk Analysis, 33*, 1987-2001. doi.10.1111/risa.12048

Perko, T., Železnik, N., Turcanu, C., & Thijssen, P. (2012). Is knowledge important? Empirical research on nuclear risk communication in two countries. *Health Physics, 102*(6), 614-625. doi:10.1097/HP.0b013e31823fb5a5

Plec, E. (2013). Perspectives on human-animal communication: An introduction. In E. Plec (Ed.), *Perspectives on human-animal communication: Internatural communication* (pp. 1-13). New York: Routledge.

Plumwood, V. (2001). *Environmental culture: The ecological crisis of reason.* New York: Routledge.

Plumwood, V. (1993). *Feminism and the mastery of nature.* New York: Routledge.

Poggi, G. (1965). A main theme of contemporary sociological analysis: Its achievements and limitations. *The British Journal of Sociology, 16*(4), 283-294. doi:10.2307/589157

Power, E. (2008). Furry families: Making a human–dog family through home. *Social & Cultural Geography*, *9*(5), 535-555. doi:10.1080/14649360802217790

Public Law 109-308. 2006. Pets Evacuation and Transportation Standards (PETS) Act. United States House of Representatives (HR3858).

Quarantelli, E. L. (1982). What is a disaster? In B. Jones & M. Tomazevic (Eds.) *Social and economic aspects of earthquake* (pp. 453-465)*.* Ithaca, NY: Cornell University Press.

Quarantelli, E. L. (1988). Disaster crisis management: A summary of research findings. *Journal of Management Studies, 25*(4), 373-385. doi:10.1111/j.1467-6486.1988.tb00043.x

Rappaport, E. N. (2014). Fatalities in the United States from Atlantic tropical cyclones: New data and interpretation. *Bulletin of the American Meteorological Society, 95*(3), 341-346. doi:10.1175/BAMS-D-12-00074.1

Ready.gov. (n.d.). Pets and animals. Retrieved January 4, 2019 from

https://www.ready.gov/animals

Reagan, J. (1996). The ''repertoire''; of information sources. *Journal of Broadcasting &*

Electronic Media, 40(1), 112–121. doi: 0.1080/08838159609364336

Reierson, J. L., Sellnow, T. L., & Ulmer, R. R. (2009). Complexities of crisis renewal over time:

Learning from the tainted Odwalla apple juice case. *Communication Studies, 60*(2), 114-

129. doi:10.1080/10510970902834841

Reinhard, C. D., & Dervin, B. (2011). Comparing situated sense-making processes in virtual

worlds: Application of Dervin's Sense-Making Methodology to media reception

situations. *Convergence: The International Journal of Research into New Media*

Technologies, 18(1), 27-48. doi: 10.1177/1354856511419914

Reynolds, B. (2007). *Crisis and emergency risk communication: Pandemic influenza*. Atlanta,

GA: Centers for Disease Control and Prevention.

Reynolds, B., & Earley, E. (2010). Principles to enable leaders to navigate the harsh realities of

crisis and risk communication. *Journal of Business Continuity & Emergency*

Planning, 4(3), 262-273.

Reynolds, B., & Seeger, M. (2005). Crisis and emergency risk communication as an integrative

model. *Journal of Health Communication, 10*(1), 43-55.

doi:10.1080/10810730590904571

Rød, S. K., Botan, C., & Holen, A. (2012). Risk communication and worried publics in an

imminent rockslide and tsunami situation. *Journal of Risk Research, 15*(6), 655-655.

doi:10.1080/13669877.2012.655540

Rogers, R. A. (1998). Overcoming the objectification of nature in constitutive theories: Toward a transhuman, materialist theory of communication. *Western Journal of Communication, 62*(3), 244-272. doi:10.1080/10570319809374610

Roux-Dufort, C., & Vidaillet, B. (2003). The difficulties of improvising in a crisis situation: A case study. *International Studies of Management & Organization, 33*(1), 86-115. doi:10.1080/00208825.2003.11043675

Rutsaert, P., Pieniak, Z., Regan, A., McConnon, A., & Verbeke, W. (2013). Consumer interest in receiving information through social media about the risks of pesticide residues. *Food Control, 34,* 386-392.

Sanders, C. R. (2003). Actions speak louder than words: Close relationships between humans and nonhuman animals. *Symbolic Interaction, 26*(3), 405-426.

Schutten, J. K. (2008). Chewing on the Grizzly Man: Getting to the meat of the matter. *Environmental Communication: A Journal of Nature and Culture, 2*(2), 193-211. doi:10.1080/17524030802141752

Schütte, S., & Kreutzmann, H. (2011). Linking relief and development in Pakistan-administered Kashmir restoring local livelihoods and economic security in earthquake-affected areas. *Mountain Research and Development, 31*(1), 5-15. doi:10.1659/MRD-JOURNAL-D-10-00093.1

Sebastian, I. M., & Bui, T. X. (2009). Emergent groups for emergency response-theoretical foundations and information design implications. *AMCIS 2009 Proceedings*, 638.

Seeger, M. W. (2006). Best practices in crisis communication: An expert panel process. *Journal of Applied Communication Research, 34*(3), 232-244. doi:10.1080/00909880600769944

Seeger, M. W., & Sellnow, T. L. (2016). *Narratives of crisis: Telling stories of ruin and renewal.* Stanford, CA: Stanford University Press.

Seeger, M. W., Sellnow, T. L., & Ulmer, R. R. (2003). *Communication and organizational crisis.* Westport, CT: Praeger Publishers.

Seeger, M. W., Vennette, S., Ulmer ,R. R., & Sellnow, T. L. (2002). Media use, information seeking and reported needs in post crisis contexts. In B. S. Greenberg BS (Ed.), *Communication and terrorism* (pp. 53-63)*.* Cresskill, NJ: Hampton Press.

Sellnow, T. L., & Seeger, M. W. (2013). *Theorizing crisis communication*. West Sussex, UK: Wiley-Blackwell.

Sellnow, T. L., Ulmer, R. R., Seeger, M. W., & Littlefield, R. S. (2010). *Effective risk communication: A message-centered approach.* New York: Springer.

Sen, S., & Lerman, D. (2007). Why are you telling me this? An examination into negative consumer reviews on the web. *Journal of Interactive Marketing*, *21*(4), 76-94. doi:10.1002/ dir.20090

Serpell, J. (2004). Factors influencing human attitudes to animals and their welfare. *Anim. Welfare, 13*, 145–151.

Schaefer, D. J., & Dervin, B. (2009). From the dialogic to the contemplative: A conceptual and empirical rethinking of online communication outcomes as verbing micro-practices. *Ethics and Information Technology, 11*(4), 265-278. 10.1007/s10676-009-9206-x

Schwerdtle, P., De Clerck, V., & Plummer, V. (2017). Survivors' perceptions of public health messages during an Ebola crisis in Liberia and Sierra Leone: An exploratory study. *Nursing & Health Sciences, 19*(4), 492-497. doi:10.1111/nhs.12372

Sherbinin, A. d., Castro, M., Gemenne, F., Cernea, M. M., Adamo, S., Fearnside, P. M., . . . Shi,

G. (2011). Preparing for resettlement associated with climate change. *Science, 334*(6055), 456-457. doi:10.1126/science.1208821

Shropshire, J., Warkentin, M., & Sharma, S. (2015). Personality, attitudes, and intentions: Predicting initial adoption of information security behavior. *Computers & Security, 49*, 177-191. doi:10.1016/j.cose.2015.01.002

Sjöberg, U. (2018). It is not about facts – it is about framing. the app generation's Information☐ Seeking tactics: Proactive online crisis communication. *Journal of Contingencies and Crisis Management, 26*(1), 127-137. doi:10.1111/1468-5973.12145

Slovic, P. (1987). *Perception of risk.* London: Earthscan Publications.

Smith, D., & Elliott, D. (2007). Exploring the barriers to learning from crisis: Organizational learning and crisis. *Management Learning, 38*(5), 519-538. doi:10.1177/1350507607083205

So, J. (2012). Uses, gratifications, and beyond: Toward a model of motivated media exposure and its effects on risk perception. *Communication Theory, 22*(2), 116-137. doi:10.1111/j.1468-2885.2012.01400.x

Sommerfeldt, E. J. (2015). Disasters and information source repertoires: Information seeking and information sufficiency in postearthquake Haiti. *Journal of Applied Communication Research, 43*(1), 1-22. doi:10.1080/00909882.2014.982682

Spence, P. R., Lachlan, K. A. (2016). Reoccurring challenges and emerging threats: Crises and the new millennium. In A. Schwarz, M. W. Seeger, and C. Auer (Eds.), *The handbook of international crisis communication research* (pp. 212-223). West Sussex, UK: John Wiley & Sons, Inc.

Spence, P. R., Lachlan, K. A., & Burke, J. A. (2011). Differences in crisis knowledge across age,

race, and socioeconomic status during Hurricane Ike: A field test and extension of the knowledge gap hypothesis. *Communication Theory, 21*(3), 261-278. doi:10.1111/j.1468-2885.2011.01385.x

Spence, P. R., Lachlan, K. A., & Burke, J. M. (2007). Adjusting to uncertainty: Coping strategies among the displaced after Hurricane Katrina. *Sociological Spectrum, 27*(6), 653-678. doi:10.1080/02732170701533939

Spence, P. R., Lachlan, K. A., & Griffin, D. R. (2007). Crisis communication, race, and natural disasters. *Journal of Black Studies, 37*(4), 539-554. doi:10.1177/0021934706296192

Spence, P. R., Lachlan, K. A., Lin, X., & del Greco, M. (2015). Variability in Twitter content across the stages of a natural disaster: Implications for crisis communication. *Communication Quarterly, 63*(2), 171-186. doi:10.1080/01463373.2015.1012219

Spence, P. R., Lachlan, K. A., Westerman, D., & Spates, S. A. (2013). Where the gates matter less: Ethnicity and perceived source credibility in social media health messages. *Howard Journal of Communications, 24*(1), 1-16. doi:10.1080/10646175.2013.748593

Spence, P. R., Westerman, D., Skalski, P. D., Seeger, M., Sellnow, T. L., & Ulmer, R. R. (2006). Gender and age effects on information-seeking after 9/11. *Communication Research Reports*, *23*(3), 217-223.

Spence, P. R., Westerman, D., Skalski, P. D., Seeger, M. W., Ulmer, R. R., Venette, S., & Sellnow, T. (2005). Proxemic effects on information seeking after the September 11 attacks. *Commun Res Rep., 22*(1), 39-46. doi:10.1080/00036810500057930

Spialek, M. L., & Houston, J. B. (2017). The development and initial validation of the citizen disaster communication assessment. *Communication Research,* 1-22. doi: 1.o0r.g1/107.171/0770/903096356052012717669977521

Starbird, K., & Palen, L. (2010). *Pass it on?: Retweeting in mass emergency* (pp. 1-10). Proceedings from the 7ᵗʰ International ISCRAM Conference. Seattle, WA.

Steelman, T. A., & McCaffrey, S. (2013). Best practices in risk and crisis communication: Implications for natural hazards management Natural Hazards, 65:683–705 doi: 10.1007/s11069-012-0386-z

Stevenson, C., & Manning, R. (2010). National identity and international giving: Irish adults' accounts of charitable behaviour. *Journal of Community & Applied Social Psychology, 20*(4), 249-261. doi:10.1002/casp.1029

Stoeckel, L. E., Palley, L. S., Gollub, R. L., Niemi, S. M., & Evins, A. E. (2014). Patterns of brain activation when mothers view their own child and dog: an fMRI study. *PLoS ONE* 9:e107205. doi: 10.1371/journal.pone.0107205

Strandberg, J. M., & Vigsø, O. (2016). Internal crisis communication: An employee perspective on narrative, culture, and sensemaking. *Corporate Communications, 21*(1), 89-102. doi:10.1108/CCIJ-11-2014-0083

Strawderman, L., Salehi, A., Babski-Reeves, A., Thomton-Neaves, T., & Crosby, A. (2012). Reverse 911 as a complementary evacuation warning system. *Natural Hazards Review, 13,* 65-73. doi:10.1061/(ASCE)NH.1527-6996.0000059

Strömbäck, J., & Nord, L. W. (2006). Mismanagement, mistrust and missed opportunities: A study of the 2004 tsunami and Swedish political communication. *Media, Culture & Society, 28*(5), 789-800. doi:10.1177/0163443706067028

Takahashi, B., Tandoc, E. C., & Carmichael, C. (2015). Communicating on twitter during a disaster: An analysis of tweets during Typhoon Haiyan in the Philippines. *Computers in Human Behavior, 50*, 392-398. doi:10.1016/j.chb.2015.04.020

Tagliacozzo, S., & Magni, M. (2016). Communicating with communities (CwC) during post-disaster reconstruction: An initial analysis. *Natural Hazards, 84*(3), 2225-2242. doi:10.1007/s11069-016-2550-3

Tang, Z., Zhang, L, Xu, F., & Vo, H. (2015). Examining the role of social media in California's drought risk management in 2014. *Natural Hazards, 79,* 171-193. doi:10.1007/s11069-015-1835-2

Tardy, R. W., & Hale, C. L. (1998). Getting "plugged in": A network analysis of health-information seeking among "stay-at-home moms". *Communication Monographs, 65*(4), 336-357. doi:10.1080/03637759809376457

Taylor, M., Lynch, E., Burns, P., & Eustace, G. (2015). The preparedness and evacuation behaviour of pet owners in emergencies and natural disasters. *Australian Journal of Emergency Management, 30*(2), 18-23.

Taylor, M., Wells, G., Howell, G., & Raphael, B. (2012). The role of social media as psychological first aid as a support to community resilience building. *Australian Journal of Emergency Management, 27*(1), 20-26.

Terpstra, T. (2011). Emotions, trust, perceived risk: Affective and cognitive routes to flood preparedness behavior. *Risk Analysis, 31,* 1658-1675. doi:10.1111/j.1539-6924.2011.01616.x

The Weather Channel. (2017, September 2). Historic Hurricane Harvey's recap. Retrieved September 15, 2017 from https://weather.com/storms/hurricane/news/tropical-storm-harvey-forecast-texas-louisiana-arkansas

Thomas, T. L., Kannaley, K., Friedman, D. B., Tanner, A. H., Brandt, H. M., & Spencer, S. M. (2016). Media coverage of the 2014 West Virginia Elk River chemical spill: A mixed-

methods study examining news coverage of a public health disaster. *Science Communication, 38*(5), 574-600. doi:10.1177/1075547016662656

Thompson, K., Every, D., Rainbird, S., Cornell, V., Smith, B., Trigg, J. (2014). No companion animal or their person left behind: Increasing the disaster resilience of vulnerable groups through animal attachment activities and networks. *Animals, 4,* 214-240. doi:10.3390/ani4020214

Thorson, K., & Wells, C. (2016). Curated flows: A framework for mapping media exposure in the digital age. *Communication Theory, 26*(3), 309-328. doi:10.1111/comt.12087

Tidball, K. G., Krasny, M. E., Svendsen, E., Campbell, L., & Helphand, K. (2010). Stewardship, learning, and memory in disaster resilience. *Environmental Education Research, 16*(5-6), 591-609. doi:10.1080/13504622.2010.505437

Tracy, S. J. (2013). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact.* West Sussex, UK: Wiley-Blackwell.

Tracy, S. J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. Qualitative Inquiry, 16(10), 837-851. doi:10.1177/1077800410383121

Trethewey, A. (2000). Cultured bodies: Communication as constitutive of culture and embodied identity. *Electronic Journal of Communication*, *10*(1). Retrieved from http://www.cios.org/EJCPUBLIC/010/1/01016.html

Tufty, B. (1978). *1001 questions answered about earthquakes, avalanches, floods, and other natural disasters.* New York: Dover Publications.

Tuohy, R., & Stephens, C. (2011;2012;). Older adults' narratives about a flood disaster: Resilience, coherence, and personal identity. *Journal of Aging Studies, 26*(1), 26-34. doi:10.1016/j.jaging.2011.06.002

Turner, M. M., Rimal, R. N., Morrison, D., & Kim, H. (2006). The role of anxiety in seeking and

retaining risk information: Testing the risk perception attitude framework in two studies.

Human Communication Research, 32(2), 130-156. doi:10.1111/j.1468-

2958.2006.00006.x

Ulmer, R. R., Sellnow, T. L., & Seeger, M. W. (2019). *Effective crisis communication: Moving

from crisis to opportunity* (4th ed.). Thousand Oaks, CA: Sage.

Ulmer, R. R., Sellnow, T. L., & Seeger, M. W. (2015). *Effective crisis communication: Moving

from crisis to opportunity* (3rd ed.). Los Angeles, CA: Sage.

United Nations Office for Disaster Risk Reduction [UNISDR] (n.d.). What is disaster risk

reduction? Retrieved from https://www.unisdr.org/who-we-are/what-is-drr

Uscher-Pines, L. (2009). Health effects of relocation following disaster: A systematic review of

the literature. *Disasters, 33*(1), 1-22. doi:10.1111/j.1467-7717.2008.01059.x

Utz, S., Schultz, F., & Glocka, S. (2013). Crisis communication online: How medium, crisis type

and emotions affected public reactions in the Fukushima Daiichi nuclear disaster. *Public

Relations Review, 39*(1), 40-46. doi:10.1016/j.pubrev.2012.09.010

van Esler, M. (2016). Not yet the post-TV era: Network and MVPD adaptation to emergent

distribution technologies. *Media and Communication, 4*(3), 131.

doi:10.17645/mac.v4i3.548

van den Homberg, M., Monné, R., & Spruit, M. (2018). Bridging the information gap of disaster

responders by optimizing data selection using cost and quality. *Computers and

Geosciences, 120*, 60-72. doi:10.1016/j.cageo.2018.06.002

van der Meer, Toni G. L. A. (2018). Public frame building: The role of source usage in times of

crisis. *Communication Research, 45*(6), 956-981. doi:10.1177/0093650216644027

Vaughan, E., & Tinker, T. (2009). Effective health risk communication about pandemic influenza for vulnerable populations. *American Journal of Public Health, 99*(S2), S324-S332. doi:10.2105/AJPH.2009.162537

Veil, S. R., Buehner, T., & Palenchar, M. J. (2011). A work☐in☐process literature review: Incorporating social media in risk and crisis communication. *Journal of Contingencies and Crisis Management, 19*(2), 110-122. doi:10.1111/j.1468-5973.2011.00639.x

Veinot, T. C. (2009). Interactive acquisition and sharing: Understanding the dynamics of HIV/AIDS information networks. *Journal of the Association for Information Science and Technology, 60,* 2313-2332. doi: 10.1002/asi.21151

Wadsworth, B. C., Hecht, M. L., & Jung, E. (2008). The role of identity gaps, discrimination, and acculturation in international students' educational satisfaction in American classrooms. *Communication Education, 57*(1), 64–87. doi:10.1080/03634520701668407

Walsh, F. (2009). Human-animal bonds II: The role of pets in family systems and family therapy. *Family Process, 48*(4), 481-499. doi:10.1111/j.1545-5300.2009.01297.x

Waters, M. C. (2016). Life after Hurricane Katrina: The resilience in survivors of Katrina (RISK) project. *Sociological Forum, 31,* 750-769. doi:10.1111/socf.12271

Watson, T. J. (2008). Managing identity: Identity work, personal predicaments and structural circumstances. *Organization, 15*(1), 121-143. doi:10.1177/1350508407084488

Weick, K. E. (2007). The generative properties of richness. *Academy of Management Journal, 50,* 14-19.

Weick, K. E. (1995). *Sensemaking in organizations.* Thousand Oaks, CA: Sage.

Weick, K. E. (1993). Sensemaking in organizations: Small structures with large consequences. In J. K. Murnighan (Ed.) *Social psychology in organizations: Advances in theory and*

research (pp. 10-37). Englewood Cliffs, NJ: Prentice-Hall, Inc.

Weick, K. E. (1988). Enacted sensemaking in crisis situations. *The Journal of Management Studies, 25*(4), 305-317.

Weick, K. E., & Roberts, K. H. (1993). Collective mind in organizations: Heedful interrelating on flight decks. *Administrative Science Quarterly, 38*(3), 357-381.

Weick K. E., Sutcliffe K. M., Obstfeld D. (2005). Organizing and the process of sensemaking. *Organization Science, 16*, 409-421.

Westerman, D., Spence, P. R., & Van Der Heide, B. (2012). A social networks as information: The effect system generated reports of connectedness on credibility on Twitter. *Computers in Human Behavior, 28,* 199-206.

Wickline, M., & Sellnow, T. L. (2013). Expanding the concept of significant choice through consideration of health literacy during crises. *Health Promotion Practice, 14*(6), 809-815. doi:10.1177/1524839913498752

Wilbur, J., Chandler, P., Dancy, B., Choi, J., & Plonczynski, D. (2002). Environmental, policy, and cultural factors related to physical activity in urban, African American women. *Women & Health, 36*(2), 17-28. doi:10.1300/J013v36n02_02

Wile, R. (2014, May 6). Pets now outnumber children in Japan. *Business Insider.* Retrieved January 28, 2017 from http://www.businessinsider.com/japan-has-more-registered-pets-than-it-has-children-2014-5

Wilson, E. (1984). *Biophilia: The human bond with other species*. Harvard, MA: Harvard University Press.

Wilson, S. A., Temple, B. J., Milliron, M. E., Packard, M. D., & Rudy, B. S. (2008). The lack of disaster preparedness by the public and its effect on communities. *Internet Journal of*

Rescue and Disaster Medicine. 7, 2. Retrieved November 2, 2016 from

http://w3.muskingum.edu/~bking/2009gulfcoast/3-Lack-of-Disaster-Preparedness-by-

the-Public.pdf

Wood, M. M., Mileti, D. S., Kano, M., Kelley, M. M., Regan, R., & Bourque, L. B. (2012).

Communicating actionable risk for terrorism and other hazards⋆. *Risk Analysis: An*

International Journal, *32*(4), 601-615. doi: 10.1111/j.1539-6924.2011.01645.x

World Health Organization [WHO]. (2017). *Communicating risk in public health emergencies:*

A WHO guideline for emergency risk communication (ERC) policy and practice. World

Health Organization: Geneva, Switzerland. Retrieved from

http://apps.who.int/iris/bitstream/handle/10665/259807/9789241550208-

eng.pdf;jsessionid=BD07DC5D2AEFB8BFD08CC34615CA47AC?sequence=2

Wukich, C., & Mergel, I. (2015). Closing the citizen-government communication gap: Content,

audience, and network analysis of government tweets. *Journal of Homeland Security and*

Emergency Management, *12*(3), 707-735.

Yamazaki, S. (2015). A survey of companion-animal guardians affected by the east japan great

earthquake in Iwate and Fukushima prefectures, Japan. *Anthrozoös, 28*(2), 291-304.

doi:10.2752/089279315X14219211661895

Zhang, W. (2015). Discourse of resistance: Articulations of national cultural identity in media

discourse on the 2008 Wenchuan earthquake in China. *Discourse &*

Communication, 9(3), 355-370. doi:10.1177/1750481315571177

Zhao, S., Grasmuck, S., & Martin, J. (2008). Identity construction on Facebook: Digital

empowerment in anchored relationships. *Computers in Human Behavior, 24*(5), 1816-

1836. doi:10.1016/j.chb.2008.02.012

Zottarelli, L. K. (2010). Broken bond: An exploration of human factors associated with

companion animal loss during Hurricane Katrina. *Sociological Forum, 25*(1), 110-122.

doi:10.1111/j.1573-7861.2009.01159.x

ABSTRACT

"I WAS PREPARED TO STAY HERE AND DIE WITH MY ANIMALS": PET OWNERS, HURRICANE HARVEY, AND THE ROLE OF COMMUNICATION IN DISASTER SENSE-MAKING

by

ASHLEIGH M. DAY

August 2019

Advisor: Dr. Julie M. Novak

Major: Communication

Degree: Doctor of Philosophy

Companion animals (also referred to as "pets") are omnipresent in society and, increasingly, many companion animals are considered members of the family unit. However, crisis planning, preparedness, and communication efforts are sparse in including pets and their owners/guardians. This study investigates the disaster experience(s) and sense-making process(es) of pet owners (POs) and animal guardians (AGs) that were affected by the 2017 Hurricane Harvey. More specifically, examination pays close attention to the role and function of PO/AG identity and crisis and risk communication in individuals' sense-making of their disaster experience. Importantly, participant experiences provide the means to examine the larger context of disaster sense-making processes, the role of identity in disaster sense-making, and how specific populations are impacted by crisis and risk communication (or lack thereof). This study focuses primarily on the individual PO/AG perspective as a means to assess the effectiveness of official/governmental/organizational crisis and risk communication and determine if such communication truly aids all publics. Sense-making methodology (SMM) and the iterative approach were used to ground this research.

Data were gathered using a multi-stage, largely qualitative approach. A non-representative, cross-sectional, self-reported, mixed-method survey (N = 217) was disseminated to Hurricane Harvey-affected POs/AGs. Based on survey responses, a maximum variation sampling technique was used to recruit participants for qualitative semi-structured interviews (n = 30) and one-year post-Harvey follow-ups were also conducted with interviewees (n = 25). Qualitative data were analyzed using the iterative approach and ATLAS.ti software (version 8.1.3) and quantitative data were analyzed using SPSS (version 24). Participants discussed their experience with Hurricane Harvey, explicating the steps as to what happened, relationships and impacts of power that they saw present within the scene, the value of formal and informal information, and how they bridged communication gaps that they faced. Participants further detailed the role of information and communication, what they considered to be "helps" and "hindrances" to their sense-making, how and why PO/AG identity influenced their informational needs, and their sense-making outcomes. Implications are discussed as related to relevant and timely crisis and risk communication, the importance of micro-level research within the field, the role of identity in disaster sense-making, and the importance of critically examining power and ideology within crisis and risk communication research and practice.

AUTOBIOGRAPHICAL STATEMENT

Starting Fall 2019, Ashleigh M. Day will be an assistant professor in the Department of Communication at the University of Texas at Tyler. Prior to earning her Ph.D. from Wayne State University, Ashleigh completed her Bachelor of Arts in communication (major) and sociology (minor) from the University of Arizona, and a Master of Arts in applied communication from Northern Arizona University. Ashleigh's research interests center around applied communication within crisis, risk, organizational, and health contexts. Communicative elements of human-animal relationships are also of interest to Ashleigh. She frequently asks research questions from a critical interpretivist perspective and approaches research by focusing on pragmatic questions. Her research has appeared in *Health Communication, International Journal of Disaster Risk Reduction, Communication Studies, Journal of International Crisis and Risk Communication Research, Western Journal of Communication*, among others. Ashleigh often teaches courses in organizational communication and communication theory, and has professional experience working in community healthcare issues and medical education nonprofit contexts. Lastly, Ashleigh has a passion for helping others—both human and nonhuman—and believes adamantinely in the power of compassion, interconnection, kindness, and understanding.