

**Prepared for Natural Disaster? How Children and Families Understand and Make
Sense of Natural Disaster Preparedness**

A Dissertation Presented for
The Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

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May 2012

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Dedication

To all of those who have gone through crisis and disasters

and

to my family

Acknowledgements

It is with much gratitude that I thank my advisor and dissertation chair, Dr. Michael J. Palenchar, for all of his advice, guidance, and assistance not just with the dissertation but throughout my years at the University of Tennessee, Knoxville. I would also like to thank my committee members, Dr. Margie Morrison, Dr. Beth Avery, and Dr. Priscilla Blanton, for their advice and assistance in making this a successful project. Your advice and suggestions were invaluable to the completion of my dissertation. Many other professors have assisted me in my journey. I would also like to thank Dr. Karen Hilyard for her encouragements in pursuing the topic of children as stakeholders in public relations.

Of course, I would also like to thank my fellow graduate students, especially my friend Stephanie. Thank you to all my friends that have helped me in small and big ways, such as Melissa und auch an Anja und die vielen schönen deutschen Stunden gemeinsam.

A very deep and special madloba goes out to my husband, Irakli, who has shared in my frustrations and successes throughout the process, who believed in me and who always encouraged me with the right words. Ich möchte hier auch meiner Familie danken, die mich immer unterstützt hat, so dass ich meinem Traum folgen konnte. Meine Eltern standen mir immer mit Rat und Tat zur Seite, haben mich immer unterstützt und freuen sich mit mir über meinen Erfolg. Meine Schwestern haben mir zusätzlich mit Transcriptionshilfe zur Verfügung gestanden. Danke schön!

Didi madloba to my new family and to all their help and support during these sometimes stressful times, not just with encouraging words but also with recruiting families. A last thank you is dedicated to all the families who were open to me visiting them in their homes, who took

time out of their busy schedules to share their experiences with me. This dissertation would not have been possible without all of you!

Abstract

Natural disaster risks have increased in the last decades with hurricanes causing billions of dollars in material damages and untold human suffering and death. To reduce natural disaster impact, public relations scholars and practitioners have called for increased pre-crisis preparation. Families with children are one group severely impacted by natural disaster crisis. With only approximately one-third of families in the United States having taken disaster preparedness steps, practitioners and researchers seek new understanding and approaches to increasing family disaster preparedness. However, the research on organizational and societal preparedness remains scarce. Furthermore, public relations scholarship has neglected to target families with children as essential stakeholders for natural disaster preparedness.

This study was designed to bridge both gaps in current public relations scholarship. This grounded theory study explored families' natural disaster sense-making and natural disaster preparedness levels. Twenty families participated. In each family one parent and at least one child, ranging in age from 8 to 12 years, were interviewed separately. While the 48 in-depth interviews provided the main source of data, field notes and an activation technique during the child interview enriched the data-collection process. The interview transcripts, field notes, and activation technique were analyzed inductively. During the analysis process the categories of family context, natural disaster sense-making, and natural disaster preparedness emerged. These categories connected to the core category of hurricane preparedness.

The categories connected and formed a pattern, which led to the creation of the hurricane preparedness model. This model is an adaptation and extension of the extended parallel processing model (EPPM) (Witte, 1992). The analysis revealed that the family context

influenced natural disaster sense-making and, in turn, both the family context and interpretations of natural disasters impacted the levels of preparedness a family had. Hurricane preparedness was revealed as a two-step process. All families had a basic level of preparedness at all times that increased for an acute hurricane threat. These and other findings were integrated with current literature on the EPPM, preparedness, and families with children as stakeholders.

Table of Contents

Chapter 1 - Introduction.....	1
Chapter 2 – Literature Review	7
Risks and Crisis Communication	7
The concept of risk.	7
Crisis communication.	9
Risk perceptions.	13
Categorizations of Crises and Disasters	17
Natural Disaster Preparedness.....	21
Organizational preparedness.....	22
Public sector and government preparedness.....	24
Individual and community preparedness.	25
Stakeholders in a Crisis	28
Children as stakeholders.	31
Families and Natural Disasters.....	35
Family stress and crisis models.	37
Family reactions to natural disasters.	42
Research Questions	49
Chapter 3 - Methodology	52
Paradigmatic Rationale	52
Grounded Theory	55
Method	58
Participant overview.	58
Data source.	62
Data Collection.....	71
The long interview.....	72
Activation technique.....	77
Field notes.....	80

Data Analysis	81
Open and axial coding.	84
Selective coding.....	86
Quality Control.....	87
Chapter 4 – Findings and Discussion.....	90
Family Context.....	94
Family life.....	94
Family homes.	98
Family time and communication.	100
Natural Disaster Sense-Making.....	106
Natural disaster definition—“Like a hurricane.”	107
Disaster experiences—“Yes. We had Hurricane Ike.”	115
Summary: Family hurricane disaster sense-making.....	120
Preparedness Categories.....	128
Material preparedness.....	129
Preparedness planning.	146
Disaster preparedness: Knowledge.....	150
Hurricane Preparedness.....	155
Hurricane Preparedness Model	157
Chapter 5 – Conclusion.....	163
Family Preparedness	164
Evacuations	168
Families and Children as Stakeholders	170
Extension of the Extended Parallel Processing Model.....	172
Future Research Directions	174
Practical Implications.....	175
Family level communication.	175
Focus on stakeholder needs.	176
Create a general preparedness culture.	177
Limitations	178

Strengths.....	179
Conclusion.....	180
List of References	182
Appendices.....	214
Appendix A – Interview Guidelines.....	215
Appendix B – Debriefing Materials.....	218
Vita.....	253

List of Tables

Table 1. Overview of Interview Participants and the Date and Time of Interviews.....	60
Table 2. Coding Scheme of Disaster Sense-making and Hurricane Preparedness.....	92
Table 3. Overview of Interview Participants and Identifying Codes.....	93

List of Figures

Figure 1. Children's Natural Disaster Understanding and Natural Disaster Experience.....	123
Figure 2. Adaptation of the Extended Parallel Processing Model to Material Hurricane Preparedness.....	145
Figure 3. Children's Understanding of Hurricane Preparedness.....	152
Figure 4. Hurricane Preparedness Model.....	162

Chapter 1 - Introduction

“Nature does not know catastrophes,
man alone knows catastrophes, if he survives.”
-- Max Frisch

The year 2011 saw a record-breaking 14 natural disasters in the United States inflicting billions of dollars in damages on families, organizations, and society, and causing many deaths and injuries as well as untold human suffering. With an increase in natural disaster occurrences, focusing on better emergency preparedness for disasters is more important than ever (Elsabbagh, Fildes, & Rose, 2004; Hilliard, Scott-Halsell, & Palakurthi, 2011; Quarantelli, Lagadec, & Boin, 2007). Large amounts of resources are invested in trying to get a better understanding of the nature of natural disasters, recovering from the destruction they cause, working on accurate predictions, and doing a better job managing and mitigating negative impacts. Aside from structural damages, such as the destruction of buildings and infrastructure, the loss of human life and the effect on human life are core arguments for increased disaster preparedness.

Crises, such as natural disasters, are an inherent part of human life. They have always accompanied human development and life. Various and eclectic academic disciplines dedicate resources to studying disasters and their impacts on humans. One such field, crisis communication as part of public relations, expanded into a cottage industry in the 1980s following the (in)famous organizational crises of Johnson & Johnson's Tylenol product tampering and Exxon's Valdez oil spill in Alaska (Palenchar, 2010). Another field, disaster management, approaches natural disasters from a different vantage point, focusing mainly on naturally caused events and less on organizational ones (Foster, 1980; Pinkowski, 2008;

Quarantelli, 1998a). Family stress research focuses attention on the impacts of disasters at the family level (e.g., Boss, 2002). All three areas of research offer valuable insights for public relations.

Although most risks in today's post-industrial societies are distributed unequally, natural disasters affect people equally (Beck, 1986). Preparation for and resources dedicated to overcome their impacts, however, are unevenly distributed, placing some segments of society at greater risk than others. The events surrounding Hurricane Katrina in 2005 pointed not only to the unequal distribution of risks but also focused society's attention to the needs of children before, during, and after disasters (Corrarino, 2008; Ryan, Hocke, & Hilyard, in press). In 2007, the federal government established the National Commission on Children and Disasters to assess the needs of children in respect to preparedness, response, and recovery from a wide array of crises, such as natural disasters (Save the Children, 2008).

Children face dual risks during disasters. First, they are challenged by the same risks as other members of society. Second, during their socialization process into ideally well-adjusted individuals of society, children deal with additional risks that may negatively impact their development. Overcoming these risks may leave children more resilient and, therefore, better able to face adverse situations as adults (Patterson, 2002). Strengthening children's resilience should increase the number of well-adjusted individuals, better equip them to cope with various risks and, in turn, reduce society's costs of negative outcomes, such as health problems, drug-related crimes, and incarcerations, to name a few (Johnson & Waldvogel, 2002; Leventhal & Brooks-Gunn, 2000; Parke & Buriel, 2006). Strengthening children's resilience should also increase their ability to demonstrate appropriate behavior during a natural disaster.

One way to reach children and increase preparedness is through the families in which they live. Families regularly face risks and change. In flexible and cohesive families, normative transitions (e.g., children entering school or college) and the related stress are managed well (McKenry & Price, 2005). Aside from these expected stressors, families may also face unexpected ones, such as illness or natural disasters (e.g., Figley & Barnes, 2005; Schock & Gacazzi, 2005). In the United States, families may face a large variety of natural disasters, depending on the region where they live, ranging from earthquakes, volcano outbreaks, tornados, and hurricanes to thunderstorms, blizzards, and wildfires.

Being exposed to natural disasters can lead to family crisis, causing an increase of psychological impairment (such as posttraumatic stress disorder/symptoms or PTSD/PTSS) and morbidity (Vigil & Geary, 2008). In contrast to negative impacts, resilience may develop subsequent to disaster exposure. Some families overcome disasters and adapt well to new situations. To understand family resilience, family stress research has looked at coping after disaster strikes and more recently focused on disaster mitigation (Boss, 2002). Different models, such as the ABC-X model of family stress and adaptation, the double ABC-X model of family stress and adaptation, or the contextual approach to family stress, have been used to capture, explain, study, and understand family stress and crisis (Boss, 2002; Hill, 1949; McCubbin & Patterson, 1982).

Although interest in the family as the unit of analysis is taken into account, most research on disasters continues to study individual responses. Additionally, most crisis communication research has focused on an organization's response to a crisis, the media's evaluation and interpretation, and the organization's management of the event. Little research has sought to

understand the experiences of stakeholders or the family unit that bears the risk. In recent years, public relations scholarship has begun to shift its focus to understanding and addressing key stakeholders, but not necessarily from their meaning perspective. Yet, these studies continue to focus on individual responses and not the family unit (e.g., Ulmer, 2001).

This study sets out to address some of the gaps in respect to natural disasters apparent in the public relations field. Since crisis and risk research suggests that the best way to quickly overcome and reduce the negative effects of disasters is preparation (e.g., Coombs, 2007; Ulmer, Sellnow, & Seeger, 2007), the first goal of this study is to better understand disaster preparedness not for individuals but the groups among which most people experience a disaster: the families (Dynes, 1998). Although individual or organizational preparedness is often proposed as an essential first step to overcoming crisis, little research has been conducted concerning family preparedness. It will be difficult to create strategies to improve communication with the goal of reducing disaster impacts without better understanding how families and specifically children make sense of natural disasters, and how they prepare (or why they do not prepare). Disasters affect groups of people and should, therefore, be studied by focusing on those groups, including children. Crisis communication, even if targeted at the individual, is interpreted and acted upon in the context of a group, usually the family (Boss, 2002; Turner & West, 2006).

For a topic where little research has been conducted, a grounded theory approach is most promising. The purpose of this study is to seek initial insights into the contextual sense-making and meaning creation that occurs in families with respect to natural disasters and how families and children prepare for natural disasters. To gain this understanding, qualitative in-depth interviews with parents and their children ranging in age from 8 to 12 were conducted. The

findings offered the first step in better understanding how a distinct group, the family with children age 8 to 12, constructed what natural disasters mean to them. Such knowledge is important not just for the above-mentioned theory development but also for practitioners in organizations and governments interested in improving disaster preparedness. In addition, this study may shed further light on the effectiveness of the government's "get ready" campaign, by evaluating how well some families are prepared and what may be needed to improve disaster preparedness.

The structure of this study is described next. The literature review follows the introductory chapter. The review of the literature includes risk and crisis communication topics, disaster management, child development, family stress theory, and children and families in disasters. McCracken (1988) and Corbin and Strauss (2008) recommended the review of relevant literature prior to commencing data collection. This review's purpose was to allow the researcher to become more familiar with the current knowledge in the field. The knowledge gained from the review did not guide the data collection process but was used as sensitizing concepts for the ongoing analysis of the data. Furthermore, as discussed in more depth in Chapter 3, every person has a unique stock-of-knowledge that assists him or her in understanding and making sense of the world. After many years of study and research in this field, the researcher has obtained a specific stock-of-knowledge on the various topics covered in the literature review. Making them clear to the reader is one step in the bracketing experiences and reflexivity of the researcher throughout the data collection and analysis process.

The third chapter, the methodology, explains the selection of methods: interview, activation technique, and field notes; the sample selection and quality criteria for analysis. In the

next chapter, the research questions are answered by presenting the results from the study. The findings are integrated into the current knowledge about disaster preparedness and family studies. The study concludes with a discussion of the findings' relevance, importance, limitations, and future directions for study. This study allows for the (1) expansion of public relations theory to include an extended view of stakeholders as members of distinct groups such as families and (2) offers practical insights to communication with families about disaster preparedness by providing suggestions for future research and campaigns in this area.

Chapter 2 – Literature Review

This chapter presents the relevant and current literature on risk, crisis, disaster communication and management, child development, family stress theory, and children and families in disasters. The findings from the literature review are used as sensitizing concepts (Corbin & Strauss, 2008) for the interviews with children and their families. This will allow for a better understanding of the families' experiences through contextual sense-making and meaning creation, especially in relationship to the current knowledge in the disciplines of public relations and family stress research.

Risks and Crisis Communication

The following section presents a brief overview of the concept of risk, crisis communication, and risk perceptions. All three areas are interconnected. Yet they also represent distinct lines of research.

The concept of risk.

Postindustrial societies can be characterized by their development from modern to “risk societies” (Beck, 1986; Beck & Holzer, 2007). The locus of risk in these societies extends from nature-based or outside risks to include industrial ones (Beck & Holzer, 2007). The actions risk societies take to continue progression at the same time produce risks that threaten the societies' very existence (Jones, 2002). Many of these risks are characterized by their inherent uncertain nature. Governments, organizations, and societies respond to the unknown elements of risks differently. The precautionary principle, usually more common in European countries, for example, suggests increasing regulation and slowing progress for the sake of more certainty (Heath & O'Hair, 2010; Sand, 2002).

These risks are rooted in the decision-making process of governmental and nongovernmental organizations and corporations. An organization's willingness to take calculable risks in order to advance, change, and create business is an inherent factor of today's Western societies (Beck & Holzer, 2007). As risks seem to be increasing, society's perception of acceptable risk is changing. With the emergence of insurance and the idea of manageable as well as assessable risk, members of society expect that risk-free life is possible (Beck & Holzer, 2007; DeGregori, 2004).

Yet, all technological advancement cannot eliminate risk (DeGregori, 2004), and crisis will continue to occur. At the heart of this misunderstanding or misperception between acceptable and actual risk levels is a communication gap between those who decide which risks in a given context are allowable and those who bear the risk (e.g., Harro-Loit, Vihalemm, & Ugur, 2011). The increasing technological complexity and fragmentation of organizational and governmental processes augment this gap between experts and risk bearers (Goldstein, 2005). Beck (1992; 1999) also proposed that, with the failure of social institutions to deal with the broad concept of risk, society would need to turn more and more to civic participation and self-governance in all stages of government and society. For Beck, only through the inclusion of the public in the decision-making process would governments be able to prevent and ameliorate environmental problems. He also defended the concept that well-informed local communities would be more able to monitor and react to local risks.

After introducing the construct of risk, a definition of the term is warranted. Risk has been defined as "a probability describing the likelihood of a future event, given a certain condition or set of conditions" (Fraser, Richman, & Galinsky, 1999, p. 131). This definition does

not include negative connotations. In Renn's (1992) description a negative connotation is included when he describes risk as "the possibility that an undesirable state of reality (adverse effects) may occur as the result of natural events or human activities" (p. 56) that is furthermore characterized "as a physical attribute and (...) as a social construct" (p. 55). Risks have a factual (statistical) probability as well as a perceptual dimension. Factors such as control, proximity, experience, and knowledge about the risk influence a person's perception of a risk (Palenchar & Heath, 2007). Based on their perceptions, people make decisions on taking or avoiding certain risks.

Crisis communication.

Heath & O'Hair (2010) suggested that when a risk event occurs, it becomes a crisis. In an organizational setting, a crisis is the "perception of an unpredictable event that threatens expectancies of stakeholders and can seriously impact an organization's performance and generate negative outcomes" (Coombs, 2007, pp. 2-3). Cautioning against the influx of the term crisis to refer to any problem or incident, the authors underlined that a threat to an organization's ability to fulfill its business plan or mission was needed to warrant the use of the term (Heath & O'Hair, 2010).

Scholarship commonly approaches crisis as objective events that can be understood and managed based on a set of best practices that are generalizable to many organizations. The underlying view of communication in this linear crisis-information approach is based on the sender-receiver communication model (Heath & Courtright, 2004). As alluded to by Renn (1992) in respect to risk conceptualizations, however, crises occur within the realm of social reality in which the meaning of events is socially constructed through language (Berger &

Luckmann, 1966; Hearit & Courtright, 2004). In this regard communication and meaning construction is not a linear sender-receiver process but the process of co-creating meaning through symbol making, interpretation, and adjustment. It follows that “crisis management is a distinctly communicative phenomenon in which participants construct the meaning crises hold” (Hearit & Courtright, 2004, p. 205). Although the actual event is not a social construction, the understanding, interpretation, and meaning of it are social constructions. Consequently, a crisis is comprised of two dimensions: an actual dimension and a perceived or meaning dimension (Heath & Millar, 2004).

Viewing risk and crisis in this form places crisis communication in a rhetorical tradition. In this tradition, crises are contestable events (Heath & Millar, 2004) and through language meaning is symbolically co-created. Those interpretations and narratives that best allow for co-creation of meaning or the sharing of a zone of meaning (Burke, 1966) will frame the perceived dimensions of crisis (Heath & Millar, 2004).

Crisis situations are furthermore a struggle for control. When a problem, such as a crisis, arises organizations are expected to provide solutions, to gain control over the crisis. Control is achieved on two levels: action and communication. Taking the best steps to correct a problem as well as providing acceptable interpretations of the event is important. All stakeholders involved will offer interpretations of the events. The different groups will present their stories in the market place of ideas creating a rhetorical problem (Heath & Millar, 2004).

Crisis events are often sub-divided into stages, the most common and accepted categorization is in three phases: pre-crisis, crisis, and post-crisis (e.g., Coombs, 2007; 2010a; Lerbinger, 1997; Mayer, Moss, & Dale, 2008; Millar & Heath, 2004; Palenchar, 2010). The first

stage consists of scanning the environment for potential issues and risks and working toward prevention of and preparation for crisis. When a crisis occurs, response times are short, and the entities affected have to be fast and flexible in order to react appropriately and reduce uncertainty. Coombs (2007) suggested that a crisis event is characterized by its sudden nature, high levels of uncertainty and ambiguity, high levels of stress, a short amount of time to make decisions, and the threat of economic loss as well as to the physical well-being of people. After the crisis is over, the post-crisis stage, the destruction has to be assessed and rebuilding begins. In this phase, the crisis response is evaluated and the results are used to prepare for the next crisis. Accordingly, crises are cyclical in nature (Littlefield et al., 2010).

In the pre-crisis phase, Coombs (2007; 2010a) among numerous others suggests that prevention and preparedness are the two main actions public relations professionals should address. Prevention includes activities such as issues management, risk assessment and management, and reputation management. These activities are geared toward preventing a situation from ever turning into a crisis. Not all crises can be prevented, natural disasters being among them. Therefore, preparedness is the second essential step in the pre-crisis phase. To prevent and prepare for crisis an organization's crisis management team creates a crisis communication plan. To be effective, the actions outlined in the plan should be practiced in drills and trainings. This may reveal potential problems or shortcomings of the plan which can then be remedied.

Although suggestions and reasoning for crisis preparedness in organizations have been made for quite some time, there continues to be a lack of planning and preparedness in general (e.g., Guth, 1995; Pearson & Mitroff, 1993) and/or for a specific crisis, such as bioterrorism

(Wrigley, Salmon, & Park, 2003). Guth (1995) finds that natural disaster crises are ranked as a top 10 threat for both profit and non-profit organizations. As Brody and Schmittlein (2012) stated, about one quarter of small businesses did not reopen after a major disruption. Many of these businesses did not have any contingency plans to protect them from natural disasters. That there continues to be gaps between suggested and actual preparedness is further astonishing as studies have shown that organizations who take preparedness actions are attributed with less fault in case of crisis, thus recovering faster (Longstaff & Yang, 2008).

The interconnected nature of risk and crisis has been pointed out by scholars and practitioners (e.g., CDC, 2002; 2007; Palenchar & Heath, 2007; Palenchar, 2010; Williams & Olaniran, 1998) and continues to be explored in social science research (see for example Tucker, Ferson, Finkel, & Slavin, 2008). In the past decade efforts have been made to coalesce risk and crisis communication into an area of research and practice defined as crisis and emergency risk communication (Reynolds, 2002). According to Reynolds (2002) in conjunction with the Centers for Disease Control and Prevention (CDC), crisis and emergency risk communication merge the urgency of disaster communication with the necessity to communicate risks and benefits to stakeholders and the public, especially in response to an era of global health threats.

Crisis and emergency risk communication is the effort by experts to provide information to allow an individual, stakeholder, or an entire community to make the best possible decisions about their well-being within nearly impossible time constraints and help people ultimately to accept the imperfect nature of choices during the crisis. (Reynolds, 2002, p. 6)

Reynolds and Seeger (2005), while focusing on the numerous differences between risk and crisis communication in their article, also acknowledged that they have much in common, including production of messages designed to create specific responses by the public. Messages are largely mediated through mass communication channels and rely on credibility as a fundamental element of persuasion. Both share a fundamental purpose of seeking to mitigate and reduce harm to public health and safety.

Risk perceptions.

Spence, Lachlan, and Ray (2008) stated that the definitional distinction between risk and crisis has become more obscure, especially in proactive pre-crisis communication approaches. It is therefore helpful to provide a brief summary of related risk communication concepts.

The risk perception and communication literature provides additional insights into how stakeholders may view, react and interpret the time before a natural disaster affects them. The importance of understanding risk perceptions for behavior change, risk communication, and community safety has been frequently formulated (e.g., Slovic, 1992; Rahm & Reddick, 2011; Renn, 2010). Risk research has uncovered variables that are essential in determining risk perceptions such as the following 11 factors compiled by both Hance, Chess, and Sandman (1990) and the Centers for Disease Control and Prevention (CDC) (2002). People perceive a lower level of risk when the choice of exposure is voluntary rather than involuntary, when they themselves are in control rather than someone else, when they face a familiar rather than an exotic risk. Additionally, when the distribution of risks and benefits is unfair, with a clear benefit for the group not bearing the risk, negative perceptions increase. Natural versus industrial risks differ in that nature receives fewer negative perceptions, yet the risks that are memorable in

contrast to non memorable will increase risk perceptions. Some risks create more dread than others. Higher dread levels increase perception of risk. Similarly, the better known a risk is to experts or science, the more agreement that exists about the risk, the lower the risk perceptions. Morally irrelevant issues decrease perception of risk. Finally, for organizations, trustworthiness and open processes of communication decrease risk perceptions.

Other authors propose similar variables. For example, in his literature review, Slovic (1992) summarizes and discusses similar juxtapositions to explain risk perceptions. Renn (2010) includes a shorter list of variables containing eight qualitative risk characteristics and their direction of influence:

Personal control increases risk tolerance, institutional control depends on confidence in institutional performance, voluntariness increases risk tolerance, familiarity increases risk tolerance, dread decreases risk tolerance, inequitable distribution of risks and benefits depends on individual utility, strong social incentive for rejecting risk, artificiality of risk source amplifies attention to risk, often decreases risk tolerance, [and] blame increases quest for social and political responses. (p. 89)

Although there may be some variation in the lists of variables, the core juxtapositions of risk characteristics influencing risk perceptions remain similar. Additionally, research has identified cognitive involvement, uncertainty, and control as connected variables essential to understanding risk perceptions that underlie successful risk communication (e.g., Palenchar & Heath, 2002; 2007; Heath & Gay, 1997; Heath & Palenchar, 2000). Cognitive involvement is the amount of involvement a person has for an issue he or she believes is important to him/herself or people he/she cares for (Heath & Gay, 1997). The variable has been used to predict the

willingness an individual displays in seeking and processing information and messages. The elaboration likelihood model specifies that peripheral or central processing of information depends on the level of cognitive involvement with that message (Petty, Cacioppo, & Schumann, 1983).

Uncertainty is closely linked to the concept of risk and crisis (e.g., Coombs, 2007; Heath & Gay, 1997; Palenchar & Heath, 2002). The probability of a crisis (a risk event manifested) and the outcome of the event are two uncertainties associated with risk (Palenchar & Heath, 2002). As Berger and Calabrese (1975) stated, uncertainty is uncomfortable for people; therefore they seek to reduce it. In their uncertainty reduction theory (URT), Berger and Calabrese provide axioms which propose patterns and motivation for uncertainty reduction. Although URT remains influential, scholarship has seen a shift to uncertainty management theory, which suggests that not all uncertainty is uncomfortable but that there are instances in which uncertainty is wanted and sought out (Bradac, 2001; Brashers, 2001).

The last important variable is control. Thompson (1981), in a classic definition, defined control as the belief that an individual or organization can influence an event, or at least has the ability to do so. Control can be exerted to reduce the likelihood of a risk event or to minimize its impact. Control is a natural response to the uncertainty that characterizes risks. Many studies have demonstrated that control is a primary variable in risk communication (e.g., Covello & Johnson, 1987; Heath and Palenchar, 2000; Lindell & Earle, 1983; Sims & Bauman, 1983). These examinations of control feature the variable as a personal trait, a trait of those who feel they (internal) or others (external) are responsible for their own actions, situations, and future. Internal control occurs when persons feel some control over their destinies. Personal control

extends to perceptions of speed of onset, scope (area), and duration of impact of the risk, as well as the quality of emergency preparedness. External control results when outside forces are perceived to have control over a risk source.

As mentioned above, individual control, or internal control and institutional or external control change how people perceive a risk (see Hance et al., 1990; Palenchar & Heath, 2002). Most research suggests that an increase in (perceived) control over a risk source (either externally or internally) should decrease risk perceptions. Research in the arena of health communication has identified a related variable: self-efficacy, which refers to the ability a person believes he or she has to be in control (have competence and confidence) and to make changes to a situation (Bandura, 1997; Suldo & Shaffer, 2007). This may refer to information seeking, life-style changes, communication efforts, and fear reduction. In a risk context, Witte and Allen (2000), proposed that behaviors may be changed through fear appeals “as long as individuals believe they are able to protect themselves” (p. 607), have a sense of efficacy. A threat is analyzed for its perceived susceptibility and severity. Susceptibility referred to the perceived risk of a being impacted by a condition and severity refers to the evaluation of the seriousness of this condition (e.g., Gore, 2005; Witte & Allen, 2000). Witte’s (1992; 1994) Extended Parallel Process Model (EPPM) explains how self-efficacy may influence the success of a fear appeal in more detail, suggesting that if a perceived threat is believed to be higher than the level of perceived efficacy, the reaction will be to control fear. In contrast, if the perceived efficacy is higher than the threat is believed to be, the danger control will set in.

A risk is evaluated for its threat level. When the threat level is low, no response will occur. If the threat level was evaluated as moderate to high than fear was elicited. This requires

an evaluation of self-efficacy and response-efficacy (= belief that action will deter a threat). When both threat and efficacy are evaluated as high danger control will follow leading to adaptive changes. In contrast, when the threat is perceived as high but efficacy as low a fear control reaction followed which led to maladaptive changes (Gore, 2005; Witte, 1992; 1994).

Most of the studies measuring risk perceptions have focused on man-made risks. For example, Heath and Palenchar (2000) have provided in-depth insights into communities surrounded by chemical manufacturing plants, the risk perceptions and behaviors performed in these communities, and the effects of risk communication to improve emergency preparedness and increase industry support. Natural disasters or natural risks are rarely added as separate risks. Renn (2010) provides the example of natural toxins versus chemicals or man-made toxins as a point of comparing risk perceptions. Most people perceive natural toxins as benign, thereby underscoring the myth of a mothering or caring “Mother Nature” (p. 88). Not only in the risk literature but also in crisis research are natural disaster risks viewed and conceptualized differently from man-made ones.

Categorizations of Crises and Disasters

What is a natural disaster? This seemingly simple question has sparked much research and debate in academic communities to find a surprisingly complex answer. To begin exploring the concept further, a brief look into the historical development of Western societies’ relationship with nature is helpful. The meaning of and actions toward nature have significantly changed in the 19th century. The United States in particular has a unique relationship with nature that has included harmony and separation (e.g., Achilles, 1990; Marx, 2008; Phelan, 1991). On the one hand, the untouched wilderness was seen as a means of reestablishing culture, as the Garden of

Eden on Earth, worthy of a chosen people, a place to live in harmony with nature. On the other hand, the wilderness had to be “overcome” to settle and prosper. It stood in the way of economic development (Achilles, 1990; Marx, 2008). Nature and culture are clearly separated.

Industrialization greatly changed societies and with it people’s understanding of and relationship to and with nature (Achilles, 1990). Nature seemed to become controllable and clearly separated or distanced from society (Achilles, 1990; Quarantelli, 1998b). Additionally, research in various disciplines exposed or explained many of the former secrets nature held and stripped them of their mysticism (DeGregori, 2004). In the 1970s, nature was re-defined as environment, and, with global warming and green-house gasses, the discussion turned to protecting nature. Marx (2008) goes so far as to suggest that the 1970s marked the end of the traditional construct of nature as the “other” because every sphere (including the atmosphere) had now been significantly touched and changed by human intervention. These various changes showcased that people fundamentally altered their relationship to nature. It can and should be controlled and is tamable and may even require human protection (Quarantelli, 1998b).

Returning to the initial question of a natural disaster definition, a look into the public relations literature shows that a natural disaster is one type of crisis an organization may encounter (Coombs, 2007; Lerbinger, 1997; Ulmer et al., 2007). Different types of crises require different types of communicative preparedness and response (Coombs, 2007; 2010a; Pearson & Mitroff, 1993). Also, natural disasters not only impact an organization or industry, they also impact an entire area. Lerbinger (1997), for example, categorized natural, technological, and confrontational crises, as well as crises of malevolence, of skewed management values, of deception, and of management misconduct. Ulmer et al.’s (2007) list of types of crises include

terrorism, sabotage, workplace violence, poor employee relationships, poor risk management, hostile takeovers, unethical leadership, natural disasters, disease outbreak, unforeseeable technical interactions, product failure and downturns in the economy, all of which are studied within the rubrics of risk and crisis communication.

Similar to natural disasters, technological crises are bound to occur, because they follow the laws of chance. Yet, in contrast to natural disasters, blame placing is clearly involved in technological crises. If technology fails, the organization is held responsible for damages. Mitroff (2005) suggested that there is no more real difference between natural and man-made disasters as both have become largely intertwined. The only differentiation, he points out, is that, in contrast to man-made disasters, natural disasters are largely unpredictable and not preventable.

As “Acts of God” natural disasters create different expectations from people, communities, and organizations (Lerbinger, 1997). Whereas most crises are tied to errors, faults, mistakes or actions of organizations, governments or people and, therefore, seem preventable, natural disasters are not. Thus, the actions of preparedness cannot be diverted to others. Every person in a society is responsible for his or her own preparedness (Peyton, 2008). It follows that the response to natural disaster crises differs from that of man-made crises. The latter have a clear target on which to place blame (Ulmer et al., 2007). Natural disasters in contrast cannot be blamed on anyone. Yet, man-made disasters often augment natural disaster impacts, thereby increasing the complexities of managing them. Organizations may be blamed for not taking the responsible steps to decrease their vulnerability to disaster impacts, thereby neglecting to protect the community (Palenchar, Hocke, & Heath, 2011).

This understanding of crises and disasters emphasize the concept that these events are perceptual (Hearit & Courtright, 2004) as well as actual. With today's complex societal systems, disasters create a vacuum in meaning construction which needs to be filled (Gilbert, 1998). Meaning construction is at the heart of the natural disaster definition discourse.

Originally, Gilbert (1998) suggested the disaster concept was connected to the concept of war. Both are caused by an external agent and the harm to people from both, such as Posttraumatic Stress Disorder (PTSD), is similar. This perspective focuses on the agent (disaster) rather than the processes in a community. In reaction, a second concept emerged, focusing on disasters as social vulnerability. This view disregards the agent in the analysis and focuses on the human-created process. Yet, studying disasters without looking at the agent leaves different questions unanswered. Gilbert therefore proposed that a third conceptualization, that of disaster as uncertainty. This approach connects disaster research with the crisis and communication disciplines (see discussion of uncertainty above). The uncertainty conceptualization combines meaning creation processes, community actions, and studying the agent.

Dombrowsky (1998) made another important distinction to the disaster concept. In common use of the term and in research "there is no distinction between a disaster and (its) effects. Disasters do not cause effects. The effects are what we call a disaster" (p. 21). With this shift, disasters are not the agents, such as a hurricane, but the result of human activities. It is the impact the disaster causes to human constructions that create the actual disaster. A hurricane itself is not disastrous. When the "cultural protections" humans built to protect themselves against nature, to control nature, collapse, a situation becomes a disaster. It does not when structures built for protection hold.

Focusing on the human influences and interpretations, Krebs (1998) suggested that disasters can also be social catalysts and point to areas of change. They expose the vulnerabilities of a society. Porfiriev (1998) drew a distinction between disasters and crises. He suggested that the time to react to a crisis differs greatly from disasters. Crisis may go on for a long time and may not need immediate attention to save lives, whereas disasters require immediate actions to protect and save lives.

In summary, there continues to be a lack of a unifying disaster definition among the disaster, risk, crisis, and public relations fields. Nevertheless a few common ideas emerged. Although the focus has shifted away from the agent of an event, there cannot be a disaster without one (Dombrowsky, 1998; Gilbert, 1998; Krebs, 1998; Porfiriev, 1998; Quarantelli, 1998b). Yet, research should focus more on the socially constructed interpretations and the processes that expose or see the collapse of man-made protections against external agents (Dombrowsky, 1998; Gilbert, 1998; Rosenthal, 1998). Taking this approach the voices of all groups affected should not be forgotten. The voices of the workers, the people affected, and local communities continue to be underrepresented in most research (Dynes, 1998; Hewitt, 1998; Peyton, 2008).

Natural Disaster Preparedness

Although natural disasters are the focus of this study, preparedness research also addresses generic crisis events or specific crisis and disasters (e.g., terrorism). Most research to date focuses on the crisis and especially the post-crisis phases, with special emphasis on image and reputation maintenance and repair strategies (Avery, Weaver, Kim, & Hocke 2010). Little research has focused on the pre-crisis stage. In many preparedness studies, scholars are calling

attention to the dearth of research and theory in this area (e.g., Coombs, 2007; Hilliard et al., 2011; Mayar et al., 2008). Maricle (2011) suggested that a lack of preparedness is reflected in research agendas that focus on high quality science over useful science.

Preparedness research can be broadly categorized in organizational preparedness, public sector/government preparedness, and individual/community preparedness. Before some of the current findings are briefly presented in the following section, a commonality among the various preparedness studies stands out. Most of these studies do not define preparedness (Jin, 2010). Mayar et al. (2008) are among the few exceptions. The authors define disaster preparedness as “any activity that has the potential to save lives, decrease property damage, and reduce the negative impacts of disaster events” (p. 15). Coombs (2007) and Elsubbaugh et al. (2004) describe the pre-crisis phase as consisting of crisis prevention and preparation. Most other studies use the term interchangeably with emergency preparedness, crisis preparedness, disaster preparedness, and readiness.

Organizational preparedness.

For organizations, Cloudman and Hallahan (2006) described preparedness as both a state and a process. The authors said that organizations should write a plan, be involved in tactical practice, in trainings, in maintenance of contact lists, and in media monitoring. Furthermore, the relationship an organization has built with its publics is important for successful crisis management as well as the organization’s perception of its ability to respond appropriately. Aside from these steps an organization can take to prepare, the authors suggested that certain variables influence preparedness. A positive relationship was found between crisis preparedness, organization size, the process orientation of the organization, and the delegation of autonomy

and authority. Jin (2010) extended these findings to include the role the public relations practitioner has in an organization. Those public relations practitioners in a management role displayed higher levels of efficacy and advocacy in actively managing crisis.

Similarly, Mayar et al. (2008) summarized prior research findings of organizational characteristics that influence preparedness, including the age of a business, the number of employees, the ownership of property, the sector in which a business operates, and previous disaster experience. In their study of organizational impacts after Hurricane Rita, the authors found that about 40% of the businesses had taken much preparedness actions, whereas the majority had taken only a few steps toward preparedness. Over 80% of the businesses had seen an impact from Hurricane Rita and many stated that they had increased their preparedness efforts for future disasters. The experience with the hurricane heightened the awareness and preparedness actions.

Taking an international approach, Elsubbaugh et al. (2004) identified characteristics that show how Egyptian textile managers would like crisis preparation to be carried out. They integrated their findings into an extended crisis preparedness model that consists of three phases. The first phase, strategic planning and a healthy crisis planning culture, is positioned prior to the detection of early warning signs (the second phase). This finding, the authors said, stands in contrast to most Western crisis models, which begin with the signal detection phase, which is followed by strategic planning. The third phase of the Elsubbaugh et al.'s model includes quick decision response, resource mobilization, and efficient information flow in time of crisis.

The organizational preparedness studies focus on different elements and aspects of preparedness. The studies all suggested that an increase in organizational preparedness is needed.

However, the models and theories presented to achieve this increase are varied and an integration of the findings is difficult.

Public sector and government preparedness.

Studying local emergency managers (EM), Littlefield et al. (2010) found that most EMs were not well trained in pre-crisis communication management. Most EMs interviewed saw it as their job to distribute information about preparedness and as the stakeholders' job to gather, read, accept, and act upon this data. Although most EMs had not formerly evaluated the impacts of their campaigns, most did not know of any person who actually had an emergency kit set aside. Preparedness communication did not seem to reach or affect stakeholders. Spence et al. (2008) analyzed a pre-crisis communication situation in which local officials and managers elected not to provide any information about a high-risk potential dam breach. In case of a dam collapse, great flooding and damages to property would occur and many lives would be lost. Most people in the potentially affected area did not know they were at risk and were therefore not prepared.

Studying city managers, Reddick (2007) focused on the collaborations between agencies in respect to homeland security preparedness and planning. Most city governments in this study mentioned strong relationships with the local and state governments. The federal government was not at the top of the list for this type of preparedness planning. However, collaborations seemed to play an important role in local government preparedness actions. Rahm and Reddick (2011) focused on the risk perceptions of chief administrative officers (CAO) in U.S. cities. The authors suggested that those CAOs who perceived a higher threat from natural disasters tended to project a similar level of threat from terrorism. This led the authors to conclude that the

consistency of perceptions across various threats may magnify any misperception and in turn reduce preparedness actions.

Avery and Kim (2009) content analyzed press releases from public health organizations on the emergence of avian flu and found that public information officers may not be heeding best practices in their communication efforts. For example, not all releases provided contact to seek additional information, the information about the illness and prevention was inconsistent and not always included in the press releases. In contrast, timeliness of messaging was one factor that the public health agencies adhered to well. In anticipation of a potential influenza crisis, the authors suggested, press releases could be used more effectively, following best practices to increase audiences' preparedness.

In a study of municipal government officials in Sweden, Wester (2011) identified an optimistic bias for the officials' own reaction to a risk or crisis and an overestimation of fear or panic reaction by others. This gap between public reaction and managers' perceptions might influence the preparedness and communication strategies, the author said. In general, more studies are beginning to describe preparedness actions in various levels of government. The studies mentioned here reveal a common theme: the disconnect or gap between the governments' actions and the perceived and actual levels of citizen preparedness.

Individual and community preparedness.

Communicative efforts to create greater citizen preparedness have increased in the past years (FEMA, 2011; Reddick, 2007). One of the most notable campaigns is "get ready" by the Federal Emergency Management Agency (FEMA) (FEMA, 2011). Although communication efforts—online and through other media channels—have increased over the last years, large

portions of the U.S. population continue to be ill-prepared for disasters (Cody, Murphy, & Glik, 2007; Kano, Wood, Mileti, & Bourque, 2008).

A representative survey of the U.S. population (Kano et al., 2008) found that at least one-third of citizens in the United States have “duplicated important documents, such as passports and medical prescriptions, developed emergency plans, and stockpiled emergency supplies” (p. 5). Although this study focused primarily on terrorism preparedness, the authors suggested that both terrorism and natural disasters may account for the number of people who have taken steps to more preparedness. Cody et al. (2007) found that in their national survey (n=471) fewer than 15% of the participants had taken preparedness actions, which were defined as setting aside emergency supplies, developing emergency evacuation or communication plans. These studies are among others that suggest that only a small percentage of American families may be prepared for natural disasters (e.g., Peyton, 2008).

As one element of natural disaster preparedness, Rød, Botan, and Holen, (2011) explored a Norwegian community’s willingness to evacuate in case of a high probability natural disaster of unknown timeframe. Disaster history was one determining factor in willingness to evacuate, often in conjunction with higher formal education, positive relationships with expert sources, and an appreciation for risk information.

Aside from these preparedness studies focusing on the population as a whole, a few studies revealed preparedness actions for specific groups, such as children or women. Children seem very aware of the possibilities of crises, such as natural disasters, and seem to have little assistance in preparing for them or dealing with these fears. For example, one study of 218 children using self-reported data showed that children were most frightened by news reports of

natural disasters, kidnapping, and the Iraq War (in this order of importance) (Riddle, Cantor, Byrne, & Moyer-Guse, 2008). The fear of natural disasters ranked highest among the children surveyed and underlines the importance to address these fears.

Fothergill (1998) summarized available data and found that “women and men perform distinct preparedness activities and that women are largely absent in more formal emergency preparedness organizations” (p. 15). For example, women were responsible for household preparedness, whereas men ensured that the external areas of the house were prepared. Men tended to focus more on improving their homes, whereas women tended to expect stricter building codes. Toscani (1998) underscored these findings. Women were responsible for family preparedness planning and preparation. They ensured that the family and community members were taken care of.

From Cody et al.’s (2007) study one additional finding is interesting: Most of those who have taken preparedness actions have children under the age of 18, are wealthier (more than \$40,000 annual income), have at least a high school degree, and are between 30 and 44 years of age. This suggests that living in a family (having children) may be one factor for increased preparedness actions. The importance of the family, although only hinted at in this study, may be essential for future communicative campaigns about preparedness.

In summary, research suggested that even with the increase in communication campaigns and the increase in high-visibility disasters such as the 9/11 terrorist attacks or Hurricane Katrina, only approximately one third of the U.S. population has taken actions to prepare for future disasters. These research findings point to clear gaps in understanding disaster preparedness in U.S. families. In order to fully grasp the interpretations and meaning of a crisis,

the various actors involved in or influenced by a crisis need to be studied. As organizational and media communication and sense-making (Gephart, 2007; Roberts, Madsen, & Desai, 2007) have been studied in many contexts, this study seeks to better understand the interpretations and meanings told through natural disaster-related stories of children and their families. Coombs (2010b) and Freimuth, Linnan, and Potter (2000) encouraged research that will allow a better understanding of stakeholders because “understanding the audience for which a message is intended is critical to the communication process” (Freimuth et al., 2000, p. 338).

Stakeholders in a Crisis

Most crisis communication approaches focus on strategically managing a crisis in order to mitigate harm (Fearn-Banks, 2001; Seeger, Sellnow, & Ulmer, 2001). It is within this context that the importance of stakeholders has been defined time and again (Ulmer, 2001; Kolk & Pinske, 2006; Coombs, 2006; Coombs & Holladay, 2007). Within the public relations literature, stakeholders are defined as a group of people who are affected by or who affect an organization in achieving its goals (Kolk & Pinske, 2006; Ulmer, 2001; Diers, 2007).

These stakeholders are “any group or individual who is affected by or can affect the achievement of an organization’s objectives” (Rawlins, 2006, p. 2). Clarkson (1995) defined stakeholders as individuals and groups that have an interest in a corporation, extending to activities, ownership and rights. These interests are debated and established through legal, moral, individual, and collective interactions taken by or with organizations, even emergent and enduring narratives (Gephart, 1984). Foundations of stakeholder theory exist within reflective strategic management, including mission and vision, based on sound CSR principles achieved through issue-relevant dialogue (Heath & Palenchar, 2009).

The strategic communication literature suggests that in order to build the best communication strategies with the various stakeholders they need to be divided according to their importance to the organization (Ulmer & Sellnow, 2000). Key stakeholders change over time and according to situations. Thus, public relations practice suggests creating long-lasting relationships with different groups. Applying this approach and maintaining good relationships with stakeholders has been shown to be a helpful resource during a time of crisis (Coombs, 2006; Ulmer, 2001).

In contrast, mismanaging stakeholder relationships can lead to crisis or increase the harm to an organization (Kolk & Pinske, 2005). Strategic public relations plans emphasize the importance of knowing one's stakeholders in order to adequately build relationships with them. The crisis communication literature has placed a great emphasis on the role stakeholders play in planning a crisis response. Best practices point out that stakeholders should be seen as legitimate partners and should be listened to (Covello, 2003; Heath, 2006). From a rhetorical perspective, every voice or story should have a chance to be heard.

Coombs (2006) has approached the study of stakeholders by having students identify crisis response strategies with hypothetical crisis types as well as reputation evaluations. Waymer and Heath (2007) focused on marginalized groups affected by natural disaster by analyzing the communications of Senator Landrieu and former Senator Barack Obama.

The limited amount of research is especially astounding because the risk communication literature has a long-standing tradition of studying risk bearers (Heath & Abel, 1996; Palenchar, Heath, & Orberton, 2005; Palmund, 1992). Successful communication activities are largely built upon these evaluations and relationships. Palenchar and Heath (2006), for example, come to the

conclusion that a community, in which the risk generator has consistently communicated with the risk bearers, good relationships have developed, and people are better prepared and informed on how to react in the case of a crisis.

Only a small number of crisis studies have directly captured the voices of crisis bearers and the representatives of the organizations in crisis (e.g., Hocke & Palenchar, 2010; Jahansoozi, 2006; Ulmer, 2001). These studies focus on the communities in which the respective crisis occurred. The findings demonstrated that only by creating a relationship, by openly communicating, and by exchanging perspectives would a zone of meaning for the effective management of the crisis emerge. Ulmer (2001) showed that only due to the long-standing, trusting, and open relationship between the Malden Mills chief executive officer and the employees, the community, and the customers was the organization able to survive a fire that destroyed its plant. Jahansoozi (2006) took a phenomenological approach to understanding a community's crisis communication with Shell's gas processing facility in Alberta, Canada. The two groups were able to come to an understanding built on trust and transparency, which led to the resolution of the crisis.

Hocke and Palenchar (2010) found that the community surrounding the Tennessee Valley Authority (TVA) ash spill was divided into at least three distinct groups, each with distinct crisis narratives. At least one group, those outraged and ready to use litigation against TVA, described the organization's communication and actions as insufficient. TVA did not target its communication strategically to address the individual stakeholder groups in the community and used only one communication approach to address all stakeholders. These three studies, although focused on organizational crisis, provide helpful insights for natural disaster response. Long-

standing, trust-building relations and more targeted communication for diverse stakeholder groups are needed. One particular group of stakeholders has received no attention in the public relations and crisis communication literature: children and their families.

Children as stakeholders.

Children as stakeholders have been given little attention in public relations research, and even less in related risk and crisis communication research. Other disciplines have acknowledged their importance for household purchase decisions. For example, parents show preferences for certain institutions due to their child-friendly policies (Coffey, Siegel, & Livingston, 2006). Similarly, advertising has recognized children as an important consumer group (Guber & Berry, 1993; Gunter, Oates, & Blades, 2005; Hansen, Rasmussen, Martensen, & Tufte, 2002; Jacobson, 2008; Kapur, 2005; McNeal, 1987). Furthermore, propaganda campaigns have relied on children as messengers in assisting social change (Sha & Meyer, 2002).

A search of the *Journal of Public Relations Research* and *Public Relations Review* did not reveal one study that has addressed children as a stakeholder group. Hilyard, Hocke, and Ryan (2011) may be the first authors to address children as stakeholders in public relations. Research studies that mention the importance of children focus on the impact children have on parental decision making (e.g., Morton, 2005). Most research samples addressing child-related topics, such as toy campaigns, relied on adult populations (e.g., Turner, 2005). One exception is the study by Sha and Meyer (2002). The authors raise important questions about the possible organization-child relationship. Could a relationship with children as an organizational public ever be truly symmetrical? The traditional power imbalance between an organization and its publics is heightened in the case of child-publics because children have less legal rights and

limited reasoning abilities. Although a clear research gap exists in respect to child stakeholders, public relations practitioners have created campaigns targeting children. In Hardy's (2011) study of the Public Relations Society of America (PRSA) Silver Anvil award winners, over 16 percent of the campaigns targeted children and teenagers.

This suggests that in order for public relations practitioners to create and maintain relationships with children as stakeholders an in-depth understanding that is sensitive to the specificities of this group is required. Children differ from adults in their cognitive, social, and moral development (Nickel, 1979; Selman, 1984; Baacke, 1995; Piaget & Inhelder, 2004; Theunert, 2005). Understanding children better should increase strategic communication planning for and with them. The limitations of an organization-child relationship should also become clear.

Although often referred to as "children," the time of childhood in a human's life is characterized by great developmental changes. It is not possible to understand the group of 8- to 12-year-old children (the sample age for this study) without taking the heterogeneous nature of the time period of childhood into consideration. Childhood begins around 2 and ends between 12 and 14 years of age (e.g., Baacke, 1995). Although age is commonly used to refer to certain abilities and developmental capabilities children have (Piaget & Inhelder, 2004; Selman, 1984), research has shown that the individual development of children can be quite different (Nickel, 1979; Charlton, K  ppler, & Wetzel, 2003). Furthermore, not all children develop at the same rate in all areas of cognition, social, and moral development. Differences depend on factors such as family circumstances, environmental factors, and social interactions, to name a few (Montada, 2002a; 2002b). Yet, the progression through these stages offers an acceptable frame to

understand child development. Understanding the developmental periods and steps children progress through on their way to adulthood enhances the ability to communicate more appropriately with this unique stakeholder group. In the following section core developmental stages and influences will be briefly presented.

Stages of development.

Piaget's stages of development continue to be prominent in structuring the cognitive development of children (Piaget, 1995). The *preoperational phase* begins approximately when a child begins to talk and continues until the child is about 7 years of age. Children early in this stage increase their verbal representation while remaining egocentric. Similarly, the child assumes that other people view the world the same way he or she does. Objects are personified. Conceptualizing time is difficult. As children get older, their speech and view of the world becomes less egocentric and more social. Nevertheless, children continue focusing on objects at hand. Morally, the child understands rules given by authority figures, such as the parents or teachers.

The second phase, which begins when children enter first grade and continues until early adolescence, is the *concrete phase* and the main focus for this study. In school, children are learning to read (Baacke, 1995). The cognitive development of children at the beginning of the age group 6 to 12 continues to be closely tied to concrete objects (Piaget & Inhelder, 2004). Children at this age can understand operations and procedures as long as they are tied to concrete examples. As a child becomes older the more logical becomes his or her thinking. At about 10 or 11 years of age abstract thinking will have developed. The oldest in this age group will be able to

hypothesize, understand complex situations, and understand the consequences of actions they take (Piaget & Inhelder, 2004).

The social development of children follows a similar progression. At ages 6 or 7 children place themselves at the center of reflections and can usually only consider the position of one other person. In contrast, the older children are able to consider many different perspectives and points of view. Aside from the family background, the influence of school, peer groups, and friends increases throughout this time period and becomes important for the child's social development (Selman, 1984). The environment and social interactions are expanded and become more complex, requiring the child to form a social identity and learn acceptable societal behaviors (Baacke, 1995). Children claim more and more independence, which becomes clear in the moral development. The younger children continue to strongly orient their values on important adults and obey rules without questioning them. Toward the end of this developmental stage children develop a personal and independent value system, in which they decide what is right and wrong. Media outlets play an important role in managing these various steps of development (Theunert, 2005).

Adolescence, the stage of formal operations, is characterized by the completion of cognitive development (Piaget, 1995). Hypothetical and deductive reasoning are possible and adolescents are capable of considering different possibilities among several perspectives. Thoughts are more abstract and principles of formal logic are understood. Adolescents are seeking more independence from their family ties, and are actively seeking to form their personal identity with their own moral and social norms.

As this short overview shows, children have unique capabilities and understanding of the world that are important to consider when constructing and engaging in crisis communication with them. Aside from the characteristics that distinguish children from adult stakeholders, it is essential to remember that children live in a group context, usually the family.

Families and Natural Disasters

Risks are unequally distributed in society (Beck, 1986). Some groups in society face more risks than others. Although natural disasters impact all members in the region affected, no matter if rich or poor, man or woman, young or old, the coping capabilities and means to overcome the disaster vary according to a family's situation (Schoon, 2006). Usually one risk factor by itself is not difficult for a family to overcome, but in combination or cluster they may increase negative outcomes (Schoon, 2006). Studies on families and family members before, during and after disasters have relied on and applied concepts from various areas of research. Researchers are not only interested in those families that develop negative outcomes after facing risks or crisis but also in those who, in the face of risks, overcome them and even exceed expectations. These families or individuals are considered resilient (Cowan, Cowan, & Schulz, 1996; Fraser et al., 1999; Schoon, 2006).

Often still thought of as an individual construct, *family stress theories* understand resilience as a family-level variable, which includes individual characteristics as well as family-level processes (Boss, 2002). Resilience is defined as the ability to recover from change, misfortune, or crisis. Recovering should be understood as bouncing back from adversity; not simply surviving but overcoming (Patterson, 2002). Coping is defined as a cognitive activity during which impending harm and the consequences of coping actions are assessed.

Vulnerabilities, such as low family coherence or low marital satisfaction, increase the chance of negative outcomes in the face of adversity (Boss, 2002). Buffers, in contrast, decrease the negative impact of risk factors. Strong family relationships, clear and functional family roles, and open family communication may all help families when facing a crisis.

Traditionally the concept of the family was defined as mother, father, and child(ren). Today's families are more complex. Groups of interacting individuals that share rituals, roles, and traditions are called a family (Boss, 2002). This definition includes a large variety of families, such as single-parent families, large multi-generational families, gay or lesbian families, married or unmarried parents with families, and many other different formats in which adults come together to raise children and share traditions, norms, roles, and rituals.

Families face normative and non-normative stressors. Stress has often been defined as a negative imbalance in a family system (e.g., Burr & Klein, 1994). In contrast, Boss (2002) and Aldwin (2007) defined stress as a chance or opportunity that the family system has to deal with. This suggests that stress is neither good nor bad. The interpretation of stress depends on the event itself as well as on the family and how it reacts to the event. Aside from the normative transitions a family faces throughout the family life cycle, non-normative stressors are unanticipated events that occur suddenly and may overextend a family's coping resources (e.g., Boss, 2002; Carter & McGoldrick, 1999; Helms & Demo, 2005). Natural disasters fall into the category of non-normative stressors, because they are often unexpected, affect a great number of people, families, and communities, and are out of the ordinary (e.g., Aldwin, 2007; Belter & Shannon, 1993; Boss, 2002; Figley & Barnes, 2005).

Family stress and crisis models.

Different models have been proposed, studied, and used to understand and explain how families deal with stressors and crisis. Most common, the *rollercoaster model of family stress*, the *ABC-X model of family stress (ABC-X model)* and *double ABC-X model of family stress and adaptation (double ABC-X model)*, and the *contextual approach to family stress* have been studied to understand and explain how a family deals with stressors and fares in and after crises. Most of these models were developed after research with war veterans, yet the processes have been extended to other stressful family situations (e.g., McKenry & Price, 2005).

Hill (1949, 1951) and Burr and Klein (1994) studied and extended the *rollercoaster model of family stress*, which was originally proposed by Koos in the early 1940s. When a crisis affects a family, the family becomes immobilized and regular functioning decreases rapidly (e.g., Boss, 2002; Burr & Klein, 1994). Depending on the family's resources and coping capabilities it may be able to recover well. The amount of time this recovery may take is termed the angle of recovery. After the recovery, the reorganization of the family sets in. Although this is the standard description of how a family would move through crisis, families have been shown to be more complex. Some families seem to be only marginally affected by a crisis, others reach a similar reorganization to the pre-crisis conditions, and again other families may even have a higher level of reorganization after the recovery from crisis (Burr & Klein, 1994; Hill, 1949, 1951).

Burr and Klein (1994) studied the family's handling of a crisis and also how the different subsystems, such as the marital subsystem, within the family fared after crisis. Different levels of crisis, recovery, and reorganization affect the varying subsystems. Although the family unit may

have reached high levels of reorganization after a crisis, a subsystem, such as the children's satisfaction, may have suffered. Figley and Barnes (2005) suggested that when one member of the family has been exposed to a disaster or trauma, this will, in varying degrees, lead to secondary trauma in the family members with whom the member who was exposed to trauma interacts. As children seem to be especially vulnerable to disaster outcomes and in certain cases display PTSD/PTSS (e.g., Bokszczanin, 2008), their continuing need can lead to a decline of the entire family system over time. The rollercoaster model has the benefit of capturing a process over time. It captures disaster impacts on children and families throughout the crisis phases. It is, however, not able to explain why some families deal with disasters better than others.

The *ABC-X model* was developed studying returning war veterans and better explained why families fare differently after disaster (Hill, 1949). The A factor stands for the stressor event, the B factor for family coping resources, the C factor for the family's perception of the event, and the X symbolizes the crisis. The crisis, in contrast to the public relations literature, is defined as one short point in time in which the family becomes immobilized and discontinues to function as usual (Boss, 2002). Positive and negative outcomes after a crisis are characterized by the difference in time this immobilization lasts. The longer a family remains in the state of immobilization the longer healing and coping processes will take, increasing negative outcomes.

McCubbin and Patterson (1982) extended this model by including post-crisis variables to create the double ABC-X model. In addition to the above mentioned factors, the double A factor stands for the pile-up of the original stressor and other stressors, the double B factor includes the original resources and newly gained ones, and the double C factor includes the original perception of the crisis but also the perception of the entire situation and family context. The

double X factor describes the adjustment to the situation and can either be well (bonadaptation) or not (maladaptation).

The *contextual approach to family stress* relied on a family systems perspective and included internal and external contexts to describe how a family may deal with and prepare for a crisis (Boss, 2002). The family has no control over the external variables, which include heredity, development, economy, history, and culture. In contrast, the family has control over internal contexts, which include psychological, structural, and philosophical factors. Both levels of factors influence all levels of the ABC-X models.

To reiterate, the response to a natural disaster crisis varies from those that are man-made, such as industrial failures, faulty products, plant explosions, or terrorist activities. These have a clear target on which to place blame (Ulmer et al., 2007). The initial reactions to severe disasters—man-made or not—are similar, justifying the reliance on research generated in other disaster settings. Long-term response, meaning-making, and disaster preparation vary more significantly according to disaster type (Baum, 1991). In the following sections the external and internal factors of the *contextual approach to family stress* are described in detail.

Contextual approach: External factors.

The family has no control over these external factors, which include heredity, development, economy, history, and culture. External factors may impact the interpretation of a disaster. If there has been a recent history of disasters, there may either be more experience and therefore more preparation (Figley & Barnes, 2005), or the second disaster is a pile-up to the first disaster event, creating additional stress or even a second crisis. In addition to the history, the culture in which families live is important. Boss (2002) suggested that many Western societies

believe in the theory of the just world, suggesting that bad things will not happen to good people. Following the logic of this theory, a family affected by disaster must not have been good. This underlying perspective may lead to additional victimization of the families and further adjustment problems (e.g., Boss, 2002; Figley & Barnes, 2005).

Other external factors important to understanding how a family may react to a disaster are the family's economic situation and that of the society in general. Poverty, for example, is a major risk factor. It may impede evacuation efforts before a natural disaster and decrease other resources that are associated with bonadaptation, for example financial resources for counseling (e.g., Patterson, 2002; Smith, 1983).

The family's life-cycle stage, or the development of a family, is also an important external factor (Boss, 2002). One example of the developmental family level refers to the age of the children. Depending on the age and development of the child, different reactions to disaster can be expected, which in turn may influence a family's adaptation after crisis (compare the discussion of the rollercoaster model above and the section on child development).

In a review of studies researching children exposed to disasters, Belter and Shannon (1993) concluded that younger children suffer more from disaster exposure than older children. The authors explained that younger children have fewer coping resources than older children. In contrast, Smith and Wilson (2000) found that older children displayed higher levels of fear and anxiety when exposed to disasters. The authors suggested that the children in this age group are better able to understand the abstract concepts of loss of life and property, whereas younger children may not be able to fully understand these concepts. Although these findings may seem contradictory, they suggest that understanding children and their fears as a sub-system of the

family is important to understanding the entire family system. The age and the developmental challenges of each child influence a family's adaptation after disasters. Similarly, it should affect a family's possibilities for preparation before disaster.

Last, heredity or the genetic make-up is another important external factor for understanding how families deal with the stress of natural disasters (Boss, 2002). Families that are prone to psychopathology are at greater risk for developing future pathologies after stressful events such as natural disasters (Cowan et al., 1996). After this review of the external factors (heredity, development, economy, culture, and history), the internal factors are presented next.

Contextual approach: Internal factors.

These five external factors (heredity, development, economy, culture, and history), which are out of the family's control, are interconnected with the internal ones, which include psychological, structural, and philosophical factors. These factors have significance when describing the A, B, and C elements of the ABC-X model. Family perception (C-factor) of a crisis is influenced by the philosophical beliefs the family members hold. Although these are influenced by the culture a family lives in, it is possible to change a family's worldview (Boss, 2002; Burr & Klein, 1994). Burr and Klein (1994) suggested that worldview changes occur on three levels. When it is not possible to overcome a stressor with small, specific changes (level I), or more meta-level changes which affect the roles and relationships of family members (level II), then the worldview of a family may have to be adjusted to allow coping with a stressor (level III).

Family perception of crisis is also influenced by the level of self-efficacy a family has (Fraser et al., 1999). If family members have a high level of self-efficacy they may be more

likely to overcome a disaster. Being familiar with coping resources and how to access them is generally helpful to quickly and successfully overcoming a disaster event (e.g., Belter & Shannon, 1993; Figely & Barnes, 2005; Reiss & Oliveri, 1980; Smith, 1983).

Aside from perception, the resources to which a family has access (B-factor) are important to overcoming and handling a crisis situation. Some resources that are of importance include media usage (Cody et al., 2007; Riddle et al., 2008), community preparedness (Morrow, 1999), having a way to ensure the security of loved ones (Smith, 1983), storytelling and family time after disasters (Walsh, 2007; Wells, 2007), and spiritual or religious support (Boss, 2002).

After presenting an overview of some of the theoretical approaches to studying family stress and crisis the next section reviews some of the relevant research in this area. Most studies focus on the reactions of children and families to a disaster, focusing on the post-disaster analysis. The authors then typically make predications or give suggestions for preparation before a crisis occurs.

Family reactions to natural disasters.

After a thorough literature review, Smith (1983) proposed different stressors that impact families in a disaster context. First, threats and warnings of disasters initiate measures to make sure loved ones are safe. Mixed messages, potential of separation from loved ones, predictions of disaster severity, and false alarms increase anxiety and uncertainty in the wake of disaster. The second stressor is attributed to evacuations (if evacuation becomes necessary). The stress of an evacuation can be mitigated by clear guidelines and definitions of actions to take and places to go. Furthermore, an assurance that homes are safeguarded and acceptable shelter is available assists in reducing anxiety. Boss' (2002) concept of ambiguous loss allows for a better

understanding of the anxiety families may feel when separated from loved ones during an evacuation before or during a disaster. Those members of the family not with the family are psychologically present but physically absent, increasing the ambiguity for the family.

The roles and relationships within a family are a third potential stressor (Smith, 1983). A family expects a protective leader, comfort giver, and provider of basic necessities during and after a disaster. As families are usually small units, separation, injury, or death from those who take on these roles can severely hinder a family's response to disaster.

The destruction of the home and community is another stressor a family may face. The disruption of routines and daily schedules reduces stability and increases stress. Exposure to the destruction after a disaster can limit families' ability to move forward. The family will furthermore be affected by stresses from economic loss, changes in routines, and loss of resources. In the United States, families are seldom self-sufficient and usually rely on governmental support after disasters. Especially if few economic resources are available, a disaster can severely challenge a family unit (Smith, 1983).

Dysfunctional coping can be found especially in families which displayed less effective coping prior to a disaster, which are not prepared for a disaster, and which are rigid and un-resourceful in reallocating roles and routines post-disaster (Smith, 1983). Outside resources become important to these families in rebuilding and in the creation of functional coping. Morrow (1999) described which additional factors increase family vulnerability. First, poverty greatly increases risks. Second, human resources such as "health and physical ability, relevant experience, education, time and skills" (p. 4) increase risks. Families caring for frail elders, young children, or people with physical or mental limitations especially face greater challenges

evacuating and responding to disasters and often have fewer resources to adequately respond to disasters. Furthermore, vulnerability is greater in minority communities and for women. Minorities face cultural differences and language barriers, potentially hindering evacuation efforts and finding assistance after disasters. Women bear a heavier burden during each stage of disaster due to traditional gender-roles of the primary care-giver in a family (Enarson, 1998; Fothergill & Peek, 2004).

Functional coping is tied to disaster preparation: anticipating the impact of disasters, having adequate reactions to the immediate aftermath (protecting self and loved ones), re-establishing routines and normal patterns, openly communicating about experiences, getting additional support from parents for children, being optimistic about recovery and rebuilding, being flexible in adapting to new situations, and making the best out of a situation (Smith, 1983). Current research studies have looked at these elements in more depth and elaborated on important connections and relationships between these elements.

Providing therapy for families post-disaster.

One set of studies focuses on better preparing therapists and counselors treating families post-disaster. In sync with Smith's (1983) suggestions, Wells (2007) found that therapists should monitor and guide by assessing the basic needs such as food, water, safety (this includes safety of loved ones), and a place to stay. After these needs are met, the focus shifts to establishing functional family behaviors. Parents will have to re-establish their role as parents, thereby creating confidence in their ability to take care of the family. Family routines and predictability need to be re-introduced. Open communication and storytelling and sharing among family members should be encouraged. An additional important aspect that Wells pointed out is that the

knowledge about the recovery process is of great importance to families—establishing normalcy and understanding of the situation.

Focusing on one specific aspect of therapy intervention, Walsh's literature review (2007) of assistance to families after traumatic loss (death as well as loss of property, safety etc.) suggested a multi-systemic, resilience-oriented approach. The belief systems of families influence coping and perceptions of the loss during disaster, and form the basis for the meaning and sense-making after the event. Hope and spirituality, a mixture of flexibility in adapting to new situations but also establishing stability patterns and routines, have been shown to be helpful in dealing with loss. In conclusion, research on therapy intervention after disaster has shown successful coping mechanisms to help families overcome the traumatic events.

Family members' responses to disasters.

Aside from the studies looking at the family as a unit, researchers have tried to understand adolescents and children's responses to disasters within the family contexts. Children and adolescents are at risk throughout normative transitions. These risks can be increased by a disaster or other crisis. Rowe and Liddle (2008) offered an in-progress report of an ongoing intervention with adolescents displaced by Hurricane Katrina who were dealing with substance abuse. Adolescents' outcomes to disaster were affected by parent coping and support as well as other stable and supportive resources. Open communication, storytelling, regaining of roles, stability and routines, and managing emotions are important, according to the research.

For example, Vigil and Geary (2008) compared survey data from 50 adolescents displaced by Hurricane Katrina and their family functioning in relocation camps to 31 non-affected adolescents (matched by demographics to the affected group). They reported that the

group affected by Katrina showed “significantly lower levels of self-esteem scores and higher symptoms of distress and depression” (p. 178) than the comparison group. In contrast to findings above, this study also showed that those teenagers, whose parents displayed mobilizing coping strategies (seeking non-familial, community-based support), suffered most from low self-esteem and high psychological distress and depression. Although a small sample, the results point to an interesting observation. The parents of the displaced teenagers were taking actions that have been considered positive use of resources (e.g. Boss, 2002; Smith, 1983), and yet, this study by Vigil and Geary (2008) showed the opposite effect on the adolescents. The authors hypothesized that social stigmatization, being reminded of the disaster event, and becoming homeless could explain the negative child-outcomes (Vigil & Geary, 2008).

Higher levels of PTSD and depression were displayed by Sri Lanka adolescents impacted by the tsunami in December 2004, in contrast to those adolescents who had not been impacted (Wickrama & Kaspar, 2007). Having experienced family loss and a mother’s depressive symptoms significantly increased depression and PTSD in the sample of 325 adolescents. The survey data collected from these adolescents and their mothers revealed that the quality of the relationship between mother and child, as well as the mother’s well-being after the disaster, had great impact on an adolescent’s PTSD levels. The better the relationship between mother and child, the more the child was buffered from the disaster impact and displayed lower levels of PTSD and depression. If the mother herself was suffering from depression after the disaster, her adolescent children were at greater risk of negative outcomes.

Another cross-cultural survey study conducted in Poland after a flooding disaster came to similar conclusions (Bokszczanin, 2008). Disaster exposure was positively related to higher

PTSD levels. The measure of parental support was extended by taking family conflict and parental over-protectiveness into account. As expected, low levels of parental support, high levels of family conflict and over-protectiveness predicted higher levels of PTSD in the sample of 533 school-aged children. Of particular interest were the author's findings that the children displayed these symptoms 28 months after the disaster.

Provided with a rare opportunity, Proctor et al. (2007), studied parenting behaviors before and after a major earthquake in Los Angeles and how these, in combination with the disaster impact, affected child distress one month and eight months after the disaster. Study results showed that the severity of loss and disruption due to the disaster significantly affected persistent child distress. Parental behavior moderated this relationship for both boys and girls.

What these and other studies show is that a large portion of children affected by natural disasters displayed at least some symptoms of PTSD or PTSS (Bronner et al., 2008). Symptoms included, among others, reliving or remembering the events in vivid memory, nightmares, avoidance of thoughts and places that are connected to the event, sleep and concentration problems, new fears, and the loss of previously acquired developmental skills (Bronner et al., 2008). These symptoms may be apparent in children up to five years after major disasters (Goenjian et al., 2005).

Research thus far has found that parental involvement and care mediated the impact of PTSD/PTSS. Children whose parents are actively involved in the grieving, coping, and sense-making processes have lower levels of PTSD/PTSS or experience a faster recovery from PTSD/PTSS (Bronner et al., 2008; La Greca et al., 1996; Saylor, Cowart, Lipovsky, Jackson, & Finch, 2003). Furthermore, the way parents themselves cope with the turmoil surrounding events

such as disasters has an impact on children's coping (Bronner et al., 2008; Wilson, 2006). Yet, overprotection (especially by the mother) has shown to lead to adverse effects, even increasing PTSD (Bokszczanin, 2008). In comparison to the minimal effect pediatric assistance has shown, the importance of parental involvement is underscored (Bronner et al., 2008). These findings suggest an important role of the parent not just for the aftermath of a disaster but point to their role in preparedness.

Family preparation for natural disasters.

Both Smith (1983) and Morrow (1999) point out the significant importance of preparation for improved coping during and after disasters. Anticipating disasters, planning evacuations, responsibilities, and allocating resources to disaster preparation improve families' responses to disasters (Smith, 1983). Morrow (1999) suggested mapping community vulnerabilities reflecting at-risk groups. Community level and family level preparation greatly improved family resilience (Smith, 1983; Morrow, 1999).

Although not directly focused on families, Pearce (2003) supported a disaster preparation approach that heavily relied on public and community participation, indirectly referring to members of families participating publicly but also taking this preparation into their own households. This approach fulfilled a dual goal. Not only communities but also families would be better prepared.

Other studies that did not focus on families have come to similar conclusions: Disaster preparedness increased resilience and positive recovery for organizations. Viewing families as a system allows the application of findings from these areas to inform family disaster preparedness to a certain degree. Organizational crisis communication literature is focused on preparation

(Ulmer et al., 2007) and preparedness can be seen as a state. Drawing on the factors Cloudman and Hallahan (2006) measured for organizations, a family would be in a state of preparedness when they have an emergency plan, have tactical strategies in place (such as checklists), training (e.g. practice names and important phone numbers with children), when they maintain contact lists (e.g. who can children turn to; numbers of important people), and regularly monitor the media (e.g. know about severe weather conditions).

One experimental study thus far has tested the effectiveness of a virtual-reality simulation as a tool to prepare children in Greece for earthquake disasters (Tarnanas & Manos, 2004). The experiment suggested that the virtual-reality programs increased resilience in the participating adolescents. Specific versions of the program increased preparedness, self-efficacy, as well as stress-inoculation. One conclusion the authors draw supports exposing children to hazards and disasters in educational settings in order to increase preparedness. Nevertheless, Cody et al. (2007) suggested using caution as media exposure to traumatic events may already lead to PTSD. In summary, this overview of family stress models and studies of families after crisis paints a complex and multifaceted picture. The review provides helpful sensitizing concepts for the interviews with families.

Research Questions

The review of the various fields and studies in risk, crisis, and disaster communication as well as family disaster impacts and family stress theories provides interesting and helpful insights into what we know about family natural disaster preparedness. It becomes clear that gaps remain between the different disciplines and our understanding of specific stakeholder groups facing crisis such as families and children. Many studies cited above mention or focus on

the importance of sense-making and perceptual dimensions of disaster events. Often the same studies continue to point out that there has been little research to capture sense-making processes, interpretations, and explanations for certain disaster-related actions.

Preparedness, one specific action that has been often cited as an essential step in managing and overcoming crises and their impacts, has also received limited research attention. Although a few studies have suggested that most people in the United States are not prepared, these do not provide satisfactory explanations as to why this may be the case and how it may be changed. Without understanding the processes in families and their sense-making during these phenomena it will continue to be difficult to increase preparedness and to find ways of reaching and engaging in dialogue those key stakeholders. Additionally, and most importantly for the purpose of this study, the focus on children and families as key stakeholders is fairly new in the risk, crisis, and disaster literature.

The literature review and the researcher's personal observations and experiences over the years led to the following two largely exploratory research questions:

Research Question 1: How do families in a higher risk environment make sense of natural disasters?

Research Question 2: How do families in a higher risk environment make sense of natural disaster preparedness?

Before the methodology will be presented in the next section, two terms used in the research questions shall be briefly explicated. First, as described above, the concept of *family* is not defined traditionally as just biological parents and child but rather as a group of adults who share traditions, values, and sense-making with children. Second, the concept of a *higher risk*

environment is used to capture some of the risk perception variables mentioned above, such as voluntariness, control, familiarity, distribution of risks and benefits, knowledge, trust, cognitive involvement, and uncertainty. A higher risk community is one that has had recent disaster experience and exposure and that will likely be impacted by a natural disaster in the future. Notes on selection and justification will be provided in more detail in the method section.

Chapter 3 - Methodology

In this section the paradigmatic underpinnings, the sample selection, data analysis, and quality control criteria of this study are presented. Quality research requires the scholar to be aware of the ontological, epistemological, and methodological assumptions that influence the research process. Much of the public relations research in general, and crisis communication in particular, has been driven by a positivistic/post-positivistic understanding. In recent years, this prominence has been challenged (e.g., Heath, 1993; Heath, 2000; Holtzhausen & Voto, 2002). A humanistic paradigm with qualitative methodology is best suited to adequately address the research questions of how families in a higher risk environment make sense of natural disasters and make sense of disaster preparedness. Furthermore, this approach is consistent with Avery et al.'s (2010) call for more diverse contextual and methodological applications of crisis communication research in public relations.

Paradigmatic Rationale

Human interaction is based on the meanings that people have constructed through their interactions with environments and use of language (Berger & Luckmann, 1966). Reality can only be understood through the interpretation of the people creating it. Humans “act toward things on the basis of the meanings that the things have for them” (Blumer, 1969, p. 2). Understanding meanings, therefore, allows people to interact with one another. In a disaster context, exploring the meaning of the event may assist in increased preparation and crisis communication.

Human life has at least two dimensions: the dimension of the “natural world” and that of the “cultural world” (Gurwitsch, 1974) or actual and perceived dimension (Heath & Millar,

2006). Similar to the risk, crisis, and disaster definitions discussed above, a world exists outside of human influence. Nonetheless, as soon as human involvement becomes part of this world, it is individually defined. Each person has an individual reality of an event based on his/her socio-historical and biographical knowledge. No two people hold the same interpretation of a phenomenon because no two people have the same life history and experiences. To understand these multiple realities, research should explore people's realities (Burr & Klein, 1994), thereby inductively assessing the meaning of a phenomenon.

Growing up, people are embedded in their "Lebenswelt" (= life-world). This is their perceptual lens of the world, the objects they encounter, the social norms they rely on, and the experiences they have (Husserl, 2002). "The life-world is defined as comprising all items and objects which present themselves in pre-scientific experience and as they present themselves prior to their scientific interpretation in the specific modern sense" (Gurwitsch, 1974, p. 17). The life-world, thus, is the foundation for all sense-making. As the world exists through the experience of people, access to the world and understanding can only be gained through a person's perceptual consciousness (Husserl, 2002).

To facilitate the understanding of realities from an ontological humanist perspective, it is essential to also learn about the context in which people live (Schorb & Theunert, 2000; Schorb, 2007). Context includes culture and biographical knowledge, as well as meaning systems on issues not directly related to a phenomenon of interest. Furthermore, context provides the researcher with a bridge or a starting point to understand the multi-faceted realities of a phenomenon and make sense of people's life-worlds. Guba (1990) suggested that "if realities

exist only in respondents' minds, subjective interaction seems to be the only way to access them" (p. 27).

A discussion of context necessitates consideration of the distinction between the physical world and the cultural world. Although a physical world—nature, for example—exists without human interaction, it is only meaningful through human experience. The cultural world, in contrast, exists only as human creation. Its properties and characteristics are tied to the meaning of the humans who created it. Therefore, cultural products can only be understood within the context in which they were created (Schorb, 2007). Understanding human behavior and communication thus requires an understanding of the cultural world as the context within which all interaction takes place.

Because experience and context are essential elements for understanding the world in the qualitative paradigm, the research process needs to be designed to capture the meaning-making and life-world of people. Interaction is possible, since people assume others have similar stocks of knowledge (Gurwitsch, 1974). Through this paradigmatic lens, the researcher is not interested in understanding the world from his or her own perspective, but in the way others perceive their reality and how they make sense of the world (Schorb & Theunert, 2000).

It also follows that impartiality and objectivity are not possible because every person is guided by his or her own stock-of-knowledge and perceptions. The researcher can only design a study in such a manner as to capture others' sense-making through his or her own lens. To ensure the quality of analysis, this lens should be described and presented clearly—developed and conducted rigorously—so that others can follow the logic, evaluation, and interpretation of the data (Schorb & Theunert, 2000). Qualitative methods, such as long interviews, are “useful and

powerful when they are used to discover how the respondent sees the world” (McCracken, 1988, p. 21). Hence, qualitative methods can best attempt to capture the complex life-worlds of the participants and their interpretations of a phenomenon.

Grounded Theory

One goal of research is theory generation (Glaser & Strauss, 1967). Qualitative research methods may be used for the construction of grounded theory. This type of theory is systematically and inductively created from social research data. In contrast to verifying and testing theory, “generating a theory from data means that most hypotheses and concepts not only come from the data, but are systematically worked out in relation to the data during the course of research” (Glaser & Strauss, 1967, p. 6). In accordance with the humanistic paradigm, the data are analyzed inductively, which means that “the patterns, themes, and categories of analysis come from the data” (Patton, 1990, p. 390).

Grounded theory has been acknowledged by numerous scholars (e.g., Charmaz, 2006; Denzin & Lincoln, 2005; Lincoln & Guba, 1985; McCracken, 1988) as a useful means of exploring new lines of research, granting the researcher a degree of liberty when identifying and interpreting emerging themes that have yet to be thoroughly developed in existing literature.

Two main directions of grounded theory research have developed since its inception in 1967. This study follows the approach proposed by Corbin and Strauss (2008), as opposed to the so-called classical or Glaserian grounded theory approach (Glaser, 1999; 2002; 2007; Neill, 2010). Glaser (2002) argued that grounded theory should not be connected solely to qualitative data analysis. He claimed that “all is data” which removes grounded theory from being so closely tied to qualitative data analysis. Glaser (2007) continued to specify that the marriage of

qualitative data analysis with grounded theory has led to a neglect of abstraction “in favor of accuracy of description” (p. 4). Neill (2010) found Glaser’s grounded theory approach less formulaic and more flexible than that proposed by Corbin and Strauss.

Furthermore, as Annells (1996) formulated, grounded theory historically leaned more to an objectivist orientation, with Glaser continuing to hold this view. In contrast Strauss and Corbin have moved grounded theory toward a subjectivist and transactional epistemology. This statement is underlined by Corbin and Strauss (2008) when they specify that grounded theory is “used in a more generic sense to denote theoretical constructs derived from qualitative data” (p. 1). Nevertheless, in this approach as well, the main premise of theory creation from data and the approach to achieving this goal are rooted in Glaser and Strauss’ (1967) original work.

Corbin and Strauss’ (2008) understanding and approach to grounded theory is followed in this study because the underlying paradigmatic assumptions align. Furthermore, the approach to research and data collection proposed by these authors as well as Charmaz (2006) are best suited to answer the research questions and explore the specific area of family natural disaster preparedness sense-making. As there are no prior studies in public relations in general and crisis communication in particular that address families as stakeholders, a grounded theory approach allows the researcher a certain liberty to identify and interpret emerging themes and integrate them into the current literature.

Charmaz (2006) stated that “using constant comparative method and your engagement” (p. 178) are core elements of grounded theory. This approach enables the researcher to develop theoretical constructs closely related to the data/the studied life-worlds. The goal of grounded theory is not verification of theory but rather the generation of theory based on data, using

comparative analysis (Glaser & Strauss, 1967). Although the goal of this approach is to generate theory, this goal may not always be fully achieved within one project (Corbin & Strauss, 2008). Furthermore, theory is a process, meaning that it is “an ever-developing entity, not (as) a perfect product” (Glaser & Strauss, 1967, p. 32).

This type of theory is securely grounded in the data, by taking comparisons from the data to create abstractions as well as tying abstractions back to the data. Glaser and Strauss (1976) stated that “most hypotheses and concepts not only come from the data, but are systematically worked out in relation to the data during the course of the research” (p. 6). This type of grounded theory may even have greater predictive and explanatory power, than theories tested in a positivistic tradition. The constant comparative process requires that emerging patterns are carefully compared and verified until repetitive and fundamental patterns can be categorized and labeled appropriately. Grounded theory researchers acknowledge as part of the process that the creation of categories and models and the modification to existing conceptualizations and models are valid and important contributions of grounded theory research (e.g., Corbin & Strauss, 2008; Glaser & Strauss, 1967).

Because “objectivity in qualitative research is a myth” (Corbin & Strauss, 2008, p. 32), recognizing the researcher as a tool of the study is important. In accordance with grounded theory, the researcher is the instrument for data collection, is immersed in the study, and shapes how research questions, data collection, analysis, and interpretations are conducted. However, to acknowledge researcher bias and opinions, a rigorous process of self-reflection through bracketing is employed. This separates the researcher’s views from the participants’ meanings.

This room for active listening to the participants is one of the advantages Corbin & Strauss's grounded theory has over Glaser's, according to Hallberg (2006).

With little existing research in the area of natural disaster preparedness for families, a grounded theory approach is most appropriate for analyzing a social phenomenon that is in need of better understanding and further study. In the following section the selection of the method is explained in more depth. The data sources, data collection, and data analysis steps and processes are presented.

Method

The data collection for this study occurred from March 2011 through October 2011. Families with children ages 8 to 12 were interviewed in their homes. In-depth interviews, field notes, and an activation technique were used to collect data. This approach provides in-depth insights into a phenomenon and allows for the participants' voices to emerge. In total 20 families participated. From each family at least one parent and one child were interviewed. In some families more than one child was in the appropriate age range, leading to a total of 48 individual interviews. All of the families lived in the greater Houston, Texas, area and had some experience with past disasters.

Participant overview.

To reference the interviews and data quickly, Table 1 provides an overview of the interviewed families, the number of participants, the date and time of each interview, and the abbreviations used to refer to each child. To ensure the participants' confidentiality, all identifying information has been removed and the participants have been assigned codes and

numbers. When referring to the entire family in text the identification is “Family” and the number of the interview. For example, Family 3 is a three-person household.

All interviews will be referenced in two separate forms. When describing a participant, parents are referred to as “P” and the number of the interview. For example, if the data is referring to the mother from the third interview, the abbreviation “P3” was used. P3’s daughter was referred to as A. (compare Table 1). However, after a direct quote from an interview, the source will be cited as the family and the number, if it was from the parent interview (P) or the child interview (C). For example, a quote from the P3’s interview would be cited in the following manner: (Family 3, P). If more than one child participated, these quotes were differentiated as C-1 or C-2.

Table 1.
Overview of Interview Participants and the Date and Time of Interviews

Interview Number and Date	Parent	Child 1	Child 2
Interview 1 March 19, 2011	Father 01:07:09	Girl, O. (11 years) 23:59	--
Interview 2 March 23, 2011	Father 41:35	Boy, B. (9 years) 21:38	Girl, T. (8 years) 24:58
Interview 3 May 1, 2011	Mother 54:22	Girl, A. (10 years) 27:05	
Interview 4 May 1, 2011	Mother 30:00	Girl, R. (10 years) 18:24	
Interview 5 May 6, 2011	Mother 33:48	Girl, J. (9 years) 21:36	Girl, C. (11 years) 23:57
Interview 6 May 30, 2011	Mother 30:24	Girl, F. (11 years) 35:08	
Interview 7 June 10, 2011	Mother 55:58	Girl, D. (9 years) 45:12	
Interview 8 June 17, 2011	Grandmother 30:44	Girl, S. (9 years) 24:42	Boy, I. (10 years) 23:02
Interview 9 June 30, 2011	Mother 34:48	Girl, U. (12 years) 13:48	Boy, M. (9 years) 22:55
Interview 10 September 18, 2011	Mother 30:40	Girl, V. (12 years) 23:45	
Interview 11 September 19, 2011	Mother & Father 33:46	Boy, JO (11 years) 37:03	Girl, E. (9 years) 29:15
Interview 12 September 20, 2011	Father 32:51	Girl, JA (9 years) 41:27	
Interview 13 September 21, 2011	Mother 41:16	Boy, Q. (12 years) & Boy, W. (9 years) 32:52	

Table 1. continued

Interview 14 September 22, 2011	Mother 32:17	Boy, N. (9 years) 20:34	
Interview 15 September 24, 2011	Mother 28:20	Girl, Z. (11 years) 19:14	
Interview 16 September 25, 2011	Father 42:23	Boy, H. (12 years) & Boy, AL (9 years) 27:03	
Interview 17 September 26, 2011	Mother 48:12	Boy, CB (12 years) 20:57	
Interview 18 September 27, 2011	Mother 34:58	Girl, L. (10 years) 34:22	Girl, K. (8 years) 33:11
Interview 19 September 30, 2011	Mother 38:11	Girl, G. (12 years) 18:16	
Interview 20 October 07, 2011	Mother & Father 41:39	Boy, P. (10 years) 32:48	

Note. Abbreviations are used to protect participants' identity and are used in text to identify the participant child from whom the interview data originated. Numerical values identify the time of each interview.

Data source.

To answer the research questions, this study relied primarily on in-depth interviewing techniques. At least one child and one parent from a family living in a higher risk area of the United States was interviewed. The sample consisted of families with children in the age range from 8 to 12 years, previously identified in the literature as the concrete phase of child development. The age of the children in the sample is of great importance.

Children in this age group are anything but a homogeneous group (Eder & Fingerson, 2003). Many developmental changes characterize these years. The children in this age range possess or are in the process of acquiring the essential skills to understand the abstract concepts of preparedness activities and disaster impacts. Children in the age group from 8 to 12 can be characterized as having a third- or fourth-grade reading level (understanding the meaning of entire texts, not just sentences or paragraphs) (Rosebrock & Nix, 2008) and the development of a higher degree of abstraction, allowing for the conceptualization of ideas such as the potential danger of natural disasters (Piaget & Inhelder, 2004). This developmental period is additionally characterized by the child's ability to understand and argue other people's perspectives and the continuing development of social and moral norms (Kohlberg, 1997; Selman, 1984). These developmental characteristics are important to the purposeful sample selection, since children should have the ability to understand and communicate about abstract topics such as disaster preparedness. Furthermore, children may also have read materials about preparedness online or in a school context. Younger children may have had less of such exposure.

Sampling.

The study was set up to recruit families through a snowball sampling technique.

“Snowball refers to the process of accumulation as each located participant suggests other participants” (Baxter & Babbie, 2004, p. 135). This purposive sampling technique was deemed appropriate for two reasons. First, especially when access to a certain population may be difficult or limited, this technique enables access by utilizing the contacts and knowledge of a small “expert” group. For example, one group of families can identify other likely families (Baxter & Babbie, 2004; Gray, 2009).

Second, in contrast to quantitative research, the goal of this study and sample selection is not to fully represent a population and provide generalizations about it. Rather, the sample is determined by the needs of the study and not by external criteria (Morse, 1994). The participants are the experts on the phenomenon and thus are selected. Consequently, the logic and power behind this form of selection is to gain an information-rich sample (Patton, 1990). Qualitative researchers are interested in variation, not sameness, especially when constructing theory variation broadens concepts and scope (Corbin & Strauss, 2008).

A diverse area with recent natural disaster exposure was selected to enable access to a diverse group of families: the greater Houston, Texas, area. According to the U.S. Census (2010), White persons made up 56.6%, with 23.6% identifying as Hispanic; black persons 18.9%; American Indian and Alaska natives 0.7%; Asian persons 6.2%; native Hawaiian and other Pacific Islander 0.1%; and persons of Hispanic or Latino origin 40.8%. Further underscoring the selection of this area, “for the first time, the majority of the world’s population resides in urban areas” (Kinder Institute for Urban Research, 2010, ¶ 1) and Houston and its

surrounding areas are among the leading urban centers in the United States. With this group of participants, the researcher hoped that unique case examples and commonalities across the participants would emerge.

However, even good planning may not work, as was the case initially with the snowball sampling technique. Although personal contacts with five families were made, none of these families was able or willing to refer additional participants. Repeated call-backs to some families and recruitment fliers with a brief purpose statement of the study did not bring further participants. Snowball sampling is suggested as a valid means for participant recruitment in qualitative research (e.g., Baxter & Babbie, 2004; Gray, 2009). Therefore, it was especially surprising that this sampling technique was unsuccessful. It may be that the first five families participated as a favor to personal acquaintances of the researcher. After completion of the interviews they may have felt that they had completed their favor and the favor did not extend to recruiting other families. Furthermore, the topic and time commitment may have decreased their interest or willingness to involve friends. The topic of preparedness may have induced a feeling of guilt or inadequacy when the families did not feel as well prepared as they thought they should be. This may have also hindered providing contacts to their friends. Although it cannot be known for sure why this technique did not work there are some reasons that may explain the lack of enthusiasm on the families' side to provide the researcher with the contact information to other families.

In addition to the problems with recruitment, certain themes about natural disaster preparedness were beginning to reach redundancy. The ethnic and socio-economic background of the five families was similar. At this point, an additional sampling technique was sought out to

compare patterns with families from a different background. As saturation of themes begins to emerge, the researcher can actively seek “non-typical” participants to ensure the redundancy extends beyond similar cases (Corbin & Strauss, 2008).

Therefore, the researcher selected to utilize a maximum variety sample (Patton, 1990). Morse (1994) described this sampling as “the process of deliberately selecting a heterogeneous sample and observing commonalities in their experiences” (p. 229). The researcher intentionally sought out people who may differ in their perspective of the phenomenon. This sampling technique enables both describing variations and finding commonalities (Baxter & Babbie, 2004).

Following the failure to recruit beyond the five families, a new point of access to families was gained at the Houston/Galveston 2011 National Weather Service Hurricane Workshop on June 4, 2011. The researcher worked as a volunteer for the Harris County Public Health and Environmental Health, Veterinary Public Health Department at this event. It was her role to provide information about preparing pets for natural disasters. Diverse families with children who appeared to be in the targeted age range were asked if they were interested in participating in this research study and contact information was exchanged. The researcher was able to recruit families from diverse ethnic backgrounds at this event. New insights and patterns complemented and extended the initial themes. For example, the Hispanic families (Families 6 & 7) were the first to display fear of disasters. Their level of preparedness varied from the first families interviewed, raising new insights and questions. Unfortunately, these next four interviews did not garner any further contacts to families.

After the first nine interviews, no additional families were found to participate. The researcher contacted churches and non-profit organizations, prepared hand-outs and other recruiting materials, and yet, none of these efforts was successful. The decision was then made to increase the monetary incentive for participating and begin another round of recruiting after the new school year had started in September 2011. A personal contact was willing to mail the request for participation through her personal e-mail mailing list. Five families responded to this request, and each was willing and able to provide one or two additional contacts after interviews were completed.

The data collection was ceased after 20 families had been interviewed. The size of the sample was determined by the point at which redundancy of major themes or saturation was achieved (Glaser & Strauss, 1967; McCracken, 1988). This point is reached when there is sufficient repetition of themes without significant new insights into the topic. Saturation should not be misunderstood as a list of categories that is compiled. Rather, the goal of research is to learn about the categories in depth, when each category or theme is explored, identifying properties, dimensions, and relationships. The researcher will determine when sufficient breadth and depth to understanding of the phenomenon is gathered (Corbin & Strauss, 2008). Redundancy was reached after the 17th interview. The final interviews had already been scheduled and were used to ensure that no further themes or patterns emerged.

The first nine interviews were conducted between March 2011 and June 2011. The last 11 interviews were conducted from September 2011 through October 2011. A few disasters occurred throughout this time period. Summaries from the field notes excerpts provide a brief overview of these events.

Field notes.

March 2011—May 2011: There were a few events during this time period that were also mentioned in some of the interviews. Before the first interview in March, the Japan earthquake and tsunami as well as the related nuclear reactor topics were in the news almost daily. This topic lingered into the next four interviews as well. Additionally, one of the worst tornado-series/storms destroyed cities in the Midwest and South. Also, the Texas drought was gaining momentum. The low level of precipitation led to the first wildfires in Texas.

June 2011—July 2011: On the first of June, hurricane season traditionally begins in Houston. The media (local TV and radio) had reports about preparedness, the hurricane preparedness workshop was held on June 4, 2011, and billboards along the interstates reminded drivers to make sure they had disaster kits prepared. The hurricane workshop was mentioned by those families who had attended it. All families mentioned the media as important in respect to preparedness and disaster knowledge. None of the families mentioned the signs along the interstates though.

August 2011—October 2011: Before the last wave of interviews, most of Texas, including Houston, was declared a severe drought area. The month of August had not seen any measurable rain. Mid-September wildfires broke out in Waller and Montgomery County, the first wildfires this close to Houston. Furthermore, the researcher was almost evacuated from her own home due to a brush-fire that broke out in George Bush Park. Luckily, this fire was brought under control before it could threaten any of the communities around the park. Disaster discussions focused on wildfire prevention in the Houston city parks during this time frame and were included in the interviews after the first families brought these topics up.

September 2011 also saw Hurricane Irene threaten the East Coast of the United States. This hurricane was not brought up by the participants in the study though. The 10-year memorial of the September 11 terrorist attacks was mentioned by a few families. However, no connection was made between these events and preparedness. The event was used to describe how parents discuss difficult or emotional topics with their children.

Demographic information.

The participants consisted of five fathers, 16 mothers, one grandmother, 16 girls, 13 boys, for a total of 48 individual interviews. The parent interviews lasted from 28:20 minutes to 67:09 minutes. The child interviews lasted from 13:48 minutes to 45:12 minutes. Although designed to interview only one parent in each family, in two cases both parents wished to participate (Families 14 & 20). Additionally, one interview consisted of both children responding together, rather than in separate interviews (Family 16). For the analysis two interviews with children (Families 10 & 13) were excluded because both children were below the age of 8. These interviews were conducted because the children had wanted to participate, just as their older siblings had.

Three of the participating families were Hispanic, four African American, 11 Caucasian, and two were blended families, out of which one was Caucasian-African American and the other Caucasian-Hispanic. All of the families resided in the greater Houston area, which included families living in evacuation zones (e.g., League City, Texas) and those along evacuation routes in west and north Houston communities (such as Katy, Texas, or Cypress, Texas).

Relying on the field notes and observations as well as interview data, the social economic status (SES) of the families ranged from lower/low-middle to higher SES, with 11 families

falling into a level of medium SES (Families 3, 4, 8, 11, 12, 15, 16, 17, 18, 19, & 20), five falling in the range of medium to high or high (Families 1, 2, 5, 9, & 14), and four falling into a lower to medium SES (Families 6, 7, 10, & 13). The operationalization of SES was based on the observations, rather than a quantitative assessment. The categories were based on a mixture of the living situation, the neighborhood, and the evaluation of financial worries which emerged in the interviews. For example, Family 7, a lower SES family, lived in a small two-bedroom old-style apartment complex. The two daughters each had their own bedroom. Their mother, however, slept in the living room. The mother was unemployed and financial problems were a constant worry for the entire family. In contrast a higher SES family, Family 2, owned their large multi-bedroom house with pool. The family had a large backyard, new cars in the drive way, and lived in a higher-end neighborhood. Financial worries were not mentioned or hinted at throughout the interviews. Families in medium SES fell between these two ends of the continuum, whereas those families who mentioned more financial worries were closer associated to the lower end of the continuum.

The demographic information above clearly indicates that the sample of families is diverse in respect to ethnicities, living location, and SES, and also includes diverse family forms. Both blended families included children from prior relationships or marriages. One family was in the process of divorce at the time of the interview with unsettled custody arrangements. Furthermore, one of the children interviewed had behavioral problems and two additional families mentioned learning challenges their children faced.

Although all families lived in the greater Houston area at the time of the interview, about one-third of them were not originally from Houston or Texas. Yet, except for family 9, all of the

families have lived in Houston for more than 10 years. Family 9 moved to Houston from Canada. The diverse nature of the sample is in line with the goal for a variety sample. At the onset of the study, it was not clear if the diversity would require a larger sample to reach saturation, yet, redundancy in main themes (e.g., preparedness) was reached.

Family contexts.

As context is important to thoroughly understanding a phenomenon, different steps were taken in this study to capture contextual differences and influences. First, the families participating in the interviews were selected from a higher natural disaster risk environment. Research has shown a link between experience, control, familiarity, and knowledge to risk perceptions and suggests preparedness actions are tied to these (see literature review). Therefore, an area with a recent history of hurricanes was selected. In 2005, Hurricane Rita led to a major evacuation of the larger Houston metropolitan area. Three years later, in 2008, Hurricane Ike caused larger-scale destruction in the same area. Children between ages 8 and 12 living in this area most likely have had some experience with one or both hurricanes. In most cases, children remembered the events surrounding Hurricane Ike, exceptions were those families who were not in Houston during that time and the youngest children, as for example K.

Additionally, Harris County describes itself as the best prepared metropolitan area for disasters and is a national model for natural disaster preparedness and response (Harris County Office of Homeland Security and Emergency Management, n.d.). In June of every year hurricane season begins and, with it, the proliferation of preparedness messages in the greater Houston communities.

As the second element to capture context, families were interviewed in their natural surroundings (Schorb & Theunert, 2000). The interviews were conducted at the places in which the participants felt most comfortable. In all cases, except for Family 13, the place was the family's home. For Family 13, the interview was conducted in the mother's home, which at the time was not the place where the children lived. The children visited that day and were available for the interview. Interviewing in the home serves two goals. First, the individual is in a private space and may feel more comfortable speaking about personal experiences. Second, the researcher gains additional insight into the context in which the participants live, better assisting in understanding his/her life-world and reality (Hocke & Peißker, 2008; Schorb & Theunert, 2000).

Data Collection

Within the ontological orientation of the literature and studies that are providing a framework for this research project it is warranted to acknowledge the implicit theoretical orientations that guide the data collection techniques utilized. The choice of a qualitative dissertation based on grounded theory suggests that the theoretical orientation guiding data collection is twofold: (1) meaning and reality exist in the reconstructed narrative, and (2) meaning and reality exist through interaction.

The first, meaning and reality exist in the reconstructed narrative, assumes that meaning is developed from the retelling of experiences via stories. Thus the reliance on an interview guide that strives to elicit family stories about crisis preparedness and behaviors during a crisis, as well as contextualizing family stories. The second, meaning and reality exist through interaction, is a more classic symbolic interactionism perspective based on the idea that meaning is constructed

through interaction with others and self. A semi-structured interview guide provides the flexibility for engaging in dialogue as opposed to “object as reality” type questions and further warrants the use of an activation techniques with the children interviewed and self-reflexive techniques.

As Morse (1994) suggested, research questions interested in exploring meanings are best answered using in-depth interviews. In addition, an activation technique, and field notes were used to gather data (details for each method of data collection below). The use of multiple methods allows the researcher to gain “a more holistic view of the setting” (p. 224) because he/she has different lenses or perspectives on the phenomenon. Human experience is complex requiring complex methods to more fully capture the phenomenon (Morrison, Haley, & Sheehan, & Taylor, 2002). Additionally, as Eder and Fingerson (2003) stated, when conducting interview research with children it is important to use more than one data collection technique. Due especially to the inherent power differential between an adult interviewer and children, the authors suggested different formats to increase children’s ability to express themselves in their own language. Both the activation technique and the field notes are adaptations to what Eder and Fingerson (2003) term observation and natural surroundings.

The long interview.

Interviewing, and in particular the long interview, is very powerful in revealing descriptive and analytical processes. As McCracken (1988) stated:

The method can take us into the mental world of the individual, to glimpse the categories and logic by which he or she sees the world. It can also take us into the life-world of the individual, to see content and pattern of daily experience. The long interview gives us the

opportunity to step into the mind of another person, to see and experience the world as they do themselves. (p. 9)

Hence, this method is the best choice to explore the realities and experiences of families and children to understand natural disaster preparedness. Furthermore, McCracken (1988) suggested that gaining access for prolonged periods of time to certain populations, such as families, is difficult, making interviews a valuable alternative to other qualitative methods, such as observation. Eder and Fingerson (2003) mirrored this sentiment. Topics such as preparedness are not usually part of natural child and youth conversations. In order to understand how children make sense of natural disasters and preparedness, interviews are the best choice.

In the long-interview research design, the researcher becomes the instrument of data collection with the goal to be unobtrusive and non-directive, capturing the naturally evolving stories of all participants in their own words and according to their own logic. An emergent discussion guide fulfills both of these essential requirements: It allows flexibility to follow the participants' logic, but it also keeps the interview focused on the phenomenon (McCracken, 1988).

One interview with a mother of two children was conducted in the course of a graduate-level research methods seminar. This interview provided preliminary insight into the topic and revealed the following broad areas as guidelines for the initial interviews (see Appendix A): the participant and family life, media usage in the family, natural disaster experience, and natural disaster preparedness. As stated above, the context in which a person grows up and lives in shapes the individual's reality. Getting to know the participants, therefore, not only creates trust but also provides the necessary background for interpreting the results.

An emergent design describes both the nature of data collection and analysis (Corbin & Strauss, 2008). The analysis of data ideally begins with broad, grand-tour questions in the first few interviews. In this study, a few additional themes emerged in the first few interviews, such as emergency preparedness at the home (fire) and ideas for improving preparedness. These were incorporated into the subsequent interviews. Through the comparison of the categories and themes from each new interview with those conducted before, the phenomenon becomes clearer and the interview guidelines more refined (Corbin & Strauss, 2008; Morrison et al., 2002). There was an additional shift in some themes. The first nine interviews were conducted before or at the onset of hurricane season and included this as a topic, whereas the last 11 included other natural disasters, such as the wildfires in the area (Waller and Montgomery County) and the drought conditions. As mentioned above, the topic of the 9/11 terrorist attacks came up in some of the later interviews.

Most interviews, nevertheless, addressed all areas of the discussion guide. McCracken (1988) suggested that the setting of the interview may create roles and expectations for and from both interviewer and interviewee. Although clearly identified as informal conversation style and beginning with everyday questions, many participants seemed to prefer a more formal interview setting with questions they could “answer.” This trend was apparent in some of the child interviews as well. Eder and Fingerson (2003) suggested that the interviewer should use a comfortable and known setting for interviews with children and try to create an atmosphere of open story-telling. For some children this worked better than with others. Some of the children brought toys and books to the interview to share with the interviewer (e.g., JA., D., & K.)

The parent(s) were interviewed first. Interviewing was deemed the best form of communication for them to express their realities (Schorb & Theunert, 2000). After the initial introduction, consent for the research was gained from the participants, in accordance with the IRB protocol. During this process the researcher ensured confidentiality to the participants, building trust. This was important so that the participants openly shared their experiences without fear or worry that they may be harmed by doing so. Before the parent interview was completed, the parents were also asked for permission to interview their child (or children) separately.

The children were interviewed separately when possible. Hocke and Peißker (2008) and Schorb and Theunert (2000) suggested this format for interviews with families. Other researchers have decided to interview children separately from their parents (e.g., Afifi & Keith, 2004; Shegar & Weninger, 2010). Children have their own views and may not be able to voice them when their parents are present. Furthermore, some children will try to answer “correctly” or in a way that pleases the parents (Diekmann, 2001). Eder and Fingerson (2003) encouraged a separate interview approach as well. The authors suggested that due to the inherent power imbalance between children and adults, children would be able to respond more freely in a setting without their parents. It follows that the researcher has to be sure to reduce this power imbalance as well.

If the adult requested to be present during the interview with the child, the researcher asked that the child would be allowed to respond freely without adult intervention. Although this was the goal, it was not always possible. While most children were interviewed separately, in a few cases parents stayed during the interview and intervened. Another setting was that the

parents remained in listening distance, working for example in the kitchen or adjoining office with open doors. It became clear in only one case (Family 2) that the parents had “coached” the children on preparedness information before the interviews. In other families (e.g., Families 18 & 20) the parents made sure that the children did not know much about the interview topic ahead of time.

The interviews with the children followed a more structured format than the adult interviews, although the main themes mirrored those of the adult interviews. As children in this age group are still in the process of mastering spoken language and abstractions, this verbal form of expression may be harder, especially for the younger children. Providing more structure and guidance increased the child’s ability to tell his or her story (Schorb & Theunert, 2000). However, the long-interview design in this study also allowed for flexibility in case children were more active in shaping the course of the interview. For example JA, D, and K were very active storytellers. In contrast, children in Family 8 seemed to prefer a very structured question-answer approach. The interview approach selected here allowed the researcher to follow the children’s logic and sense-making or provide more structure—as needed in each case.

Before the interview, each child was asked if he or she wished to participate and was provided with the assent form. Although not a requirement of IRB, the researcher deemed the assent form as an important tool to reduce the power imbalance between the child and the adults (e.g., Eder & Fingerson, 2003). Every child had the right to discontinue the study. Furthermore, the time prior to the interview allowed the researcher to observe the child and engage in talking about unrelated topics, which Eder and Fingerson (2003) advised as an important precursor to the interview. By following these steps the child’s language and reactions were observed. For

example, T and the researcher talked about painting finger nails before the interview began. To increase comfort and free communication with the child, these observations were important. When possible, the researcher picked up on cues and language of the child. K, for example used the word “creepy” throughout the interview. The interviewer picked up on the term. Both the child and interviewer used the term to describe different experiences.

The interview with the child began by getting to know the child (see Appendix A). This included topics about what the child enjoyed doing and getting to know the leisure time activities and other interests as well as his or her media usage. Additionally, the children were asked if they knew their first and last names, telephone number, and address, which are essential elements of a family crisis communication plan (Ryan et al., in press). The last part of the interview focused on disasters in general and what knowledge and understanding the child had about these topics.

Activation technique.

In addition to the interview and in order to better understand children’s sense of preparedness, an activation technique was utilized (e.g., Boddy, 2005; Eder & Fingerson, 2003; Hocke & Peißker, 2008; Ramsey, Ibbotson, & McCode, 2006; Schorb & Hartung, 2003). Eder and Fingerson (2003) found that the more natural the setting can be for children, the more comfortable they will be to share with an adult interviewer. Part of this natural setting is game playing. The activation technique was created as a playful element to mirror a natural process that children are familiar and comfortable with.

Furthermore, the goal of using the activation technique is at least two-fold. First, children may not be as able to fully express their knowledge and emotions in words. A stimulus is

presented to the participant in hopes that it will trigger repressed or otherwise hard to express thoughts, feelings, or opinions (Boddy, 2005; Ramsey et al., 2006; Schorb & Hartung, 2003). This technique allows better insights into the child's understanding of the topic. Especially since words may not yet be the preferred means of expression for children in this age group, playful techniques such as this have the ability to open new and more in-depth understanding of the child's experiences and sense-making (e.g., Eder & Fingerson, 2003; Schorb & Theunert, 2000). Furthermore, researchers working with children have suggested that providing children with many forms of expressions is a form of good research (Greig & Taylor, 1999; Schorb & Hartung, 2003; Schorb & Theunert, 2000).

Second, the activation technique is used to trigger more in-depth understanding of what disaster preparedness means to children. Similar to projective techniques used in marketing and advertising research, these techniques allow participants to respond "in ways in which they otherwise would not feel able to" (Boddy & Ennis, 2007, p. 25). The goal is to allow the participants to express their thoughts or feelings that they may otherwise not be able to express.

After the first part of the interview, the researcher asked the child if he/she would like to pack a disaster kit. The researcher brought a backpack filled with different materials. Some of these are traditionally recommended for disaster kits, including water, non-perishable foods, flashlight and batteries, clothing, money, medication, blanket, and a first aid kit (Ryan et al., in press). Others could be used for camping or other "adventure" trips, such as rope, compass, books, camera, stuffed animal, cell phone, and a Nintendo DS.

After all the materials were taken out of the backpack the child was allowed to look through them and was asked to decide which things should be part of the disaster kit. The

children placed those materials that they thought would be part of the disaster kit into the backpack. The researcher asked questions about the reasons the children had for packing each item. Also, this allowed asking in more depth about past experience, if for example any one had been hurt during a hurricane or if the children played with toys during the last hurricane.

After the first few interviews it became clear that the children distinguished between things they thought had to go into the kit and things they would like to take. The researcher then used this categorization for the later interviews to make the packing easier to understand. The children were asked which things “had to go into the kit,” which ones “could go” and which ones “should probably not go” into the kit.

The activation technique succeeded in achieving both. A better understanding of what is essential to children, which things they view as important to themselves, and their conceptualization of disasters, preparing for them and living through them became clearer. Except for U, a 12-year-old girl, all kids were happy to pack the disaster kit with the researcher and provided thoughtful explanations. Most children enjoyed playing the DS, flipping through the books, or trying to figure out the compass. Some even brought their own materials that they would take.

At the end of the interviews, the researcher informed the child and parent about the recommended contents for a disaster kit and provided additional information and games that can be used to prepare the family for disasters (see Appendix B) as part of the debriefing process. In accordance with IRB regulations and as a potential means to assist the participants, each family received contact information for psychological counseling resources. None of the interviewees required this assistance because of the interview process.

The initial nine families received \$25 for their participation after completing the interview. This amount was increased to \$75 for the last 11 families. None of the families decided to end the interview early or wished to discontinue their involvement with the project.

Field notes.

Field notes are a common form of data collection in participant observations (e.g., Shegar & Weninger, 2010) and ethnographic studies (e.g., Palenchar, 2008). As this study relies mainly on the interview data, the field notes are used supplementary for contextual information (e.g., Hocke & Peißker, 2008). They were used to capture contexts and experiences before and after the interview recordings. In addition to these types of field notes, the researcher also recorded personal experiences, chronological order of events, and topics, issues, and emotions that arose throughout the interview process. Traditionally, this is referred to as a reflexive journal (Baxter & Babbie, 2004).

After each family interview was completed, the researcher compiled field notes. The notes were not compiled during the interview in order to remain unobtrusive and attentive to the interview process. The field notes were usually compiled within the hour after the interview. These notes incorporated the setting of the interview, the family constellation and communication, non-verbal behaviors, and family descriptions (Hocke & Peißker, 2008; Schorb & Theunert, 2000). In addition, first insights into the family and about the topic were noted, new emerging themes mentioned, and additional material that may have been mentioned before or after the recorder was on (Corbin & Strauss, 2008; McCracken, 1988). The field notes provided the foundation for the first step in reflection and analysis of each interview (Morrison et al., 2002), which will be discussed in the next section.

In this reflexive journal, the researcher documented her personal development and experiences with the topic and participants throughout the interview and analysis process. This self-reflection allowed her to actively separate personal experience from the participants' understanding of the phenomenon (Corbin & Strauss, 2008). These bracketing experiences were usually recorded before and after an interview. In addition, during the analysis notes were made about her personal experience and thoughts about the data. Also, whenever disasters or preparedness information caught the researcher's attention she tried to note this in her journal.

Data Analysis

The challenge of qualitative interviews is to make sense of the large amounts of data collected. The first essential step in organizing the evaluation process is focusing on the analysis and answering the research questions (Patton, 1990). Additionally, being open to new unanticipated insights is important (McCracken, 1988). Glaser and Strauss (1967), McCracken (1988), and Patton (1990) agreed that there are different processes that may assist the researcher in the analysis of the data.

According to Corbin and Strauss (2008) coding and analysis are two elements of one process. Coding allows for the broader discourse of collected data to be organized in manageable pieces of information. These are then grouped into categories, which explain the emerging themes and substantiate the theoretical claims derived from the analysis. Corbin and Strauss described the analysis and coding process as follows:

Analysis involves what is commonly termed coding, taking raw data and raising it to a conceptual level. Coding is the verb and codes are the names given to the concepts derived through coding (...) It (coding) involves interacting with data (analysis) using

techniques such as asking questions about the data, making comparisons between data (...) in doing so, deriving concepts to stand for those data, then developing those concepts in terms of their properties and dimensions. (p. 66)

As mentioned above, analysis is not a linear process that begins after data collection is completed. In contrast, in grounded theory research ongoing considerations of main codes and categories are made (Corbin & Strauss, 2008). Different analytic tools can be used by researchers to make sense of the data. Already mentioned above, constant comparison is one analytic tool in this study.

Another important tool was the use of questions. As the level of abstraction increases in the analysis process, so does the nature of questions (Corbin & Strauss, 2008). Whereas at the initial coding level questions about what is happening in an incident are asked (sensitizing questions), and theoretical questions address the nature of relationships between categories. Questions evolve and change with the research project. One example of the usefulness of questions as an analytical tool was when the comparison between the preparedness level of the home in Family 6 varied greatly from that of the five prior families. The researcher asked different questions of the data that could help explain this difference. The questioning and comparing of data pieces revealed that only Family 6 lived in an apartment, whereas all the other families were house-owners. This category of home-ownership continued to be revised through questions and comparison with continuing interviews, revealing that it is not the ownership of the home that makes a difference but the history a family has with the home.

The transcribed interviews were the foundation for the analysis. Each participant, parents and children individually, was asked for permission to audio-record the interviews. The

recordings were transcribed shortly after each interview was conducted. The researcher had transcription assistance for half of the first nine interviews from transcribers who signed a confidentiality agreement, in accordance with the IRB protocol. Before analysis of the transcribed interviews, the researcher listened to each interview and made changes or corrections if necessary. The transcripts and the field notes were the foundation for the analysis. Every family is one unit of analysis, capturing the families' natural disaster understandings and disaster preparedness. Nevertheless, there remained the challenge of giving each participant their individual voice and place in the analysis process as well (more below).

Although usually only two or three members of a family were interviewed, taking a family perspective justified a family-level analysis. Furthermore, in comparing the few families in which both parents participated to those with only one participating parent, it became clear that one parent usually was able to provide thorough insight into the family communication, decision making, and sense making processes. Selecting to analyze the data from a family perspective provides further support for analyzing the data from a family perspective.

The continuous analysis after the data had been collected and transcribed involved a rigorous process of evaluation. The data was analyzed to identify categories and concepts. Using comparative analysis and questioning, each interview was individually analyzed and interpreted to provide initial categories that were compared with the following interviews. Three types of coding were identified: open coding, axial coding and selective coding. Corbin and Strauss (2008) stated that open coding and axial coding go hand in hand. The authors continued to describe analysis as a fluid process that requires backtracking, re-checking, and constant

comparisons. However, following this intense process reveals sound categories with valid connections.

Open and axial coding.

The first, open coding, is the breaking apart of data and “delineating concepts to stand for blocks of raw data” (Corbin & Strauss, 2008, p. 195). In this stage similar concepts can be compared to each other. Conceptual categories and subcategories are developed. Axial coding is the “crosscutting or relating of concepts to each other” (Corbin & Strauss, 2008, p. 195). In this step relationships between open codes are identified with the goal of developing core categories, which are “aggregates of the most closely interrelated codes” (Park & Qin, 2007; p. 63).

The interviews were coded line by line; Thoughts and ideas creating codes and concepts. These theory-building blocks were compared to each other, from interview to interview. Due to the nature of this study and the family units, the researcher added a layer of contextualization during the open and axial coding. Integration of context is an important step during the analysis process (Corbin & Strauss, 2008). Each parent interview was coded first, the child interview(s) followed. The open codes for were compared within one family and subcategories emerged. For example, in Family 5, J said, “*I just talked to about my mom and dad mostly,*” her sister C commented, “*I kind of know what to do from my parents,*” and P5 explained, “*We have talked about that; the kids know where to go.*” Each utterance is part of shared family communication between parents and children. These subcategories, when they emerged in other family units were compared for differences and similarities. For example, family communication developed as a continuum between open flow of communication and closed or little flow of communication between parents and children.

After the initial analysis of each family, a brief family profile was created to capture and describe subcategories, family format and structure, and provide the developmental stage of each child. These family profiles were integrated into the analysis process.

For some codes, a distinction between adults and children became apparent. In these cases the researcher went back to the initial codes from each interview and compared it not within the family but among adults and their children. To clarify, the emotional response to a disaster, for example, differed between parents and children. There was one family-level reaction, but there also emerged distinct parental responses. One of these was the “wish to protect the family from harm.”

During the axial coding process, the open codes were collapsed into categories. These categories were refined throughout the comparison and questioning process and connections and relationships between the categories crystallized. For example, as family patterns emerged, connections between communication behaviors and children’s disaster understanding became more pronounced. In a reflexive process, these patterns and relationships were then again compared with the data to ensure the accuracy of the relationship.

During the open and axial coding process, media usage emerged as less influential or important in connection to disaster and preparedness sense making. The media usage and discussion of media outlets greatly enhanced the understanding of family structure and communication, however, did not emerge as a category with strong relationships or connections to disaster experiences or preparedness. Although it had emerged during the interviews as helpful and important, the in-depth analysis revealed that media had less importance in the connection to

the axial and core categories. It will therefore not be individually presented in the analysis below but is used to describe the other categories, such as family context.

Selective coding.

The last step, selective coding, raised the level of abstraction. Core categories are selected from the axial coding process. The categories from the axial coding were directly or indirectly connected to the core categories (Park & Qin, 2007). This process included reviewing the core category for internal consistency and gaps in logic (Corbin & Strauss, 2008).

Natural disaster preparedness initially emerged as the potential core category. The relationships between the family contexts, natural disaster sense-making, and preparedness seemed to support this selection. However, in the process of filling in gaps and checking for consistency between the axial coding categories and the core category (Corbin & Strauss, 2008), gaps emerged that triggered a revision of the core category. Following some revision, the core category for this study was *hurricane preparedness*. This encompassed the main themes, had the highest explanatory relevance, and theoretically explained what the study was about.

After the analysis is completed, the findings need to be presented, which McCracken (1988) described as a difficult task due to the large volume of information gathered. Since not all information can be presented, focus on exploring the research questions is required. The concepts and categories are presented and defined, which makes up the “thin description” of the theory (Patton, 1990, p. 430). The “thick description” comes from the data itself when describing the meaning of these categories through the words of the individual participants (Patton, 1990, p. 430). Therefore, categories that emerge or are identified by the participants are indigenous concepts or emic terms. If the participants do not use emic terms or such concepts do not emerge,

the researcher may then use sensitizing concepts to describe them (Patton, 1990). As some findings are more important than others, it is the researcher's responsibility to point to these varying levels of importance as well as to "sort out the strengths and weaknesses of various parts of the description, analysis, and interpretation" (Patton, 1990, p. 431).

Quality Control

As Corbin and Strauss (2008) pointed out, there is a large variety of formats to judge the rigor and quality of qualitative research. In contrast to quantitative research, where validity and reliability are the criteria by which to judge the quality of a study, qualitative research is judged differently (McCracken, 1988). In this study, the quality of the research is ensured through the following means: (1) adhering to criteria of adequacy and appropriateness of data (Morse, 1994), (2) carefully documenting the audit trail (Morse, 1994), (3) having self-awareness (Corbin & Strauss, 2008), and (4) having training or experience with qualitative research (Corbin & Strauss, 2008), all the while following established, rigorous data collection and data analysis procedures.

The first means to achieve a high quality study is by adhering to the criteria of adequacy. This refers to the amount of data collected or the point of sufficient data collection, the point of saturation (Morse, 1994). The appropriateness of the data refers to the selection of participants according to the needs and the emerging design of the study. Both the criteria of adequacy and appropriateness of data are closely connected. Through the emergent design the selection of the appropriate cases to answer the research questions can be checked. The data collection is completed when saturation is reached. In this study, for example, a wide variety of families participated, spanning different ethnicities, socio-economic status, living situations, and family

types. Even with this high level of variety, common categories emerged that explained, defined, and categorized the data.

Carefully documenting the audit trails is the second form of quality control. A clear connection and presentation of the research process is important (McCracken, 1988; Patton, 1990). The project has been documented from its conceptual development and data collection to a clear presentation of the results with supporting materials. This includes the presentation of the results with thick descriptions, which highlight how the interpretations and conclusions were drawn (McCracken, 1988; Patton, 1990). Additionally, the process of generating grounded theory needs to be presented in such a manner that it becomes clear that careful analysis and not researcher bias led to the results.

One way to achieve this, the third form of quality control—having self-awareness, is bracketing prior to beginning data collection and throughout the data analysis (McCracken, 1988). The researcher captured her experiences in a reflexive journal format to separate her own experiences and opinions from the data interpretation process (Baxter & Babbie, 2004; Corbin & Strauss, 2008). These bracketing experiences were usually recorded before and after an interview. In addition, during the analysis notes were made about the personal experience and thoughts about the data. Throughout the analysis process personal reactions to the data were recorded to separate researcher experiences from overshadowing participants' perspectives.

Another element of self-awareness was suggested by McCracken (1988). He stated that familiarity with the culture studied may hinder or prevent new insights. As the researcher in this study is both an outsider to the culture she is studying but also familiar with it after having lived in it for a more than five years, there was more distance and yet enough familiarity to understand

the participants' realities. Furthermore, McCracken (1988) suggested that curiosity is another way to maintain an open mind to new and emerging ideas. Throughout the process curiosity and wonder were a great part of the researcher's quest to understanding the participants' realities and sense-making.

Corbin and Strauss (2008) suggested that having training and experience in conducting qualitative research enhances the quality of a study. Similar to a quantitative-research education, it is important to learn to identify themes, provide thick description, construct in-depth narrative, and build theory. The researcher has been trained in multiple qualitative methods and has conducted various studies using a variety of qualitative methods in the past, such as in-depth interviews with children and parents and qualitative content analysis (e.g., Hilyard et al., 2011; Hocke & Peißker, 2008; Hocke & Palenchar, 2010).

All of these elements ensured the quality of the conceptual foundation, the data collection, and analysis in this study. In the following sections the analysis of the interviews is presented and the research questions are answered. Furthermore, an integration of the findings with prior research will be provided and conclusions for future studies and the application of the findings are drawn.

Chapter 4 – Findings and Discussion

The research questions were answered through the analysis of the data relying on the approach specified by Corbin and Strauss (2008). The analysis began with identifying open coding categories and their properties, followed by the axial coding in which the relationships between different categories were categorized and described. The core category that emerged was *hurricane preparedness*. The analysis was focused on the categories related to this core category. The research questions were answered in the description of relationships among the categories.

To reiterate, the analysis involved three steps of coding: open, axial, and selective coding. In the open coding stage, chunks of text were organized in coherent categories, categories were labeled, and the incidents were compared with other categories (e.g., Lindlof & Taylor, 2011; Smith, 2010). These categories were re-organized and refined throughout the analysis process, resulting in 25 open codes (compare Table 2 below). In the axial coding stage connections among the categories were made. Throughout this process new categories emerged by either collapsing existing categories or broadening existing categories. This led to three axial categories with eight subcategories (compare Table 2). In the last step the core category, *hurricane preparedness*, emerged through selective coding.

Each category is described below including the respective open codes and excerpts from the interviews. This “thick description” (Patton, 1990) provides the reader with a close-up look into an aspect of the participants’ life-worlds. Intertwined with the participants voices are the researcher’s interpretations, allowing the reader to judge the plausibility of these interpretations (Smith, 2010).

The first category that emerged in relation to hurricane preparedness was family context, specifically *family life*, *family home*, and *family time and family communication*. To answer research question one (How do families in high risk environments make sense of natural disasters?) the categories of *disaster definitions* and *disaster experiences* emerged. To answer the second research question (How do families in a higher risk environment make sense of natural disaster preparedness?) the following categories emerged: *material preparedness*, *preparedness planning*, and *preparedness knowledge*. The connection of these categories will be demonstrated in the proposed hurricane preparedness model (Figure 4).

Table 2.

Coding Scheme of Disaster Sense-making and Hurricane Preparedness

Category	Subcategory	Open Codes
Family Context	Family Life	Demographics and family formats
		Family lifestyles
	Family Home	Home ownership
		History with the home
		Damages to the home
	Family Time & Communication	Open communication flow
		Less/lower flow of communication
		Active seeking of family time
		Passive family time
		Active media usage
		Passive media usage
		Conformity vs. non-conformity
Natural Disasters sense-making	Disaster Definition	Formal definition (agent, destruction, preparedness, fear, not knowing)
		Emotional definition (fear, protection, or acceptance & amazement)
	Disaster Experience	Hurricane Ike experiences
		Childhood experiences
		Other natural disaster experiences
Preparedness	Material Preparedness	Supplies and materials
		Home preparedness
		Disaster kit
	Preparedness Planning	Evacuation planning
		Planning for separation
	Preparedness Knowledge	Family
		Media and official sources
		Common sense and learning

To ensure a quick identification of the interviewed participants and families, Table 3 provides a condensed overview of the interviewed families with their assigned codes and numbers. When referring to the entire family in text the identification is “Family” and the number of the interview. To identify parents, the letter P and the number of the interview is used. Children have received letters to identify them. Additionally, direct quotes are attributed to the family and either the parent or child interviews.

Table 3.

Overview of Interview Participants and Identifying Codes.

Interview Number and Date	Parent	Child 1	Child 2
Family 1	P1 Father	O (Girl, 11 years)	--
Family 2	P2 Father	B (Boy, 9 years)	T (Girl, 8 years)
Family 3	P3 Mother	A (Girl, 10 years)	
Family 4	P4 Mother	R (Girl, 10 years)	
Family 5	P5 Mother	J (Girl, 9 years)	C (Girl, 11 years)
Family 6	P6 Mother	F (Girl, 11 years)	
Family 7	P7 Mother	D (Girl, 9 years)	
Family 8	P8 Grandmother	S (Girl, 9 years)	I (Boy, 10 years)
Family 9	P9 Mother	U (Girl, 12 years)	M (Boy, 9 years)
Family 10	P10 Mother	V (Girl, 12 years)	
Family 11	P11-M Mother & P11-F Father	JO (Boy, 11 years)	E (Girl, 9 years)
Family 12	P12 Father	JA (Girl, 9 years)	
Family 13	P13 Mother	Q (Boy, 12 years) & W (Boy, 9 years)	
Family 14	P14 Mother	N (Boy, 9 years)	
Family 15	P15 Mother	Z (Girl, 11 years)	
Family 16	P16 Father	H (Boy, 12 years) & AL (Boy, 9 years)	
Family 17	P17 Mother	CB (Boy, 12 years)	
Family 18	P18 Mother	L (Girl, 10 years)	K (Girl, 8 years)
Family 19	P19 Mother	G (Girl, 12 years)	
Family 20	P20-M Mother & P20-F Father	P (Boy, 10 years)	

Family Context

The first category is family context, which consists of the subcategories *family life*, *family home*, and *family time and communication*. Each is described in more detail below. As part of the initial coding process, family profiles had been created.

Family life.

Family life was comprised of two codes. First, the demographics and family formats and second, the busy lifestyles families described. Each section will be underlined with thick description. In general, there is a lot of variety in both demographics and family formats in this sample of 20 families.

Demographics and family formats.

The sample of families investigated in this study consisted of diverse family types. Twelve of the families were characterized as more traditional, meaning two-parent households. Four were single parent families (6, 7, 13, & 15) with one undergoing a divorce at the time of the interviews (Family 6). Two were blended families with children from prior relationships or marriages (Families 10 & 20), and two were multi-generational families (Families 8 & 12). In many of the non-traditional families, extended family played an important role in raising the children. For example, in Family 15, grandmother, mother, and daughter all lived together in one house. P shared that “*after school I get to ride the bus over to their house,*” (Family 20, C) referring to his great-grandparents who lived close to his home.

Even in the more traditional family forms, grandparents or other family members took care of the children and played a role in the children’s socialization process. This included different forms, such as in Family 19, in which the daughter “*has a dog that my mother bought*

for her and that stays at my mother's" (Family 19, C). In other cases, grandparents spent a few weeks or months with their children and grandchildren: *"My mother-in-law has been staying with us for a couple of months but she's leaving next weekend"* (Family 18, P). Similarly in this case: *"Now, my husband's mom and stepdad are here for the next three months"* (Family 14, P).

The families spanned different ethnicities and social economic status (SES). Eleven families seemed to fall into a level of medium SES (Families 3, 4, 8, 11, 12, 15, 16, 17, 18, 19, & 20), five seemed to be in the range of medium to high or high (Families 1, 2, 5, 9, & 14), and four seemed to fall into a lower to medium SES (Families 6, 7, 10, & 13). Four families had recently undergone some changes in respect to their SES. One family (Family 17) had declared bankruptcy a few years ago but was well situated with a middle class lifestyle at the time of the interview. P13 was newly divorced, and although her ex-husband was wealthy P13 did not have her own place to live and she had to stay with the family for which she worked as a nanny. Recent unemployment and medical emergencies had made life very difficult for Family 10, as the mother described how her husband *"was laid off for a year, fifteen months from right after our baby got out of the hospital and so that was a financial strain, a big one"* (Family 10, P). P19 had worked in Iraq for many years earning a *"six-figure salary"* which decreased after returning to Houston *"to a four-figure, five-figure, low five-figure salary. Uhm, it was a big adjustment financially"* (Family 19, P). For all of these four families and those in the lower SES (6, 7, 10, 11, 13, 17, & 19) financial worries were discussed as one of the recent ups and downs their family had to face.

Family lifestyles – “our lives are so busy.”

Even with the diverse sample, a few general trends emerged in respect to family life and family lifestyle. First, family lifestyles were very busy, with most families on the go every day, rushing to work and school, followed by homework and activities during the week and competitions and/or family time on the weekends. Second, there were a couple of common worries that emerged in most families as well: good achievements in school and competitions, and a well-functioning social-life with good relationships within the family and with friends.

Most families had very busy lifestyles and schedules. Except for one single-mother family (Family 7), at least one person in each family was employed; in many both parents were working. Three mothers (Families 3, 11, & 14) had decided to end their employment to be at home with their children. In two cases the mothers explained that with the number of children (each had five) the only feasible solution to ensure that the household and everyone's schedules worked out was to discontinue employment. One of them stated *“I worked up until the fifth child was born and then it just wasn't feasible to work anymore with five kids and three of them were in daycare at the time. And now I stay home”* (Family 14, P). Another mother described her current employment-situation as having been *“a stay-at-home mom for 21 years and being a nanny is my first real job since I'm out of high school”* (Family 13, P).

Most of the children had very busy schedules. They participated in after-school activities, such as sports, girl/boy scouts, played instruments, and competed in contests. Nevertheless they still found time to play with their friends or used the media. Often parents were in charge of taking their children to after-school activities and weekend competitions. In families with more than one child, the various activities required a lot of scheduling and planning efforts. In families

with competitive sport activities, the children had to be taken to tournaments, sometimes out of state. One mom described how they managed the activities and schedules of their children “*and just like a weekend of being, you know, I’m going one way with two kids and he’s going another way with three kids and then you come home and everything is just kind of out of place and you have to start all over*” (Family 14, P). The father of Family 2 described their family lifestyle similarly:

Half the family in one direction, half in the other. My son participates in competitive baseball, my daughters do tumbling or cheer or swimming, and so usually it’s my wife with my daughter or daughters and me with my son. So we’re doing activities, and then we obviously come back; we’ll eat something together if we can or meet up. But usually because there’s so many activities and they have different interests, we go to their different activities and interests and then try to get back together when we’re able to do so. (Family 2, P)

Even with busy schedules families displayed a high level of interest in each other’s activities and time. Parents were happy with their children’s successes and achievements. Yet, children and parents alike worried about school achievements and performing well in sports and other activities. In three families additional problems arose due to the children’s struggle with learning disabilities, such as ADHD (Family 3). In one family school bullying had caused major disruption to family life (Family 10).

Social or relationship worries were related to issues with family members, friends, and other children at school. In families with both boys and girls, sibling rivalry was a common concern that both adults and children commented on. This mom described the sibling fights:

“The kids killing each other. The fighting, the brothers, fighting, oh, or the middle ones, E. and J. going at it whether it be fighting over a toy or ‘oh, it’s my turn on PlayStation’...” (Family 11, P). In another situation, the oldest sister stated that her brother *“he’s annoying”* and continued to explain that *“he bothers me”* (Family 9, C).

Another topic of concern some of the older girls in the sample shared with their parents was focused on their body image and maturing as this mother explained her daughter’s worries:

that she’s flat-chested, that she doesn’t have any boobs, that’s a typical things that girls go through at that age because everybody else has a training bra and bras and they tease her because she’s skinny and they tease her because she’s flat-chested. (Family 19, P)

In three families (1, 14 & 18), the parents mentioned that one of their children was especially interested or worried by weather phenomenon and natural disasters. In summary, the 20 families managed busy schedules, faced relationship topics, and were concerned with school and sport achievements.

Family homes.

Except for three, all interviewed families were homeowners. Of the three, two lived in apartments (Families 6 & 7) and one lived as a nanny with the employing family (Family 13). Two groups of homeowners emerged. One group consisted of 12 families, which had lived in their homes for many years, most of them for over 10 years. In these cases, the families were connected to their neighborhoods and communities, they had children in the same school, and they shared a common history with their home and neighborhoods, such as the cleanup after a disaster: *“It was one of the best times to get to know our neighbors and our neighborhood”* (Family 5, P). Similarly, Family 20 remembers:

M: Yes, the neighbors stand together

F: The only time, yeah, and all the meat we cooked, we were giving it out, so.

(Family 20, P)

It seems that the duration of time a family has lived in their home influenced their connectedness to the community. The longer they had lived in one home, the stronger these connections seemed to be; especially in comparison to the families who had not lived in their homes as long. They did not mention any community or neighborhood relationships throughout the interviews.

For those families who had lived in their houses for a long time, the connection to their houses, as a place they call home, was very strong. They rebuilt their home after disasters, as this boy described it: *“When we were repairing the room my dad let us all like take hammers and beat out the bad sheetrock, so we got (...) hit holes in the wall”* (Family 11, C1); they stayed in their home even if it had been getting too small, as this mother lamented: *“We’re bursting out of the seams. We need to get a bigger house. We keep saying that”* (Family 4, P); and they enjoyed improving their home, like this father stated: *“I had already replaced the windows in my home and replaced them with a quality that would prevent me from having to have to do such steps [referring to boarding up windows]”* (Family 2, P).

The other group of eight families had more recently moved into their residences. The families had lived in their homes between one and six years at the time of the interviews. Some had not experienced a disaster in their current home. In general, these families tended to spend less time on gardening and home improvement. Coincidentally, in a few cases the move to a new home had been made necessary after disasters had destroyed former homes (Families 16 & 17). In other cases the relocation had been necessitated due to difficult financial situations (Families 6

& 13), and in some it had been due to relocation into the area (Families 9 & 10). Fewer experiences were linked to this current home and neighborhood, with the exception of one family (Family 14), which had moved from one house to another in an adjacent subdivision. The old homes held the memories and stories of the past, some of destruction and others of happiness. One father described it like this: *“Before we left we knew they were going to level the house and I gave, I gave my older son the crayons and I said, draw all you want, get it out of your system”* and his son drew all over the walls in the old house (Family 16, P). In another case the child remembered, *“Well, we don’t go outside anymore. We used to have a house and we’d go to the backyard and start doing stuff”* (Family 6, C).

To summarize, two groups of family-home relationships emerged. The first group had lived in their home for over 10 years and was very connected to the home and neighborhood. The second group of families did not mention similar connections to the neighborhoods they had been living. These families had been living in their homes between one and six years and mentioned fewer memories connected to their homes.

Family time and communication.

Although all of the families in this sample had their unique family dynamics and culture, some commonalities crystallized. Three family types emerged, characterized by the importance of family time and the structure of family communication: consensual families, protective families, and pluralistic families. All families interviewed spent time together and cared about the other family members. Yet, differences in the value of family time and differences in the style of communication existed. The three formats are described in more detail.

Family Communication Patterns Theory provided dimensions to categorize the emerging family types (Koerner & Fitzpatrick, 1997; 2002; 2006). The theory describes family communication that operates on both an interpersonal and relational level. Two dimensions exist that are dependent on one another. To predict the influence of family communication patterns on family outcomes both the conversation and conformity orientations should be assessed. The first, conversation orientation, is the family climate in “which all family members are encouraged to participate in unrestrained interaction about a wide array of topics” (2006, p. 54). Families are considered high on this dimension when interaction is free, frequent, and spontaneous. In contrast, families low on this dimension interact less frequently, discuss fewer topics openly, and do not actively seek all family members input.

Conformity orientation refers to “the degree to which family communication stresses a climate of homogeneity of attitudes, values, and beliefs” (Koerner & Fitzpatrick, 2006, p. 55). Uniformity of beliefs and attitudes, conflict avoidance, harmony, and interdependence are characteristics of families high on the conformity dimension. Conversely, heterogeneous attitudes and beliefs, individuality, and independence characterize families on the lower end of this dimension. Together the two dimensions—conversation and conformity—create a grid of four family types. Three were present in this sample: consensual families, pluralistic families, and protective families. A laissez-faire family type did not emerge.

Consensual families are high on both the conformity and conversation dimension. The family is interested in both maintaining the hierarchy and structure within the family but at the same time wants to explore new topics and ideas (Koerner & Fitzpatrick, 2002). The parents in these families are very interested in their children’s concerns and topics but believe that it is up

to them as parents to make decisions. Furthermore, they explain their decisions to their children with the intention of gaining their children's understanding and adoption of the same beliefs and ideas. In consensual families family time and conversations are important to both parents and children (Koerner & Fitzpatrick, 2002).

Pluralistic families are high on the conversation dimension but low on the conformity orientation. In conversations, the best arguments win, rather than who presents the argument. Children and parents are free to hold separate opinions and encouraged to share these with all family members. Both parents and children value family time and conversation. Children learn autonomy in forming their beliefs and communicating these beliefs (Koerner & Fitzpatrick, 2002).

Protective families are characterized by a high conformity orientation and low conversation orientation. Neither parents nor children value family time and conversation. Parents believe that they make the decisions for the family and decide what the values and beliefs of their children should be. They do not see value in explaining these reasons to their children. In turn, children do not learn to generate their own independent ideas and do not value family conversations as much (Koerner & Fitzpatrick, 2002).

Laissez-faire families are characterized by both a low conformity and conversation orientation. There is little family time and family conversations span only a small number of topics. Parents want their children to have their own opinions but show little interest in what those opinions are. At the same time, children are not aware of what their parents' values and beliefs are because there is no or little communication. Decision making for the children is often influenced by outside sources and peers (Koerner & Fitzpatrick, 2002).

In this sample, the first group, *consensual families*, was identified as families for whom family time was very important and who actively created family time activities. Family time was narrowly defined as time with the core family members, not usually including extended family members, as this representative example described: *“We try to fit in family activities for the four of us, because we want, we want the kids to have memories of doing, doing things with the four of us together”* (Family 1, P). The activities that families mentioned ranged from vacations, as this father stated: *“We have a trip planned this November”* (Family 12, P), to relaxing evenings in front of the TV, *“We do try to have movie nights usually on Friday nights or Saturday nights to kind of wind down from everything hustle and bustle”* (Family 5, P).

A second element in this group was the open communication structure between parents and children. The children shared their experiences from school and activities and were encouraged to ask questions about issues or events that came up. Parents tried to provide their children with background information, explanations, and reasons for current topics, issues, or questions. One example of this communication instigated by a child is when JA. recalled asking her mother about natural disasters:

I can’t remember the day that we talked about it but I came home and I asked my mom what’s our procedure for any natural disaster and she said all I know is if there is a fire in your room, anybody else’s room and it’s upstairs you all jump, y’all jump outside your windows (...). (Family 12, C)

JO. explained why he did not play M-rated video games. *“I don’t really play rated M games (...), ’cause it’s just, I don’t, I mean, I agree with my parents, rated M is rated M for a reason”* (Family 11, C1). His statement showed that he has had an open conversation with his

parents about the topic and agreed with his parents' assessment about videogame ratings. In contrast to forming his own opinion though, JO. agrees with his parents' values about the game. Similarly, P1 described that he wants to make sure to get preparedness and safety information through to his children when he stated: "*That's something that we need to make sure we need to go through with them*" (Family 1, P). This statement suggested both a conversation and a wish for conformity and understanding on the children's part. In contrast to low conversation families, the father did not want to just tell the children what to do but wants them to understand, for the information to get through.

These examples underline that the consensual families were very interested in open conversations with their children. At the same time, the goal to preserve existing hierarchies and homogeneity in ideas was apparent, as, for example, the excerpt from JO. above underlines. Because these families are high on both the conversation and the conformity orientation, the family type is consensual (Koerner & Fitzpatrick, 1997; 2002; 2006).

The second group, *protective families*, consisted of those families for whom family time was not a goal they actively pursued or who have "separate family time." This term referred to some of the family members spending time together for certain activities but not for others. All family members rarely came together for an activity unless it happened by chance. This mother, for example, described part of their weekend activities as: "*Sometimes A. and I will go out of town to go visit some friends. J. [husband] likes to go to car shows, and A. likes to go to car shows and stuff with him*" (Family 3, P). The daughter spent time with both parents but with each she attended different activities.

Communication in this second group of families flowed less openly and sometimes seemed more limited. One of these limitations was, for example, a separation between adult and child communication. Children talked among themselves and so did adults but there was less communication among adults and children. One boy mentioned that *“If I’m with them [pointing to the cousins running around in the house, around us], I play with them and we sit down and talk and watch TV”* (Family 8, C2). He did not mention talking to adults. These protective families were characterized by an increased emphasis on obedience to parental authority and less focus on open communication. Parents tended to make decisions without explaining them to their children. For example P8 stated: *“I do all the talking ’cause I’m, like, make sure you got gas, make sure, make sure y’all tape the windows up, where to go”* (Family 8, P). These families are low in conversation and high on conformity orientation (Koerner & Fitzpatrick, 1997; 2002; 2006).

The third group, *pluralistic families*, displayed some characteristics of high conversation and low conformity (Koerner & Fitzpatrick, 1997; 2002; 2006). For example, some families (e.g., Family 18) did not seek active family time, but they did communicate openly within the family. The mother was well aware of her daughter’s worries and concerns, especially during Hurricane Ike, and communicated with her children according to their respective needs. P13 described how she tried to help her children solve problems by letting them figure out the solution, rather than telling them what to do or think:

I do a lot of talking with them and I like to draw it out of them by saying things like “well, tell me about that” or “I’m not sure I understand. Can you tell me more,” I try to, instead of saying “Oh, so you don’t like that girl, you know, what did she do to you?”

You know I'll just say, "Well, tell me about what makes you feel like you don't like her?" So I'm not giving them the ideas and swaying their opinion and I'm also just encouraging them a lot just to come to me. And it's always been like that since I've never been a TV watcher because I wanted to work on communications since I was younger with them and so we are all really close because they can come and talk to me about stuff. (Family 13, P)

As this example showcased clearly, parents in pluralistic families tended to encourage their children to form their own opinions and actively integrated them in decision-making processes (Koerner & Fitzpatrick, 1997; 2002; 2006).

This section on family time and communication described three family types—consensual, protective, and pluralistic—that emerged in the sample. After the description of the family context category and subcategories *family life* and *family time and communication*, the following section focuses on the *natural disaster* categories.

Natural Disaster Sense-Making

This category is comprised of two subcategories: *disaster definition* and *disaster experiences*. These categories answer the first research question: How do families in a higher risk environment make sense of natural disasters? The family characteristics described above were connected to the disaster sense-making and preparedness knowledge in the summary and discussion section.

The sense-making process has two main dimensions, definition and experience. Definition referred to events that families called “disasters” and how they experienced them. Across interviews, most family members defined disasters very similarly. There are only a few

of the younger children who did not know what a natural disaster was. In contrast, the experiences of a natural disaster did not vary only between families but also among family members.

Natural disaster definition—“Like a hurricane.”

There were a variety of disaster definitions and the participants placed emphasis on different elements of what a natural disaster was. Two levels of definition emerged. The first focused on formal definitions. The second included the emotional reaction and interpretation of disasters.

Formal definition.

All families referred to an agent or example when referring to natural disasters. To describe this agent, some participants explained that the agent came from nature: “*It’s anything caused by nature*” (Family 20, P). Similarly, L. stated: “*Natural, I think from, like, natural causes of outside*” (Family 18, C1). All participants provided examples of natural disasters, typically identifying hurricanes, earthquakes, or tornados. These were the natural disaster agents most commonly described by both parents and children. With the exception of earthquakes, hurricanes and tornados are those natural disasters typically threatening the Houston area. Yet there were other examples such as flooding, windstorms, fires, “*wintertime disasters, lots of snowstorms, avalanches*” (Family 9, P), or “*Washington State, volcanoes, we got volcanoes over there*” (Family 13, P). Even with wildfires close to Houston during the second part of the family interviews, only one of the last 11 families mentioned them as a natural disaster example: “*To me a natural disaster are hurricane (sic), the wildfires that we had in Magnolia*” (Family 10, P). Wildfires were not commonly associated with disasters in Houston.

Although not common in the Houston area, earthquakes were mentioned with regularity as a natural disaster example. One child brought up his concern that: *“If there was an earthquake in a tall building, I wouldn’t know what to do”* (Family 16, C). Aside from this case, earthquakes were not further discussed by families, which is in contrast to the hurricanes, tornados, and occasional flooding they had experienced.

The second most commonly mentioned element was the destructive nature of a disaster. Even if not explicitly mentioned, almost all participants referred to some form of destruction after a disaster. There was a link between the disaster agent and the destruction it caused. As P9 defined it: *“It’s when nature causes havoc with the way people live”* (Family 9, P) and E. said *“that everything is a big mess”* (Family 11, C2). D. described it as: *“Like when a hurricane hits and it destroys all the houses and it floods sometimes”* (Family 7, C). In one case, the definition of disaster was tied to personal damage: *“My opinion was, when we got Hurricane Ike, and my wall come off, that was a disaster to me”* (Family 8, P).

A few participants identified two additional elements to explain natural disaster: preparedness and emotions. Fear was the emotion they expressed. For some participants natural disasters were viewed as something that *“sounds dangerous”* (Family 13, C) or that made them *“feel a little bit nervous”* (Family 1, C). *“Something that happened that occurs with earth, like hurricanes, tornados, uhm I forgot it, thunderstorms, I’m very scared of thunderstorms”* (Family 12, C) was what came to JA.’s mind when she thought of natural disasters. Only P12 and I. referred to preparedness as part of their disaster definitions. *“Hurricanes, tornados, severe thunderstorms, and hail and, uhm, and windows breaking, house getting damaged, windows getting damaged. Uhm, and getting prepared for it is how I thinks (sic) of natural disasters”*

(Family 8, C2). For the father in family 12, the preparedness aspect was important although he acknowledged the power of the nature:

Natural disasters, I guess, are things that are unpredicted (...) you really can't prepare for. You can kind of prepare, you know, your house and your family when they tell you it's coming, but most of the times it's without warning. (Family 12, P)

Most of the children were able to explain what a natural disaster was to them. The few who could not were provided with a definition by the researcher. This usually then allowed the children to identify a few disaster examples on their own. Four children defined disaster in a different manner than discussed above. U., for example stated: *"Depends on the word in front of it. (...) like traffic jam disaster"* (Family 9, C1). To S. a disaster is when: *"He'll mess up stuff and, and sometimes my brother mess up my room"* (Family 8, C1). In another case, the 8-year-old K. stated: *"Most of the time the disaster (sic) are me not being, well, me not having anyone to play with"* (Family 18, C2). For the 10-year old P, a disaster was *"like bad hair day"* (Family 10, C). Except for the first example, where the child specified differences between disasters, the other three children mentioned what first association they had with the term disaster, not abstracting it to the idea of natural disaster. The word did not create a connection to their last hurricane experience, which they all remembered, even if only vaguely. Although all three could remember Hurricane Ike, they did not remember many details about that experience, most likely due to their young age.

All children of the families who lived in Houston during Hurricane Ike remembered something about this disaster experience. In a few cases this particular hurricane became synonymous for all forms of disasters or hurricanes. For example, materials in a disaster kit are

needed in case “*a Hurricane Ike*” is approaching, as N. described it: “*If you’re preparing for, like, Hurricane Ike or something, you need water*” (Family 14, C). D. provided examples of natural disasters and stated: “*A Hurricane Ike, a earthquake*” (Family 7, C) and A. gave a similar description “*Hurricane Ike or tornados*” (Family 3, C). Here too, the children were at the beginning stages of the concrete phase of child development, which can explain the case-focused use of Ike as a synonym for all hurricanes.

Emotional definition.

Upon further analysis, a second level of disaster definitions was revealed, based on the families’ description, evaluation, and emotions about their natural disaster experiences. This included feelings of fear, a need to protect loved-ones, but also an attitude that hurricanes were not something to worry about or that they were even “cool.” These interpretations were not clear cut. In most cases more than one level of interpretation was apparent in one family. For example, the father in Family 2 felt that his experience with hurricane Alicia in 1983 “*kind of messed me up for a little bit*” (Family 2, P). His main drive in making natural disaster decisions was the wish to protect his family, especially his children, which he explained as “*I basically just wanted to prevent my children from having a vision of a—I didn’t want them to be traumatized with this. I was trying to be proactive in that respect*” (Family 2, P). For P2 protecting his loved ones is his main association with natural disasters but it was linked to a fear from a personal experience.

Similarly, in about six families a sense of fear or unease was the main or overarching description when talking about natural disasters. The level of this emotion fluctuated from Family 6 fearing for their lives in a hurricane and tornado experience to a sense of unease, as Family 14 described it. P6 described her emotions during hurricane Ike: “*... and we thought the*

house was going to be destroyed or something, (...) It was very scary” (Family 6, P). She recounted another experience with a different disaster in which she also feared for her own life and that of her children:

A tornado hit and it was a lot of hail, you know, big hail. And it was so scary. I didn’t know to do (...) First I waited on the, on the side of the road like all of ’em, like everyone was waiting. But I didn’t know what to wait and why waiting for something that I didn’t know what was it. So, just like praying, and I said, ‘I’m, I’m not going to die here.’ My children were very. Like, scared. They were crying, so just, so I just drove, I just drove very fast, as fast as I could away from it. (Family 6, P)

The reasons for the disaster fear in these six families varied but tended to be connected to a fear of losing either life, as in the example just mentioned, or something dear to the family, such as their house or comfort, as this example showed:

You know, some of their trees broke over and but I don’t know whether, but it was just scary, I mean, you know, and they didn’t have electricity and they had to use a generator for three or four days and then people get crazy and they start robbing people. (Family 14, P)

One child, S., had a different emotional reaction to the thought of a hurricane. She would be mad about one “‘cause I don’t want nobody house getting messed up and my family house getting messed up” (Family 8, C1). For P18 the scary feeling was tied to having to deal with the disaster on her own, without her husband: “No, he was gone the whole year and when Ike came through, it was kind of [sighs, pause] it was scary, it was plain scary” (Family 18, P). Although not the overarching concern for families 7, 9, and 13, these mothers, too, mentioned that being

responsible for the well-being of their children without the help of a spouse was difficult. For these three families, though, the main interpretation was not fear but either an acceptance of hurricanes or the wish to protect their families.

For eight families, protecting loved ones seemed to emerge as the overarching theme when facing natural disasters. The actions and perspectives they took were so that they would be able to protect their families from the disaster, either by creating a strong and safe home or evacuating from a storm. One example was Family 13:

Because it's always been important to me to be able to care for my family in an emergency because I wanted, I have so many kids and I want to make sure that I'm able to do what I can to keep them secure and safe no matter what happens.” (Family 13, P)

P1 reasoned: *“When we think, well, we need to leave, if the storm is big enough and if we think it's going to hit us directly,”* (Family 1, P) he and his wife would evacuate with their children. All of these families were also in a medium or higher level of SES. The parents displayed a sense of control in their ability to protect their family and did not mention resources as something that might have impeded them from taking care of their families.

For about 10 families, hurricanes did not pose a threat that they were afraid of or angry about. Hurricanes were just something that had to be dealt with living in this area. *“Then when we had the hurricanes here, really we didn't have bad damage or anything, but it was more of the electricity being out. So how we all coped, it was a lot of fun because everybody cooked together every night”* (Family 4, P). This example pointed to another aspect of how these 10 families remembered their natural disaster experiences. They tended to focus on positive aspects of a disaster experience, not just the personal damages or destruction. Past disaster impacts made

them and their community grow together, children did not fight during the storm, and were very active in helping clean-up efforts not just in their homes but in neighbors' homes as well. The following longer excerpt is representative for these families:

And our neighbors all stayed too, and we just watched out for each other and come to find out that it was one of the best times to get to know our neighbors and our neighborhood and everybody help each other out (...) after it was over with the kids went out there and were helping us, (...) they were raking and they were picking up (...) and cleaning and stuff, so, it was enjoyable at that point and they were the only kids on the street during that year, and I think they just with the older couple and older people helping them out, they were just amazed by it and it made D. and me kind of proud to see our kids out there; it's not even their yard and they're out there helping picking up and cleaning up and I mean it's not the funnest thing to do. (Family 5, P)

Only two fathers (P12 and P20-F) and three children (B, JA, & L) displayed a sense of amazement for hurricanes and disasters. They were something “cool” that these participants were almost glad to have experienced, even if they may still have felt a bit nervous about them: “*so we watched the hurricane as it passed (...) It was cool [laughs], was cool, you know, kind of like storm watchers but it was cool*” (Family 12, P). Mirroring her father's sentiment, JA. remembered: “*Yeah [chuckles] it was funny, you had, they had, ah, paper bags flying everywhere*” (Family 12, C). P20-F recalled “*some hurricanes coming and us boys, when I was a teenager, we'd all get together and, like, at one person's house like a hurricane party*” (Family 20, P). He continued that he did not believe that hurricanes were such a big deal. You just had to get ready for them.

For the families who accepted hurricanes as part of life, only one had personally suffered damages. Interestingly, many of the participants who were first responders fell into this category as well (e.g., P12, P20-F, & P15). Therefore, the personal experience with damages seemed to emerge as significant in the natural disaster sense-making.

One additional aspect stands out that explained how some parents made sense of natural disasters. They used metaphors to describe natural disaster impacts. P16 described the flooding of his neighborhood and compared it to “*a lake*” (Family 16, P) to give a sense of the sheer volume of flooding Tropical Storm Allison caused. Similarly, P17 described Allison like this: “*I remember seeing the water coming down like a waterfall off of the top of the house*” (Family 17, P). P1 remembered the sounds of Hurricane Alicia and described them:

I remember the main thing that still sits with me, even after all these years, is the noise that the wind made. It was so, it just went on for hours and hours it just sounded like a set, like, a set of train tracks right outside your window and there was a train passing for like eight hours. (Family 1, P)

These sounds were also memorable to P2 and P6, who used pictures of “*very strong those sounds*” (Family 6, P) to be able to better describe the nature of the disaster.

In summary, there were two levels of natural disaster sense-making in families on a definitional level. The first, the formal definition, was focused mainly on elements that were used to describe what a disaster was and included elements such as an agent, some form of destruction, and were sometimes complemented by a need to prepare for them. The second level, the emotional definition, was the interpretation of families’ feelings toward natural disasters,

which included fear, protection, or acceptance and amazement. In the next section, the second category of natural disaster sense-making the *disaster experiences*, is explored

Disaster experiences—“Yes. We had Hurricane Ike.”

All families in the sample experienced one or more types of natural disasters, except for Family 9, in which only the parents had experienced a winter storm in the past. The various experiences can be grouped into general childhood experiences, other disaster experiences, and the experiences with Hurricane Ike. The most common experience was Hurricane Ike. Some parents also mentioned Hurricane Rita and Tropical Storm Allison. Other experiences were the eruption of volcano St. Helen, Hurricanes Alicia, Alan, and Katrina. The children (except for Family 9) only mentioned Hurricane Ike or, in a few cases, generic storms or thunderstorms. In two cases Hurricane Rita was mentioned by the children but with a clear reference to their parents who had told them about that experience. The 8-year-old T. explained: “*But there was another hurricane that I don’t remember, but my mom told me about it today, because she said you would ask about this*” (Family 2, C2).

Childhood experiences.

Almost half of the parents mentioned past experiences from their childhood or young adult years, with Hurricane Alicia from 1983 mentioned most often. This storm left a memorable impression on the parents, such as P2:

Hurricane Alicia hit this area. I was 13 years old, I think, or maybe 14. Maybe my years are wrong. But yeah, anyway, I was a teenager, and I lived literally just a few miles from here. And the storm was bad. My experience has always been whenever we have a very severe storm, like a hurricane or tornados, they always come at night. (Family 2, P)

P5 remembered Alicia like this:

That was my first hurricane that I remember. I was going to be a freshman in high school. I had to remember that. My dad worked for the light company here in Houston, so it was me and my sister and my mom were home for probably two weeks by ourselves not knowing, cause back then we didn't have cell phones, so I remember we had a swimming pool, I remember us being without power ... (Family 5, P).

And P19 shared another vivid memory from that hurricane:

Yeah, that storm was torrential down-pour rain, real strong winds, yeah, I remember that one. I was keeping a German shepherd then that I was trying to keep from going crazy and he got out and we went looking for him because it was my boyfriend's dog. Oh [exasperation] couldn't lose the dog! We could lose the house but we better not lose the dog. (Family 19, P)

All of these excerpts show how vivid the memory of this storm was for the participants. They were teenagers and young adults and remembered events surrounding the hurricane.

Other disaster experiences.

Another storm that left lasting impressions on five families was Tropical Depression Allison from 2001. Two families (16 & 17) had their homes destroyed by the floods. P16 described it this way:

I've been in a natural disaster before, Allison, and it destroyed our first home and that's why, how we ended up out here in this area. (...) 'Cause that, since we've been married, has been one of the worst experiences we've ever been through together, probably the worst one and we just didn't want to go through that again. (Family 16, P)

This sentiment was also present in P17's description:

Um, it was a traumatic experience for us because it was during the time that my husband's hours were cut back and we were struggling financially so at that point I had reduced my homeowners insurance and then Allison came along which was the worst of the three floods and we had over 15 inches of water. (Family 17, P).

Two other adults were working as first responders at the time and saw the impacts of the flooding to the medical center and the city. They also remembered the great impact the storm had when P10 for example had to *"literally (be) in the hospital from Friday to Sunday. (...) it was kind of crazy"* (Family 10, P). These big storms, both Hurricane Alicia and Tropical Storm Allison, left lasting memories that the parents recalled. They remembered details from their experiences, how they felt, and how these experiences impacted them in their decisions as parents.

Hurricane Ike experiences.

Hurricane Ike by far brought the most personal accounts from the participants, except for Families 9 and 10 who did not live in Houston at the time. Although most families interviewed had little damage, a few had to rebuild parts of their homes after the storm. For most this impact was limited to trees or fences down in their neighborhood or property. Except for two families (15 & 19), all families remembered not having electricity for extended periods of time, lasting from about nine to 15 days after the hurricane. Four families (8, 11, 14 & 18) faced more severe destruction, such as roof damage, damage to parts of the house, and partial flooding.

Hurricane Ike displaced Family 11 for six months from their home, as the mother described it: *"It leaked all over the kitchen; it leaked on my entire bedroom, all the walls, the*

entire ceiling was down. I mean we were out of our house for six months” (Family 11, P). P14 remembered that *“part of our roof had come off and flooded our upstairs, came through the walls; it was probably it was six or seven thousand dollars worth of sheetrock and paint and carpet”* (Family 14, P).

The Hurricane Ike experience included a second dimension, aside from the description of impacts. This dimension captured the emotions and evaluations that the families had toward their experiences. Two main groups emerged. The first group of families did not mention too much strain or worry due to the hurricanes, and the second felt scared or concerned about them. In addition, the children in the families sometimes had a slightly different view than their parents, and usually they were more nervous or scared than their parents realized.

Over half of the families who experienced Hurricane Ike did not evaluate the experience as scary or with concern. The hurricane occurred and nobody was hurt. The family was safe. Some of these families, like Families 5 and 11, had damages to their homes, but they had the resources to rebuild it, as P5 stated: *“So, it’s been rebuilt and so it’s fine so (...) we were good, we’re a good team, husband and I are a pretty good team”* (Family 5, P). P11 described that *“It wasn’t scary, it wasn’t, it was stressful and it was stressful on everybody,”* suggesting that even if the aftermath was stressful it was not worrisome or scary. For other families, there remained a sense of control over the situation, such as Family 1: *“I felt much better, being here in this house, where I could maybe have little more control over things”* (Family 1, P). P2 even described himself as *“just being a control freak and wanting to know what’s going on”* as a driving force to ensure his family’s safety during different hurricanes (Family 2, P).

It seemed that the combination of being able to manage the aftermath, having the resources to rebuild any damages, and being in control of the situation are elements that these (over half of the) families had in common. Further, they all tended to evaluate their hurricane experience as less worrisome or scary. This observation suggested a connection between the feeling of security and control of a situation and the access to resources.

In contrast, a smaller group of families was scared and concerned by their hurricane experience. The reasons for their fear varied. One factor for this fear was not having the resources to protect their family to the degree they wanted as, for example, if a parent felt he or she had to handle the situation of the hurricane alone, as was the case for P18. Another factor for the heightened level of concern was the lack of control over the situation, as this example showed: “... ’cause it was just crazy. People were acting crazy. That’s what I’m talking about. They just get out of their heads” (P14, P). In these cases a perceived lack of resources and control increased the level of fear of the hurricane.

Although a few children found the hurricane experience “cool” or “fun,” for many children another factor came into play to explain why they were fearful or nervous about the hurricane. It was the first hurricane experience they could remember and they did not know what was going to happen, as this representative example displayed: “*I was kind of scared because I’ve never been in a situation of a hurricane*” (Family 4, C). Some of the children felt less fearful of another hurricane because they have gone through one now and know what to expect, as J. described: “*Because the last one was my first one really being in and I just got more scared but after the few days went by I got more comfortable with having a hurricane*” (Family 5, C1). Although most parents had a sense of their children’s feelings before, during, and after the

hurricane, not all of them were aware of their children's worries or fears. For example, in Family 11 the mother assessed that the children had slept through Ike and that the experience was not scary. Her son JO., in contrast, recounted that *"so there was very little sleep that night because everybody was like really nervous and stuff"* (Family 11, C).

In summary, all families have had some experiences with natural disasters. About half of the parents recalled instances of disasters from their childhood. Hurricane Ike was memorable for most families who experienced it. A clear pattern emerged that those families who had the resources to protect and rebuild their home and that felt in control evaluated their experiences more positively than those families who felt they had a lack of resources and control.

Summary: Family hurricane disaster sense-making.

Two main connections emerged that influenced disaster sense-making. The first connected family characteristics and children's understanding of natural disasters and natural disaster experiences. The second exposed the family characteristics that influenced the interpretation of the experience and the understanding of disasters.

Children's sense-making of natural disasters.

First, the family context categories, especially *family time and communication*, were connected to children's understanding of natural disasters, specifically hurricane disasters. Aside from those children who were too young to yet grasp the abstract nature of a hurricane disaster (e.g., K, W, & S) a lower level of understanding seemed to be connected to a less open communication culture and a lack of family time. Families who spent less time on actively creating family time and that tended to use a less open communication style might have not explained the nature and significance of disasters to their children. These children did not fully

understand what to do during a hurricane disaster and they tended to be more worried about it. To address potential worries or concerns of their children, these parents tended to tell their children that there was nothing to worry about and set rules for what to do and what not to do during a hurricane. The experiences these children had with the hurricane were not always known to the parents. There were varying degrees to which communication and family time impacted children's understanding. The following two cases are very clear examples of this emerging pattern.

In this first example, P did not know what a natural disaster was and his understanding and experience were different from what his father anticipated. The son stated that for Hurricane Ike he *"was scared"* (Family 20, C). His mother *"told me that it was gonna be OK, nothing to worry about and that's about it."* His father mentioned that *"I've never made a big deal with the hurricanes (...). I've talked to him about 'em but never made them into a big deal like something that he should be scared off"* (Family 20, P). The differences between the parents' perceptions and communication style and the child's knowledge and worries became clear.

In contrast, Family 5 was very close-knit, parents and children spent a lot of time together, and the parents tried to explain new situations to their children. For disasters P5 thought that *"it's our thing as a parent"* (Family 5, P) to take care of the children and that they know what to do. The older girl, C, recalled that she *"felt kind of nervous"* about Hurricane Ike but she and her parents *"prepared for it"* (Family 5, C2). Although the night of the hurricane made her feel nervous as well, she thought that the time after the hurricane *"was fun."* Her younger sister, in contrast, felt scared before hurricane Ike. After going through the experience with her parents, she felt *"more safe than the last one and much more comfortable than the last one"* (Family 5,

C). The combination of family time and communication with a fairly positive hurricane experience has left the family and especially the children with a more positive outlook for future hurricanes.

Parents, however, were not the only source of knowledge and reference for disaster understanding. Some children counterbalanced or added to their understanding by relying on information from school or the media. For example, D. sought information in the public library and at school she was attentive to disaster topics. In general, school did not offer a lot of information about disasters for this age group. Yet, some children were able to explain how certain disasters formed, e.g., “*the wind currents can make a hurricane*” (Family 18, C1). However, even if disasters were discussed in school, most children had not retained the information to share during the interviews, one exception being L. (Family 18, C1). JO. remembered more details about those disasters he had read about in his *Popular Science* magazine.

In conclusion, there is a connection between children’s disaster understanding and experience, which were tied to the family communication culture and family time (see Figure 1). The more open the communication and the more time actively spent together in a family the more the children tend to understand what natural disasters are and feel less concerned by them. This connection may be influenced by a few factors. First, age may increase or decrease the understanding. The further children are in their development through the concrete stage, the more they tend to have an understanding of natural disasters and better experiences throughout one. Second, active information-seeking on the children’s part may further enhance the

understanding in those families with an open communication culture and counterbalance it in those with a less open communication culture.

Figure 1. Children's Natural Disaster Understanding and Natural Disaster Experiences

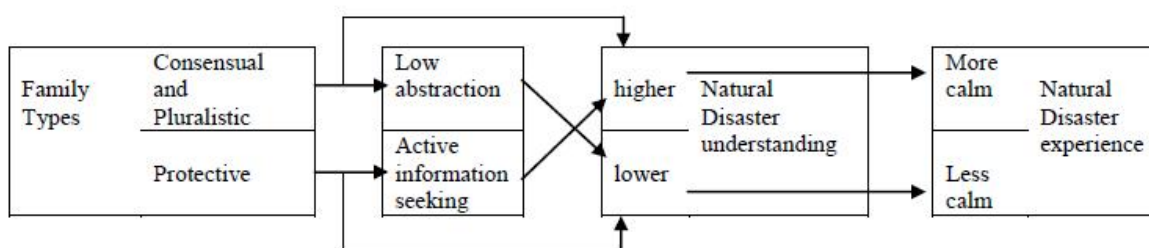


Figure 1. Proposed model for children's understanding of natural disasters and their experiences with them based on family type. Paths are influenced by level of abstraction the child is capable of and the active information seeking the child is willing to complete.

Family characteristics influencing sense-making.

As the relationships between various categories emerged, connections to prior research also became apparent. Therefore, the connections between family context categories, natural disaster sense-making, and relevant literature are discussed in this section.

The second level of connections built part of the foundation/connection to the core category *hurricane preparedness*. All of the families showed a sense of familiarity with the hurricanes and storms that occurred in the Houston area. Having lived in other areas of the country and having been exposed to news reports about other disasters influenced the definition of natural disasters to include those examples that did not commonly occur in Houston, such as earthquakes or winter storms.

Similarly, family disaster experiences influenced sense-making. For example, having had a tornado experience underlined that hurricanes were perceived as familiar. Although hurricanes were experienced with feelings ranging from fear to acceptance, all descriptions displayed a sense of knowledge or familiarity with this type of natural disaster. In addition to knowledge and familiarity the hurricane was described by the families with a sense of control, meaning that they would know what to do in time to be ready for an approaching storm.

This sense of familiarity and control stood in contrast to the tornado instances referred to by the few families who had been in one. The tornados were described as scarier than the hurricane experiences, partially because they were not quite sure what exactly they should have done. Although they knew they were supposed “*to get into a ditch*” because “*that’s what they tell you to do*” (Family 14, P), there was a sense of uncertainty in the timing and the actual effectiveness of these actions. For P6, “*A tornado hit and it was a lot of hail, you know, big hail.*”

And it was so scary. I didn't know to do" (Family 6, P). This suggested that there was a lack of knowledge and no experience as to the effectiveness of safety measures. In contrast, the actions families took to protect against hurricanes were described with more confidence and certainty.

King's (2000) findings underscored this observation. The author stated that newcomers to a disaster-prone area were less aware and knowledgeable about the natural disaster risks. They had less knowledge and experience and were not well prepared. Similarly, (Rød, Botan, & Holen, 2012) suggested that experience with disasters and living in a disaster-prone area was a motivating factor in preparedness and an important influence on risk perceptions, specifically perceived threat. Harro-Loit et al. (2011) explored the concept of cultural experience with a crisis and suggested that experiences can also have a mediated dimension. Furthermore, the experience of a group or culture is related to a past event's social time and space. The authors proposed conceptualizing cultural experience on a continuum from knowledge-based experience to emotional experience and from proximate experience to distant experience.

The factors influencing hurricane definition and experiences are commonly associated with risk perceptions and communication. Control or perceived control is the belief that a person or group can influence or can choose to influence an event (Thompson, 1981). A perceived lack of control has been linked to unsuccessful communication campaigns and opposition to those perceived as creating risks (e.g., Hance, Chess, & Sandman, 1989; 1990). Perceived control, in contrast, was linked to more risk acceptance (e.g., Heath & Gay, 1997). Although the families in this sample did not have any control over the agent creating the risk, the hurricane, they were able to control their reactions and preparation for it. Yet, control was not the only factor influencing the perceived fear or acceptance of natural disasters. Heath & Gay (1997) stated that

people felt they had “inadequate control when they lack knowledge needed to guide choices” (p. 353). Knowledge is gained through information seeking and direct experience. This connection would suggest that more knowledge and familiarity with hurricanes would decrease perceptions of fear. This was not the case for all families in the sample. The following factors played an important role in this assessment as well: family home, family resources, and the experience of damages due to natural disasters.

Families who have had damages from natural disasters have either had them due to wind-related forces or flooding. These more severe disaster experiences have impacted family-life and were also connected to the social economic status of a family, specifically the perceived family resources. Although all families who experienced Hurricane Ike had some small damages or clean-up efforts, five families suffered costly damages to their homes. Two families had seen their homes and belongings destroyed in the Allison flooding and had both moved into new homes. Both families actively sought houses that were located in high-lying areas and made sure that there had not been flooding in the past. For example P17 explained what they took into consideration before purchasing the house they now live in:

This one is set up much higher; that is a factor in the home that we chose, it was we knew, we asked the former owner if there wasn't any low spots or any and there wasn't any draining issues, we did visit with neighbors about things like that what had happened in previous floods, so we did inquire and it is always on our minds because we have lived. (Family 17, P)

For both families the flooding and loss of all of their belongings was a traumatic memory. The parents began the interview by sharing their experiences and described it as one of the worst

things they had to overcome in their respective relationships, as P16 described “*since we’ve been married has been one of the worst experiences we’ve ever been through together, probably the worst one and we just didn’t want to go through that again*” (Family 16, P).

Their new homes, being in safer locations, increased these families’ sense of security and control. They did not worry about hurricanes more than the other families in this sample. In contrast, they, too, displayed a sense of control, experience, resources, and knowledge that they could overcome the impacts of a disaster in their new home. Yet, all families in new homes tended to describe a disaster as more of an interruption to everyday life than in those cases where the families had stayed in their homes.

In contrast, of the families who had been impacted by Hurricane Ike, only one family (Family 14) moved into a new home. This family had a more fearful view of natural disasters. The four others continued to live in the same home. They also belonged to the group of families who accepted the natural disaster experience. The families who remained in their homes had the resources to rebuild, they felt in control of the situation, and they had familiarity not just with the hurricanes but especially dealing with hurricanes while in their home. For example, P5 explained “*that we would stay here see it through, we would be able to protect, you know our family and we did*” (Family 5, P). She continued that her “*motto is whatever is faced we gotta do to fix it, you just gotta get out there and do it*” (Family 5, P), underlining her sense of control and security that whatever they will face as a family they would be able to manage.

To conclude, the families who had moved to a new home since the last damages had more “respect” for the natural disaster than those who stayed in the same home, even if they suffered damages in that home. Nevertheless, it is not the experience with damages alone that

suggested more fear of a disaster but rather the feeling of loss of control over the situation, and a lack of resources. Familiarity with the home and the disaster may have also played a role but seemed to be an individual characteristic, whereas the role of control and resources emerged as a pattern for increased or decreased sense of fear towards natural disasters and hurricane experiences.

Summarizing, familiarity, control, and experience are connected not just to preparedness or risk perceptions, but also to the sense-making of natural disaster. Uncertainty seems reduced with experience, control, and familiarity. The families suggested that they knew what they were going to do in the event of an approaching hurricane and knew when they were going to do it. The following section will discuss the categories of preparedness.

Preparedness Categories

In the following section the second research question, how families make sense of natural disaster preparedness, is answered. Preparedness is divided into three subcategories, each of which is described in detail below. The subcategories are *material preparedness*, *preparedness planning*, and *preparedness knowledge*.

All families in the sample had taken preparedness steps before the last natural disaster experience—in most cases Hurricane Ike—and had some level of preparedness for a future hurricane disaster at the time of the interviews. Additionally, some families also mentioned preparedness for tornados and emergencies such as fires. The category, which emerged in all interviews, with parents and children alike, was material preparedness, which included the disaster kit. Few families mentioned communication or planning preparedness without some

probing from the interviewer. Furthermore, knowledge about and perception of preparedness emerged as a preparedness category.

Material preparedness.

The first response almost all families discussed in respect to preparedness was based on supplies or other materials that families gathered for hurricane disasters. This category incorporated two dimensions. The first dimension was supplies and materials that the families personally collected to be prepared, and the second dimension was materials gathered and actions families took to prepare their homes.

Material preparedness: Supplies.

All families discussed the materials they had or would get ready for a hurricane disaster. These included basic supplies, such as water, food, flashlights, and batteries, as this representative example suggested: *“The batteries are ready; the flashlights are ready for us. All the water ready”* (Family 8, P). These basics were similar in all families but additional supplies differed for each family. For some, these were the only supplies they had ready and for others more supplies were mentioned, including medication, blankets, clothing, cash, and a first-aid kit. In one example the mother said they:

(...) have small bills in the house in case that, you know, ATMs go out and we have to go shopping, things like that. We have a pantry full of canned food, in case we need to go, you know in case we need to eat. We have paper plates, paper, well not paper, paper knives and forks, plastic knives and forks. We have extended periods of medication (...) (Family 9, P).

A few families had their personal documents organized and ready to go. F. remembered that her mother *“always has it in her room this box. She actually has two boxes but they are not that big they’re, like, you can carry them and there is a whole bunch of papers and stuff that she needs”* (Family 6, C). For some of the families taking personal items, such as photos was important, as this example showed: *“So I did take a couple of things with me which were baby pictures, those type of documents and passports and stuff like that”* (Family 20, P).

Although the families mentioned these supplies, they did not have all of them ready at the time of the interview. Most families had a stockpile of the basics (food, water, flashlights) but stated that when they heard a hurricane forecast, they would purchase or gather the other materials and stock up on the ones they already had in place:

Normally when it starts being hurricane season we begin kinda stock up on the water and the can goods and the dried foods, stuff that doesn’t need to be refrigerated, um, living here for all our life we kinda know, you know, the season to start stocking things up.
(Family 15, P)

Similarly this mother described which supplies she has ready during the hurricane season:

I try to make sure that we always have lanterns, flashlights, water, food that we would be able to eat if there was gonna be anything that happens and when they start talking that we are gonna have a hurricane or something like that then I try to make sure that I double stock-up. (Family 19, P)

As this last excerpt suggested, none of the families had everything they said they would need for a hurricane ready at the time of the interview. All of the families stated that they would have to spend some time to prepare, once they heard a hurricane forecast.

Material preparedness: Home.

Aside from the materials, a smaller number of families mentioned preparing their homes for a hurricane. When prompted a few more described the most common actions, which included cleaning up the yard or making sure everything outside was secure, taping or boarding up the windows, and in some cases allocating a safe-place in the house for the family to stay together during the storm. About a third of the families also purchased a generator or had easy access to one. Additionally, a few families filled bathtubs “*with water, that way you can flush the toilets 'cause when the water goes out*” (Family 20, P) or prepared “*the bathroom and get a mattress*” (Family 3, C).

The families who had prepared their homes in the past made sure there was no broken glass in the house, and that the lawn furniture was packed away, and that “*patio furniture and trash cans and things (were put) inside of the garage so that there were no airborne projectiles*” (Family 2, P). The families who did not take these actions usually explained that they figured, if a window broke, it broke, and “*if something is going to happen, it's going to happen*” (Family 12, P). Boarding up seemed to be too much of a hassle for some families, like the mother in Family 18 whose husband was out of the country when Hurricane Ike hit: “*I thought about boarding the windows but then decided if they were gonna break, they were gonna break, I wasn't gonna worry about it*” (Family 18, P).

The families who slept in one room during the hurricane wanted to make sure that everyone was protected. In addition, having a closet or windowless room prepared was usually a precaution in case a tornado formed as an offshoot of a hurricane:

(...) a closet or something in the middle of the house. We have this hall closet. There's no windows and things like that, so that would be the best, and then there's in the hallway but there's also a closet in the hallway. To me, I think I'd just throw out all the shelves and the bedding and stuff or leave all the soft bedding around us and just get in that closet and hold the door closed, 'cause it's kind of almost in the center of the house.

(Family 3, P)

Another aspect of material house preparedness was owning a generator. The reasons to purchase a generator differed but were usually tied to comfort. The families who already had one valued it after Hurricane Ike and were happy to at least turn on the fans or have some electricity in the aftermath of the storm, as in this example:

But having the generator helped a lot. (...) Because it was so hot we needed fans. We needed fans and also for the refrigerator to keep things cool and then also just to have a light in the house. We had flashlights and stuff, but it was nice to have a lamp or two.

(Family 4, P)

The families who did not have one explained that they either had access to one from friends, they did not see the need because they would evacuate, or they did not have the financial resources to purchase one. In a few families, getting a generator was one of the “big purchases” planned for the near future, as for example for P17 who responded to the question whether they owned a generator: “No, but [husband] says that we are buying one this year for Christmas; that is what, that is his next purchase” (Family 17, P). Although material preparedness was mentioned by parents and children most parents commented that they had not talked to their children about

preparedness specifically. Most of the time the parents thought that the children learned by observing.

Nevertheless, the children were most aware of material preparedness actions in the house before the last hurricane experience. This excerpt from the interview with C., an 11-year old girl explained what she remembered about the preparedness steps they had taken in her family:

C: *Like we prepare, prepared for it. We went to grocery store and brought or bought food and water and flashlights and stuff.*

I: *Okay. So, you went to, who is we?*

C: *Oh, my family and I and my mom and dad and my two sisters, we all went together and preparation for it.*

I: *Is there anything else you did in preparation for it?*

C: *We cleaned out the closets for just in case a tornado or something came and then we blew up an air mattress just so people could sleep and got blankets and pillows all downstairs. (Family 5, C1)*

As this excerpt suggested, going shopping before a hurricane to purchase water, batteries, and food were things most children remembered. Furthermore, some remembered cleaning up the backyard and their toys, sleeping with the entire family in one room, and getting a safe place ready in the house. One specific element of material preparedness was the disaster kit.

Material disaster preparedness: The disaster kit.

Only two families had ever packed disaster kits (family 11 & 13), both of which were members of the Church of Jesus Christ of Latter Day Saints (LDS church). In both cases it had been the mothers who had packed the kits for their families. Family 11 had packed their kits as a

church activity with other church members. Since then the family had not looked into the kits, updated them, or thought about them. The parents did not remember exactly what they had packed but thought it was mostly food, flashlights, and first aid kits. As the following excerpt showed, the parents explained that they should have switched out the contents of the kit regularly but had not done so for about two years:

We do have our backpacks, our 72-hour kits and we made them like two years ago and I haven't opened them back up. It may even be longer than that. And I think you actually have to take out certain stuff and rotate it, so my stuff is, probably needing to be rotated and I don't even know what's in it, I mean, besides like your flashlight and some type of granola bar and water and maybe a [sighs] small first aid kit or raincoat. I'm not real sure because we put them, we put them together with the church when they were trying to make sure that everyone was prepared and we did it and then we stuck it in the closet we haven't pulled it out since. (Family 11, P)

In contrast, Family 13 had 72-hour backpacks for every member of the household which P13 updated every six months, changing out the food and the children's clothing from winter to summer clothes and adjusting the selection to the children's size. She also ensured that each child had an identification card with a picture and name of the child and the family in the backpack. Furthermore, each kit contained entertainment materials, a thin sleeping bag, money, medication for those who needed it, and toiletries. The following excerpt is a short example of P13's enthusiasm and creativity in packing her family's disaster kits:

So it was clothing and they each had like a small first aid kit they had for their food I had three days of food but I had it in bags and I had it labeled day 1, day 2, and day 3 and so

day one would have enough for three meals and two snacks and I did, like, I didn't do a lot of cans because they're heavy, so I did more like the tuna in the foil things, you know, the tuna packs, um, we did fruit snacks that are really light, fruit roll-ups, we did do the little light cans of the Vienna-sausages for meat and then I did a lot of protein bars (...). And then I also had like beside the toiletries, they all had their own toilet paper but it was the condensed kind that you get to go camping, you know the little small one. Whistle, flashlight, their IDs and in another zip-lock bag they each had a little beanie-baby, stuffed animal that wasn't a normal one so it would be new to them and stuff like, and little playing cards depending on their age. (Family 13, P)

Due to the divorce and the separate living arrangements of the parents in this family at the time of the interview, the kits had been dissembled by the children because “*their dad is not into stuff like that*” (Family 13, P) and had not maintained the same level of preparedness as his former wife had.

Although other families had not prepared a formal disaster kit they nevertheless had taken steps to prepare different materials. Some described that they knew “*where the stuff is in the house*” (Family 3, P). In the event of a disaster it would have been easy for them to collect these materials and be ready. Other families had a portion of their materials stacked in a centralized location, for example, storing water, food, and ice chests together in the garage. Some families had a small kit in their cars, usually a first aid kit which might have been extended to include water, food, and a few other items. J. remembered that they had a first aid kit “*just like in the car, we keep a first aid kit in each car*” (Family 5, C1). P19 described that everyone in her house had a flashlight by their bed at all times in case there was a power outage.

The compass to not getting lost—children's disaster kit.

During the activation technique, the children had been encouraged to decide what materials to pack and explain their selection. Furthermore, they were asked to specify which of the articles they felt were most important. All of the children packed the same basic supplies they themselves had mentioned earlier in the interview or their parents had mentioned, which included water, food, first aid kit, flashlight and batteries, medication, and cash. Additionally, all children added the blanket and clothing to their disaster kits. The reasons to pack these items usually remained specific, such as food was important *“to, like, not be hungry,”* (Family 6, C) or water *“so we can drink when we're thirsty”* (Family 7, C).

Especially the older children, with clearer memory of their own experiences, supplied additional reasons for packing these items. For example water was not only used to quench thirst but also *“'cause you need water to survive. 'Cause if you, if you don't have water you can die of thirst”* (Family 5, C1). R. explained that in case of a power outage water *“is not filtered, so you wouldn't have any filtered water so you would need bottles of water”* (Family 4, C). These examples underscored that the explanations from some children went beyond describing the function of an item to imagining its specific utility in a disaster situation.

There was more variety in the children's decisions to pack other materials, such as the rope and entertainment materials. The rope especially triggered a few creative explanations. Yet the creative explanations did not always have a direct connection to a disaster situation, but could be more commonly associated with an adventure camping trip or in case of someone being hurt, as JA. explains:

... 'cause maybe you could tie, you could tie something, you could tie something together, like if somebody got hurt and the bandages weren't sticking cause you'd have to put water and you wouldn't have enough to dry you could like tie it around the person (Family 12, C).

About two-thirds of the children decided to pack at least some entertainment objects, such as books, the Nintendo DS, or the camera, in case they needed to be entertained, they got bored, or needed a distraction from what was going on. B. for example stated that *"the DS just might be for fun. I did bring some of my electronics, because there was times when we were bored"* (Family 2, C1). Only a few children were against packing any type of non-essentials, such as entertainment. Their argument was that if it was not needed to survive it should not be packed.

A camera was packed by about one-third of the children with the reasoning that it stored memories that could be brought along. JA. provided another explanation: *"You need, well, no, yeah, yes. you do! To have evidence"* (Family 12, C). The camera was not the only way some children decided to protect memories. A few mentioned that it would be important to them to take personal items.

Almost all children packed the compass into their disaster kits. They reasoned it would be useful to not get lost, to find the way again. The 8-year-old T., for example, explained: *"Like if we're going somewhere and you get lost, and when you're walking, you could use this"* (Family 2, C2). Although most provided a similar brief explanation, a few of the older children provided more in-depth reasoning, for example, to know where the storm was coming from so you would not walk into the disaster. All of the answers, however, suggested a fear of getting lost in a

disaster, even a sense of uncertainty with the compass as the symbol for finding the way, a symbol of control.

This connection was reinforced compared to the children who did not pack the compass. The reasons these participants provided were that they would not need it. These children usually also expressed less fear from their last hurricane experience, felt more in control, and protected. This suggested that the compass could be a symbol for a sense of uncertainty and lack of control before and during a disaster situation. As a symbol, it stands for “showing the way” and not getting lost, providing comfort and control to the person who knows how to use it.

In general, the activation technique showed the different levels of disaster and preparedness understanding the children in this sample had. The more children had developed the more abstract and detailed their explanations became. Especially the younger children did not always seem clear about the purpose of the disaster kit and compared it to something more concrete, such as a camping or adventure trip.

Material preparedness summary.

After a brief summary of material preparedness, the findings thus far are integrated with prior research. This level of abstraction is an element in the grounded theory process (Corbin & Strauss, 2008). The first part of the hurricane preparedness model is presented in this section in Figure 2. This is one step in explaining the connections to the core category of hurricane preparedness.

The analysis suggested that material readiness had more than one dimension: first, supplies, and second, house preparedness. Two families had a disaster kit in the traditional sense (compare contents described in methodology section) (Ryan et al., in press). About half of the

other families had a form of preparedness in respect to materials that included having some materials “ready to go,” such as their document box, or had supplies important to them stocked in one place of the house. Two other forms of preparedness became apparent with families who regularly used the materials they would prepare for a hurricane. The parents knew where all the materials were in the house and would collect them in the event of a hurricane forecast. In a few cases, families had flashlights or candles located throughout the house in the event of a power outage or disaster.

Many families had not thought about having a disaster kit in their home. They were surprised and thankful for the suggestion. After reflection most families thought it would be a good idea to have at least a few things, such as their documents, in one spot and always ready to go. A few families thanked the interviewer multiple times for bringing in information about the disaster kit or for reminding them to get back on track with their preparation.

As mentioned above, there was a connection between the disaster experiences and disaster definition, and the living situation of a family. This connection extended to include material preparedness. The families who lived in new homes or in apartments tended to have a lower level of material preparedness. For example, they did not have generators and they did not intend to prepare their homes in case of a hurricane. Family 16 was the exception. This family could have had access to a generator, and they were intending to board up windows. Nevertheless, disaster experience and disaster definition seemed to be connected to material preparedness through the home ownership and the history a family has had with the home they lived in. There was less material preparedness in place in families who had lived in apartments or in new homes.

The connection between perceived control, resources, and the family home, and fear or acceptance of hurricanes influenced the level of material preparedness as well. A perceived lack of control and resources seemed to create a lack of perceived efficacy and increased fear of hurricanes. This, in turn, led to lower levels of material preparedness. Conversely, higher levels of perceived control, resources, familiarity, and living in an “old” home (the home the family has lived in for many years), seemed to increase perceived efficacy and acceptance of hurricanes, creating a higher level of material preparedness.

Self-efficacy as an individual variable has been widely explored in different contexts, such as health communication, intercultural communication, education, or advertising (e.g., Lee, 2010, Lee, Haley, & Avery, 2010; Sobre-Denton & Hart, 2008; Whitcare & Peña, 2011). The concept of perceived self-efficacy refers to “people’s belief in their capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over given events” (Ozar & Bandura, 1990, p. 472). Although an individual level construct in most research, the analysis here suggested that the family as a unit has a sense of efficacy as well: family efficacy. Bandura et al. (2011) have ventured into defining and researching family efficacy. The authors are surprised by the small amount of conceptual and systematic empirical analysis this construct has received. They defined perceived collective family efficacy as “members’ beliefs in the capabilities of their family to work together to promote each other’s development and well-being, maintain beneficial ties to extrafamilial systems, and to exhibit resilience to adversity” (p. 424).

Bandura et al. (2011) found that family functioning and satisfaction were tied to the family members’ perceived collective efficacy. The more families perceived to be efficacious the

more open communication, self-disclosure, and satisfaction was present. Studies in the health context have explored the dyadic relationship of parent-child to determine efficacy (e.g., Neuberger et al., 2011). Bandura et al. (2011) proposed that spousal efficacy and filial efficacy are important influences on the creation of the family's perceived collective efficacy. In an earlier study, the authors found similar relationships in the efficacy of adolescents, parents, and spouses as important elements to understanding collective family efficacy (Caprara et al., 2004). They concluded that "collective efficacy beliefs likely depend upon the beliefs that family members hold about their capacity to meet their roles within the family, but are not reducible to a mere aggregate of these beliefs" (p. 256).

The level of family efficacy in this study seemed to be in part based on past experiences and the evaluation of perceived control, familiarity, and resources. These connections have been supported in other contexts. Risk perception variables such as control and familiarity influenced perceived efficacy in the health context (e.g., Dorsey et al., 1999; Rimal, 2001). Additionally, the family type was important. Both consensual and pluralistic family types displayed higher levels of family efficacy. This finding reflected the findings from both Bandura et al. (2011) and Caprara et al. (2004) research projects, where open communication and self-disclosure were positively linked to family satisfaction.

The overarching concept for perceived family efficacy is collective efficacy, which Bandura (1997) defined as a group's shared perceived capability to take actions to achieve a common goal. One possible group is the family. Harro-Loit et al. (2012) suggested that the collective efficacy of a group may be increased or forged through a common past experience, such as a natural disaster experience. As mentioned above, experience with disasters and living

in a disaster-prone area has shown to be a motivating factor for preparedness and a main influence on risk perceptions, such as an increased perception of threat from a disaster (higher perceived severity and susceptibility) (Helsloot & Ruitenbergh, 2004).

To describe communities with a shared natural disaster experience in the past, Helsloot and Ruitenbergh (2004) used the term “disaster subcultures” (p. 100). These are defined as a culture in which “exchange of knowledge, exercises and other preparations are of central importance” (p. 100). In these types of communities, the response to a disaster is often very quick. However, although the danger may be more accurately perceived, the preparation actions may not have been extensive. Furthermore, the preparation and knowledge of how to cope with one disaster does not translate into making a community more prepared for other types of disasters. Although there is a disaster subculture does not mean that the community is prepared for all types of risks (Helsloot & Ruitenbergh, 2004). This suggests that the greater Houston communities are part of a “disaster subculture” and may be more willing to prepare for those disasters they have experienced in the past, namely hurricanes.

Aside from these connections, another theoretical connection to prior research emerged throughout the data analysis. The analysis suggested that the reactions to an approaching hurricane were similar to those expressed in the extended parallel processing model (EPPM) to a risk message (Witte, 1992; 1994). The EPPM “predicts that people’s perceptions of both threat and efficacy, in tandem, predict whether they attempt to control the danger (e.g., take positive action) or their fear (e.g., avoid the issue or attack the messenger)” (Smith, Ferrara, & Witte, 2007, p. 56). To predict the reaction to a threat, in the EPPM there are two cognitive appraisals a person goes through after receiving a fear appeal message. The first is of the threat. The threat is

analyzed for its perceived susceptibility and severity. Susceptibility refers to the perceived risk of being impacted by a condition and severity refers to the evaluation of the seriousness of this condition (e.g., Gore, 2005; Witte & Allen, 2000).

Threat motivates people to action (Witte, 1992; 1994). The second step in the EPPM is the prediction of action a person will take based on the level of perceived efficacy. Two levels of efficacy are evaluated: first self-efficacy and second response-efficacy (= belief that an action will deter a threat). When the threat level is low, no response will occur. If the threat level is evaluated as moderate to high than fear is elicited. When both threat and efficacy are evaluated as high, danger control will follow leading to adaptive changes. In contrast, when the threat is perceived as high but efficacy as low a fear control reaction followed which led to maladaptive changes (Gore, 2005; Witte, 1992; 1994).

The EPPM integrated the fear-as-acquired drive model, the parallel process model, and protection motivation theory (Roberto, Goodall, & Witte, 2009). It is the first model to specify both reactions of compliance with a risk message as well as rejections of recommended behaviors. Furthermore, the model specifies under which conditions no reaction, a fear reaction, or danger control reaction will occur. Over the past years the model has received a lot of support in different studies and contexts, such as gun control, HIV and AIDS prevention, and other health issues (e.g., Roberto, Meyer, Johnson, Atkin, & Smith, 2002; Smith et al., 2007; Stephenson & Witte, 2001; Witte & Alan, 2000).

Roberto et al. (2009) suggested that to-date EPPM has been focused on individuals and their perceptions of threat and efficacy. Smith et al. (2007) were among the first to extend the EPPM to include not just self-efficacy but also perceived collective efficacy. In their study,

Smith et al. (2007) found that Namibians with a higher level of perceived stigma as well as with a higher level of perceived self and collective efficacy were more likely to adopt AIDS orphans, thus supporting the addition of perceived collective efficacy to the efficacy variable in the EPPM.

Perceived collective efficacy had been positively correlated with group goal setting, group achievement, and group performance (Bray, 2004; Smith et al., 2007). In communities with high perceived collective efficacy, positive outcomes, such as stronger networks of social support, are more common than in communities with lower perceived collective efficacy (e.g., Dutta-Bergman, 2003; Smith et al., 2007). Roberto et al. (2009) measured collective efficacy in respect to natural disaster preparedness, relying on public opinion poll data. Their results indicated a modest level of public collective efficacy, with about one-quarter to one-third of respondents placing trust in the government (local, state, federal) to be prepared to handle a natural disaster.

The findings from this study therefore confirm a trend in efficacy research in general and more specifically in respect to modifications of the EPPM by including a form of perceived collective self-efficacy—in this case perceived family efficacy—in the model. Taking these theoretical underpinnings and the analysis thus far, the EPPM adjustments are as follows: In the case of family hurricane preparedness, the geographical location represents the risk. As the risk cannot be avoided while living in Houston, the only option for families is to take actions to prepare. The perceived control, resources, and familiarity influenced the perceived family-efficacy (see Figure 2). Witte (1992) referred to these and other characteristics, such as experience with a threat, as individual differences. Higher family efficacy led to a response

similar to danger-control and more material preparedness. In contrast, lower family efficacy created a reaction similar to a fear-control response and less material preparedness. The proposed model will be further developed into the hurricane preparedness model at the end of the analysis (compare Figure 4).

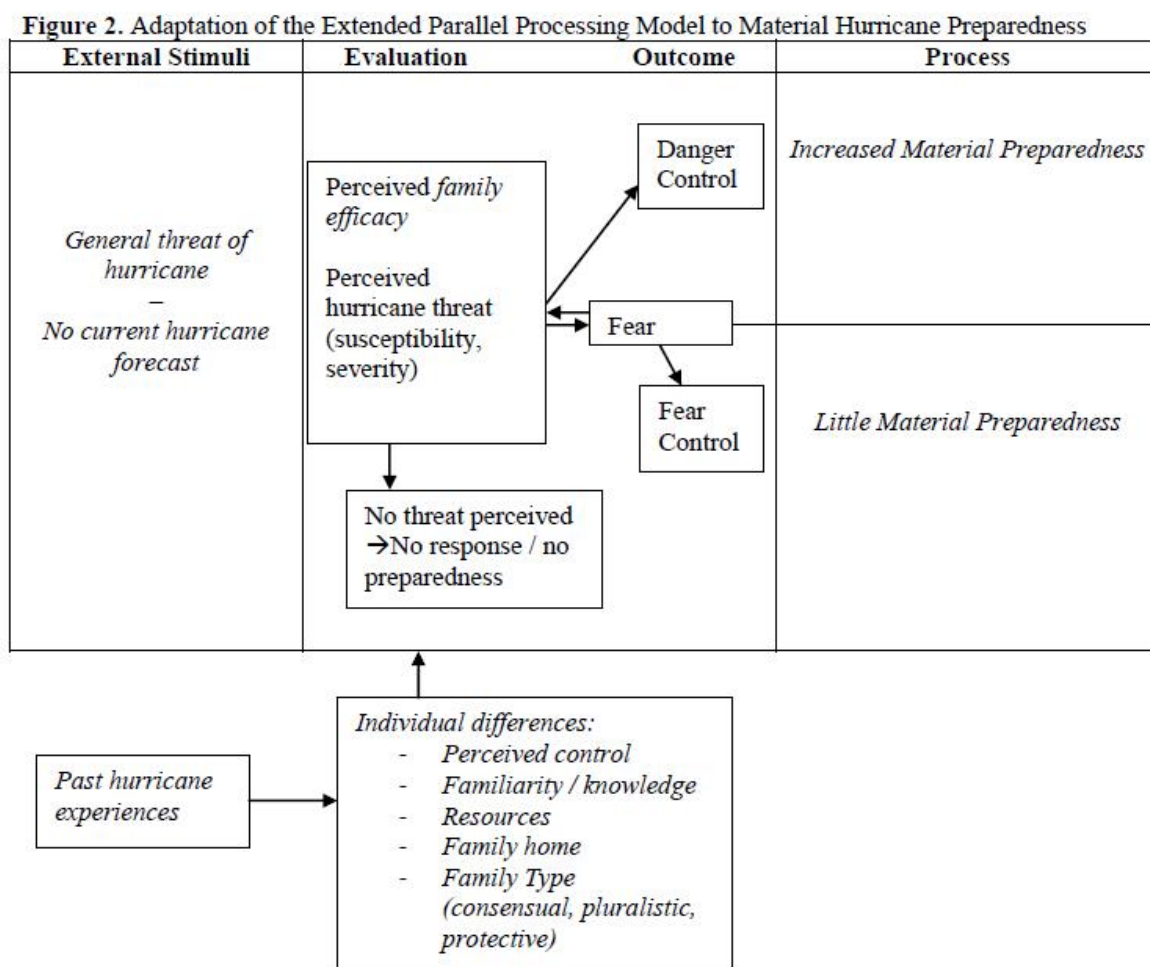


Figure 2. Adaptation of Witte (1992) EPPM to reflect steps for material hurricane preparedness and specific individual differences. Additions based on this study are in italic font.

Preparedness planning.

All parents had a plan in case a hurricane was approaching. This plan included the decision to evacuate or stay in their home. About half of the families were certain they would not evacuate under any circumstances, whereas the other half had attempted evacuating at least once in the past and/or was considering it for the future. For example, some families evacuated for Hurricane Rita but did not for Hurricane Ike, others evacuated for both, and again others for neither. Furthermore, for many their last experience with Ike was used to decide what the family would do in case of a hurricane in the future. The decisions families made and would make in the future were multifaceted.

Multiple levels of understanding emerged to explain the choices these families made. For example, the understanding of what an evacuation entails was described in different ways. Three distinct types of evacuations were mentioned, including: first, leaving the city altogether; second, staying with family or friends in the city but not the own home; and third, preparing a place to go to in case of damages after the hurricane passed through.

The first type of evacuation was leaving the city and area to stay somewhere safe. Out of the 20 families, five would evacuate or had evacuated from Houston. Some of these families qualified that they may consider evacuating under extreme conditions. For the families considering evacuation, *“a category 3 hurricane with a potential direct strike, we would leave anything like that or stronger”* (Family 1, P). As this statement suggested, a hurricane category three with a fairly direct hit on the city, tended to be the cut-off for families to evacuate. Another reason to evacuate was mentioned by Family 17: *“We felt at that point we couldn’t leave my mother alone and she was not going to stay here and (...) so we needed to do our own thing”*

(Family 17, P). This suggested that family members may have an impact on decision making as well.

The families who had evacuated at least once for one of the last hurricanes had one of two reasons: first, survival or second, comfort. The first referred to families who suggested that they just want to get out of harm's way. They would pack up and leave. Harm referred not only to physical but also to psychological harm. One father (P2) remembered hurricane Alicia vividly and the emotional toll it had taken on him:

And psychologically, that was always something that concerned me about storms, because it's one thing when you can see something coming, but when it's dark outside, the power is out, there is no illumination of any kind other than lightning should it be there, you can't see what's going on and you just hear all sorts of noises. And just being a control freak and wanting to know what's going on and being able to assess the situation and not being able to assess it was something that, that always bothered me. And I went through that storm and remembered those things. And when Hurricane Rita approached this area, just, I think it was in 2005, my children obviously being younger—5 years old or younger, roughly—I evacuated them. (Family 2, P)

To prevent his children from suffering an emotional toll, he opted for evacuating. Another mom (P6) just wanted her children to be safe, when she said “*probably just get my children, get the most important things and get out of Houston*” (Family 6, P). Taking them out of harm's way was the best way for her to achieve this.

The second motivation, comfort, was mentioned by families who did not want to be uncomfortable without electricity and air conditioning. For example, family 14 described:

My biggest thing and the biggest thing for us leaving the second time was if we don't have electricity, even if everything else is OK and electricity goes out, which is probably gonna happen because it happens when you just have a storm, we're going to be miserable. With all these kids, it's hot, you know, it's gonna be miserable, we have a place to go (their deer lease). (Family 14, P)

For the children of three families the evacuation was almost like a vacation, as O. described where they went for Hurricane Ike:

We went up to, it's a, it's in, it's a little town near to San Antonio called Bandera. And my mom's and dad's friends, they're a little bit elderly and they live there. And we go there every June and July anyway. So, and they're really nice and they have lots of animals there. (Family 1, C)

The second type of evacuation that emerged in the interview analysis was leaving the home to stay with family members in a different part of the city. The motivation for the five families who selected this type of evacuation was to either be with other family members who may have needed help or because the other home was perceived to be safer in some way (e.g., location further away from the coast; apartment on the second floor). S., for example remembers that during Hurricane Ike she “*was with my parents. I was with my grandma and friends*” (Family 8, C1). Similarly, the mother in Family 15 had to work during hurricane Ike as a first responder and had to ensure that her daughter was safe:

When it's, like, a hurricane, when it's headed directly towards Houston then we have to be ready to stay. And then I have to make arrangements of course for her, she either goes

to my aunt's, she's the director of the [name omitted] Center, so they have a shelter up there, so that's normally where she goes. (Family 15, P)

The third type of evacuation was selected by a few families. They had a place to go after the hurricane had passed. This type of evacuation was used as a back-up plan in case the hurricane damaged their home severely and they needed to leave it or they were too uncomfortable to stay in their home (e.g., lack of air conditioning or damages). One family described this type of evacuation like this:

On Ike it was really scary 'cause we stayed here. [laughs] I was pregnant, I was two months' pregnant on Ike, I remember and I, after, after everything happened we decided not to stay here and we went to Austin. It was really hot, there was no light, there was no nothing so we, we went over there and spent two days over there. (Family 6, P)

The parents who had opted for this type of evacuation believed they would not be harmed during a hurricane but wanted to have a place to go just in case the hurricane had damaged their home beyond expectation.

In all cases, the parents had made the decisions about evacuations or staying at home. Children were not fully informed about options or the full extent of the disaster. Usually, the children in families with an open communication structure tended to understand and know more about evacuation plans in their home. This also included planning for the potential of being separated during a disaster. None of the parents had really thought about this as a possibility. They seemed certain that during a hurricane the kids would always be with them, as this father described it: *"If they're anywhere they're at school or with us. We don't separate from"* them (Family 16, P). Many stated that they could not think of a situation in which their children would

not be with them or at school during any type of disaster. This argument seemed connected to the parents' understanding of natural disasters, which were mostly hurricanes.

Consequently, there was no plan where parents and children would meet in case of separation or what information the children should have to find their families, as this example described: *“that would be something too, like if there is something that happened downtown and you had to evacuate where would we meet in 30 days when our house is leveled and you know”* (Family 11, P). Approximately half of the children did not know their own address, telephone number, and/or house number by heart. Some parents were not sure if their children knew this information or not. In contrast, for a few parents it was extremely important that their children knew this information. For these parents it was usually linked to a personal bad experience (e.g., kidnapping of the children in Family 6) or the parents who placed high value on general safety measures and precautions.

The category of disaster preparedness planning consisted of two main themes: evacuation planning and planning for a potential separation. The three types of evacuations shed light on the complexities of this particular phenomenon. Due to the nature of hurricane disasters and the time families have to prepare for them, parents have not discussed the possibility of separation from their children.

Disaster preparedness: Knowledge.

The knowledge the participants had about hurricane preparedness was usually directly or indirectly attributed to the following sources: (1) the family, (2) the media and official sources, (3) common sense and learning. In this sample, the family as a source for preparedness knowledge played the largest role. Most of the parents who were raised in Houston had learned

about disaster preparedness “*just from my parents*” (Family 5, P). The parents recalled that when they were children they observed their parents purchasing food, water, and candles or lanterns and stockpiling these. Some filled up tubs and trashcans with water and some also boarded up their houses. The parents who remembered these actions from their childhood tended to have taken similar preparedness steps during the last hurricane they experienced. They too stockpiled water, food, flashlights and batteries, and may have filled tubs with water, and prepared their homes. P20-F for example stated that they “*fill up our ice chest, what I was taught was, you fill up trash cans and ice chest with water*” (Family 20, P).

Furthermore, most children in this study identified their parents as the source of preparedness knowledge. In most families this knowledge was not actively passed down from the parents to the children but more indirectly through observations on the children’s part or just by being actively included in shopping and house preparations. Similar to the understanding of disaster, the children in the consensual and pluralistic family types had received explanations about preparedness from their parents. Open communication in the family seemed to translate to open communication in potential disaster situations. Similar to the understanding of natural disasters, the developmental stage of the child, and the information seeking the child undertook influenced the understanding of hurricane preparedness (see Figure 3).

Aside from the parents, a few other family members were mentioned who played a role in ongoing preparedness knowledge. Siblings, aunts, uncles, and grandparents were called and consulted, were sources of information, or were used to discuss preparedness information. The families exchanged information with other family members and shared their thoughts about certain disasters, such as the wildfires, and preparedness actions, such as disaster kits.

This child remembers a conversation she had with her aunt:

I: *Has anybody ever told you or have you ever heard about packing one of these?*

C: *Not yet. My aunt said she packed one like when, she said it's her "get-up-and-go-box"*

I: *Oh really?*

C: *She packed all the stuff that she needed in it and she could just grab it and it's like next to her bed or in her cabinets so you could just grab it a leave the house.*

(Family 15, C)

Figure 3. Children's Understanding of Hurricane Preparedness

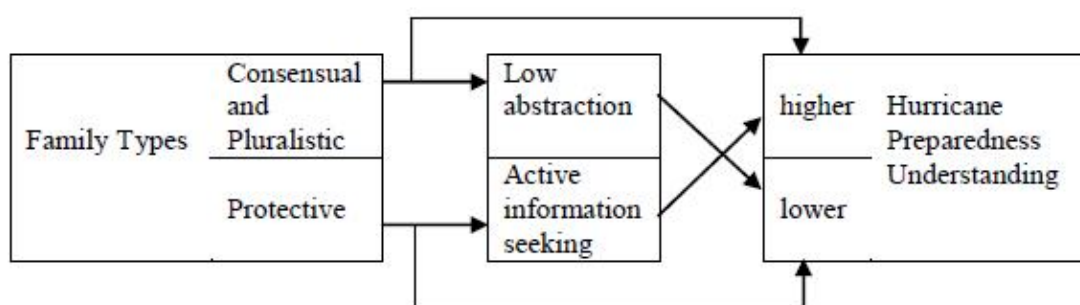


Figure 3. Proposed model for children's understanding of hurricane preparedness based on family type. Paths are influenced by the level of abstraction the child is capable of and the active information seeking the child is willing to complete.

The second most often mentioned sources were the media, government sources, and the school. The media provided information not just about an ongoing disaster but also about the preparedness actions to be taken at the beginning of hurricane season or in an acute hurricane forecast. Families remembered that the media, mostly TV or brochures in the newspaper or in grocery stores, described the different materials a family should get ready, such as a disaster kit. For a few families, the media was the trigger or reminder that hurricane season was starting, that it was time to begin stocking up on water and food. For others the media became a constant companion during the hurricane season to alert them in time for a hurricane. Aside from material preparedness information, the media were the source for acute hurricane information, when a hurricane was brewing and scheduled to arrive, as P7 stated “*We just watch the TV all the time so that the first thing that we know that something is happening*” (Family 7, P). The media had information about open gas stations and traffic during an evacuation.

Especially those families who were not raised in Houston or in a region with hurricanes relied on the media but also official sources such as government websites, brochures, or the hurricane workshop for their information. Only Family 9 had no experience with hurricanes at all and described these sources as being important for them to learn about preparedness. P9 mentioned different sources. The following is one example on where they learned about preparedness “*From the magazines that come around in the paper. HEB¹ had supported one, Channel 13...*” (Family 9, P). School was a source for some information for a few children. Mostly, the knowledge the children gained was about tornado and fire safety but a few also learned about disaster kits or the nature of hurricane storms.

¹ HEB refers to a local grocery chain.

The third source was an internal source based on common sense and learning from prior experiences. Some families mentioned that they just “*knew*” what to do or that “*a lot is common sense*” (Family 20, P). They also “*knew*” that the threat of a hurricane where they lived was not very high or that they would be safe, so the question of evacuation did not usually arise. All of the families who had lived through at least one hurricane experience before they encountered Hurricane Ike described a learning process from the preparedness and decisions they had made from one to the next. For example, P14 remembered: “*Another thing that I don’t feel like we were prepared for the first, the first one, we didn’t have like an emergency fund of money set aside (...) we learned a lesson in that*” (Family 14, P). In some cases the learning process consisted of the actions that they had taken to be reaffirmed, they had prepared well and had gotten through the hurricane without much problems. Sometimes the learning process included making “better” decisions for the next situation. For example, Family 2 had a bad experience during the Hurricane Rita evacuations and they decided to stay for Hurricane Ike.

Depending on the most recent experience the families made a choice for a future hurricane. There was no clear pattern that described the learning processes except that when the families evaluated their decisions negatively they tried to address and change these decisions. For example Family 6 decided to stay for Rita and evaluated this as a good decision because nothing happened, even though it had been announced as a bad storm. When Ike was forecasted, the mother figured it would be similar to Hurricane Rita and not that bad, so the family stayed. Yet, Ike turned out to be “*very scary*” (Family 6, P) so that P6 decided for future hurricanes she would take her children and evacuate, no matter what.

The three categories of preparedness, material preparedness, preparedness planning, and preparedness knowledge, interact to describe the core category, hurricane preparedness. This category has emerged as a multi-staged or process category, which will be described in the following section. Additionally the connections between the categories described thus far are integrated to describe the model of hurricane preparedness (Figure 4).

Hurricane Preparedness

The categories and connections described above integrated with the core category, *hurricane preparedness*. As the coding above indicated, hurricane preparedness has two stages, the current, non-threat stage and the acute, threat stage. The level of preparedness in each stage was influenced by many of the other categories and connections presented above.

All families went through at least two levels of preparedness for a hurricane. The first, the current level, was without a hurricane threat. In this stage most families suggested that they had some basic supplies, such as water and food, stockpiled. Some families additionally had batteries and flashlights in designated areas. A few families had additional medication, first aid kits, and their documents prepared. On a material preparedness level all families had a stock of supplies ready at all times. In most families these supplies were not kept in one central location or as a disaster kit but rather integrated in everyday household processes. For example, the canned foods were in the pantry and the water was in the garage. Nevertheless, there were always more supplies in the household than the families needed for everyday life.

The second element to this level of preparedness was the knowledge and the plan of what the family would do if they heard the forecast for a hurricane. This suggested that the families monitored the media during hurricane season to be aware of the hurricane forecast.

There was some variation in the level one preparedness. In some families the beginning of hurricane season was a point for increasing the level of material preparedness. Although only two families had designated disaster kits for a time, most adults suggested that they knew where all supplies for an acute threat were located. It would therefore not take them long to be fully ready. They had a plan and knew which steps to take to increase their preparedness to the second level.

When a hurricane forecast occurred, the families moved to an acute level of preparedness. The families suggested that they purchased supplies, specifically water, non-perishables, and batteries. Some families mentioned that they would buy ice to keep products cold if there was a power outage. Many families continued that they made sure to have full gas tanks in their cars and if possible extra gas for generators.

Some families also took actions to prepare the house. This might have included taping or boarding up the windows, filling bath tubs or containers with water, and organizing a place in the house for the family to sleep together during the hurricane. The flashlights and supplies were distributed so that access was easy for all family members. The parents gave behavior rules to the children for the time of the hurricane. Some parents also spent time discussing potential questions and concerns children had. Families checked on friends and family members.

If the family decided to evacuate they packed clothing, water, food, and other essentials, such as important documents. Some of the children had been allowed to take a few personal items with them. All families who experienced Hurricane Ike increased their level of preparedness from stage one to the acute level of preparedness after they heard the hurricane

warning. After the hurricane the families evaluated their experience and preparedness. They learned from these experiences and adjusted future preparedness plans accordingly.

Hurricane Preparedness Model

The hurricane preparedness model was developed during the analysis process (see Figure 4.). As Corbin & Strauss (2008) described, while coding, naturally the researcher begins making connections between the different categories, to describe what is happening in the data. True to the grounded theory approach, the researcher did not have expectations to create or revise a model. However, the more the connections between family context, natural disaster sense-making and preparedness emerged, the more complex they seemed to be. Through visualization of the connections, revisions of connections, checking data with the categories and connections, the proposed model slowly emerged.

The presentation of the analysis thus far builds the foundation to this model in which the various categories are connected. Originally, the researcher assumed the connections and the emerging model were novel, not yet explained by prior researcher. However, the clearer the category relationships became, the more similarities to the extended parallel processing model emerged. The categories and relationships from this study provided extensions to EPPM.

In their theoretical extension of the EPPM to include hurricane preparedness, Roberto et al. (2009) suggested that a fear appeal message about a hurricane would create a similar response as a health risk message. In their hypothetical case, the authors suggested that evacuating or having a minimum of three day supply was the goal of a hurricane preparedness message. They analyzed the pathways of the EPPM with this hypothetical message and suggested that, if the perceived threat was low, there would be no response. In a high threat analysis with low-

efficacy, the reaction would be fear with a defense motivation, leading to maladaptive changes. In the case of the hurricane example, the authors described these as being “defensive, avoidance, denial, or reluctance” (Roberto et al., 2009, p. 289). Conversely, the high-threat/high efficacy path scenario, when the threat of a hurricane was perceived as high and the perceived efficacy was high, protection motivation would occur, leading to adaptive changes and preparedness.

Although hypothetical, the application of the EPPM to a natural disaster situation is further supported by the analysis in this study. However, a few fundamental changes to the model are made, due to the connections and relationships that emerged from the data collected for this study. First, the model no longer refers only to a fear-appeal message situation but instead is extended to a high-risk situation, such as the potential for a hurricane. Furthermore, the actions of danger and threat control are initially only relevant to the level of preparedness at stage one, not however predictive of the preparedness level at stage two (the acute stage of a hurricane). Additionally, the EPPM does not provide a learning or feedback loop. However, the experience of a disaster creates a learning process, influences the evaluation of efficacy, and the interpretation of a threat. Learning is therefore considered an important extension of the model. Lastly, Witte (1992; 1994) only briefly mentions “individual differences” as impacting the threat and efficacy evaluations. This analysis suggests a much greater importance of these individual and family differences. The differences that emerged in this study are integrated into the model. In the following the model is described in more detail.

Similar to the original EPPM, the model begins with a risk situation (originally a risk message). In this case, the families all lived in a high-risk environment with an ongoing threat of hurricanes. A family evaluates its own perceived level of threat and efficacy in the next step

described in the model as evaluation. This evaluation is influenced by the individual differences, such as family type and perceptions of control, resources, familiarity, and the home, which all influenced the perceived levels of family efficacy. Similar to the EPPM, the evaluation of a hurricane threat and the perceived level of efficacy influenced the sense-making of disasters. Risk perception factors have been shown to influence efficacy (e.g., Dorsey, Miller, & Scherer, 1999; Rimal, 2001). A similar relationship seemed to exist with families preparing for hurricanes. The higher the perceived control, knowledge and familiarity, and resources, the higher the perceived family efficacy seemed to be.

After the evaluation of the perceived efficacy and threat level, the family outcomes emerge. In the case of this study two outcomes emerged: danger control and fear control. As is suggested in the EPPM, higher levels of efficacy led to acceptance of disasters as part of life in Houston and an increase in material preparedness at the first stage of hurricane preparedness. In the model (+/+) refers to high level of perceived family efficacy and medium to high perception of threat. In this case, the family accepted that a hurricane threat existed but also went into, what EPPM refers to as danger control. The families take actions to prepare for hurricanes on a level one basis. This is reflected in increased material preparedness. The families with increased material preparedness evaluate themselves as being able to withstand or survive a natural disaster without further time to prepare. They have the essentials to overcome a disaster ready at all times.

In contrast, a lower level of perceived efficacy created fear of hurricanes and a fear control response resulting in less material preparedness at the first stage of hurricane preparedness. The connection is one of (-/+), referring to low levels of perceived family efficacy

and high levels of perceived threat. Fear of hurricanes follows, which creates a fear control reaction, in this case reduced material preparedness. These families have some supplies prepared for a disaster, however, do not evaluate themselves as being able to be ready if there was no warning to increase preparedness further. The reduced level of material preparedness suggests that these families will have to take more actions when a natural disaster is predicted. A possible preparedness response, which did not exist in this sample of families, is reflected by those families who perceive the threat as low and have not taken any actions.

Witte (1992) suggested that there is feedback loop between fear and the evaluation of efficacy and threat. This feedback loops seems to exist as part of the learning process as well. Families with high efficacy and acceptance of storms that had bad experiences may change their perceptions and shift to a fear control reaction. Similarly, a positive experience may create higher levels of family efficacy and acceptance for future storms

The first stage of preparedness, described in the model, is additionally characterized by preparedness planning and knowledge, which is present in both levels of material preparedness. All families knew what they were going to do and had some plan in place. Furthermore, all families had learned about hurricanes and preparedness at some point during their time living in Houston.

The stage one preparedness describes the time in which there is no current hurricane threat. Once a hurricane warning is issued, all families described that they would increase their preparedness levels to a second stage or acute level. The families with higher levels of material preparedness (danger control) tended to be ready for a hurricane faster. Some families even had enough water and food stockpiled to last their family for at least a week. They had enough

supplies ready and had their houses enforced or ready even for a short-notice disaster.

Purchasing additional water and food was more of an extra, rather than a necessity. These families mentioned they just wanted to make sure they would really have enough supplies.

For those families with less preparedness in stage one (fear control), other factors (risk factors) could impede on reaching the full level of acute hurricane preparedness. They may not have the resources to respond as quickly to purchase supplies and may not be able to collect everything they require. Different risk factors, such as lack of time and financial resources, for example, stifled the ability of lower-efficacy families to reach the higher levels of readiness in the acute stage. However, the families with lower levels of preparedness were also able to reach a similar level of acute preparedness if risk factors did not impede.

After the hurricane a learning process followed. The natural disaster experiences and the effectiveness of preparedness influenced the sense-making, family variables, and family communication. This in turn impacted families' plans for future hurricanes and current level of preparedness. If the hurricane and preparedness actions were evaluated positively, family efficacy increased or remains high. Similar actions as for the last hurricane will be planned for potential future storms. In contrast, if the actions and preparedness were evaluated negatively, new actions would be planned in the future. Family efficacy and evaluation of a storm may change as well. For example, a negative experience may create a fear response for the next hurricane rather than a danger control response. The learning process after one hurricane event impacts individual differences, which in turn influence efficacy and threat evaluations and therefore the preparedness steps for future storms. Therefore, the model should be viewed as cyclical in nature.

Figure 4. Hurricane Preparedness Model

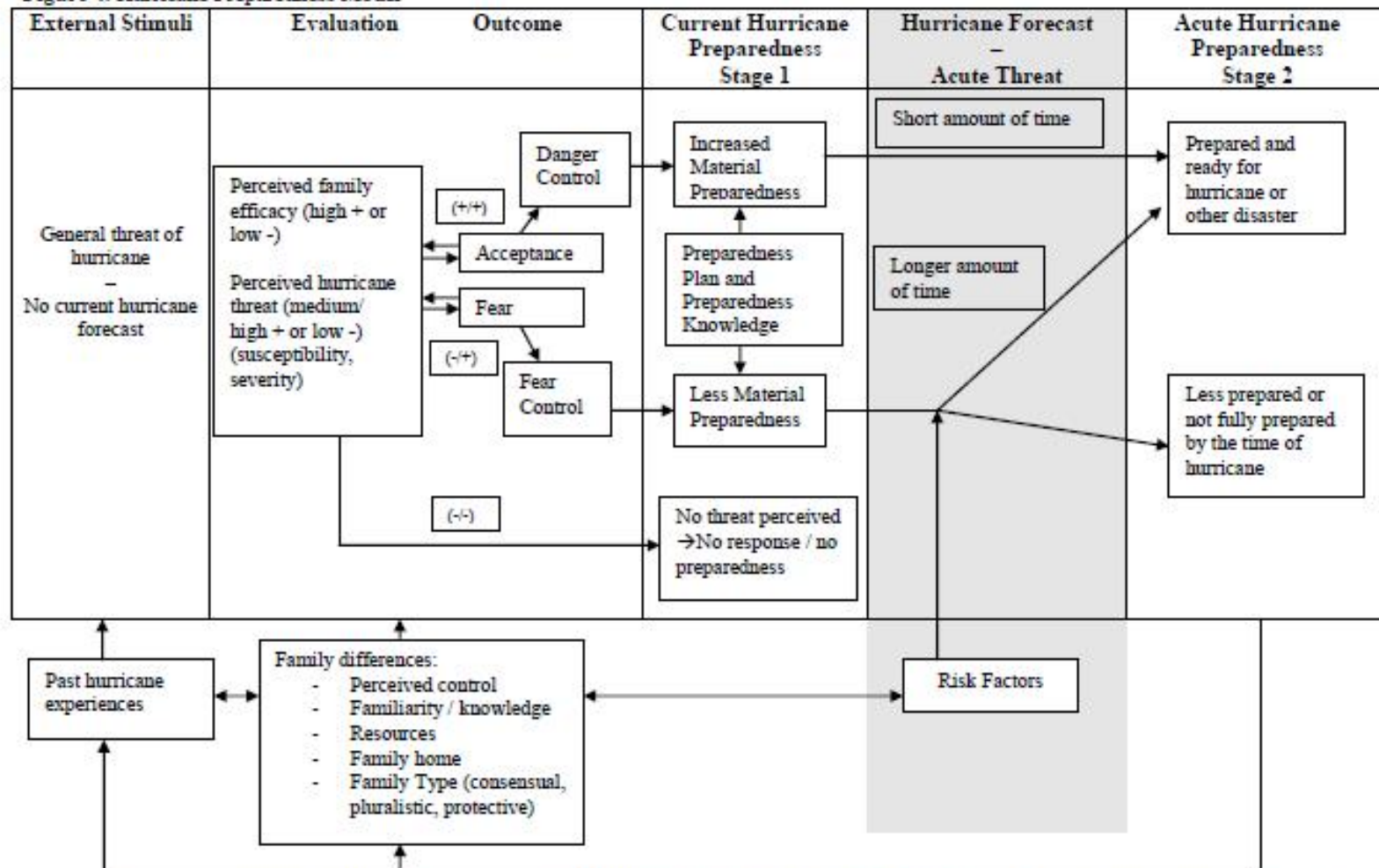


Figure 4. Hurricane Preparedness Model with adaptation from EPPM (Witte, 1992). Evaluation of a threat leads to the outcome of hurricane preparedness in stage one. After a hurricane forecast preparedness level two is reached. Learning and evaluation occurs influencing hurricane experiences and family differences. Positive evaluations create a similar response to future hurricanes, whereas negative ones may create a shift in response.

Chapter 5 – Conclusion

The answers to the research questions were complex and multifaceted. Hurricane preparedness emerged as the core category during analysis. Disaster sense-making and preparedness were connected to this core category. The past experiences with hurricanes and other natural disasters influenced the definitions and interpretations of these phenomena. Similar to the academic definitions of natural disaster (e.g., Dombrowsky, 1998; Gilbert, 1998; Krebs, 1998; Porfiriev, 1998; Quarantelli, 1998b), families focused their definitions on the destructive power of a disaster agent, such as hurricanes or earthquakes. Definition and understanding were further tied to the emotional experiences with such an event. Fear, awe, and acceptance were reactions families displayed when discussing past hurricane experiences. The more families felt in control of, familiar with, and in possession of necessary resources (both emotional and material), the more they displayed an acceptance of hurricanes as an inevitable part of life in the Houston area. In contrast, fear of hurricanes was evinced by those families with less perceived control and fewer resources.

Aside from the general family sense-making processes, children's experiences emerged as an additional level of interpretation. Their experiences were strongly influenced by the family type in which they lived. Children in families higher on the conversation orientation continuum (consensual and pluralistic families) tended to have an increased level of understanding and acceptance of hurricane disasters. Conversely, children growing up in families lower on the conversation orientation continuum (protective and laissez-faire families) tended to have less natural disaster understanding and more fear. The child's developmental stage emerged as an important aspect in the sense-making process. Increased capacity for abstraction was essential to

fully understanding that hurricanes are weather phenomena and not all are an “Ike.”

Furthermore, with higher abstraction levels children comprehended and explained preparedness actions in more depth and detail. The abstraction of understanding was often related to increased age of the children. The increase of understanding was visible across the sample, from the younger to the older children. In general, the sense-making of disasters revealed complexities tied to experiences and emotions.

Family Preparedness

Family hurricane preparedness emerged as a two-step process with three distinct actions: material preparedness, preparedness planning, and preparedness knowledge. Living in an area with recent hurricane experiences all families referred to their levels of material preparedness. Only a few families initially counted planning and knowledge as elements of preparedness. However, all families considered planning and knowledge as very important when they were directly asked about them. Preparedness was more complex than anticipated. Connections to risk perception factors, family types and communication, family efficacy, disaster sense-making, and the EPPM provided an intricate web of relationships. Some of these have been discussed in the literature and research in the past (e.g., Bandura et al., 2011; Dorsey et al., 1999; Rimal, 2001; Witte, 1994).

Prior studies have defined ethnicity and sex as important variables in both risk perceptions and preparedness actions. Although the sample of families in this study was diverse, it seemed too small to the researcher to propose solid relationships based on ethnicity and sex. However, some of the trends identified in prior research were mirrored in this study as well. Congruent with previous research (e.g., Fothergill, 1998; Helsloot & Ruitenbergh, 2004), the three

Hispanic families in this sample had more severe disaster experiences than the Caucasian families. However, the Hispanic families were not the only families who had experienced severe impacts from disasters. Yet, the general trends, such as a higher perceived impact from disasters on minorities and low-income families, were present in this study as well (e.g., Fothergill, 1998; Helsloot & Ruitenberg, 2004).

Furthermore, Fothergill (1998) identified the trend that men tended to be more focused or responsible for the outdoor preparedness actions and boarding up the house. In contrast, women tended to take care of preparedness indoors, such as organizing supplies. This was hinted at in this sample as well. However, high efficacy families tended to describe that the husband-wife team worked well together rather than focusing on the actions either husband or wife took. It seems that a separation between roles may actually be beneficial in a high-risk situation. If all members in the team are aware of their role, it should make the preparation process run smoothly. In this type of team approach, roles for children could be included as well.

Problems arise, however, in the “single-parent” households. None of the mothers who were alone with their children during the last storm had taken any house or outdoor preparedness steps. Two mothers specifically mentioned that because their husbands were overseas they would not worry about boarding up windows and preparing the house. This suggests that the role of the single-parent household needs to be considered in more detail in future research and communication messaging. Communication efforts should address those activities that single parents are less likely to perform and provide them with manageable solutions. For example, instead of boarding up windows—which often requires more than one person—single parents

may consider taping windows. This activity could even be delegated to the children in the household.

The analysis of preparedness revealed another novel insight. For example, preparedness is not static but an ever-changing process. The process character of preparedness was clear in individual family situations. For example, when life became very busy, preparedness was often forgotten or postponed by the families, especially without an immediate threat. Nevertheless, all families had an awareness of the potential of a hurricane and had a basic level of preparedness at all times. This situation was observed by Helsloot and Ruitenberg (2004). In disaster subcultures there is often a “more accurate perception of danger, however it does not mean a more extensive preparation for other possible dangers per se” (p. 100). The family’s level of preparedness may furthermore change from one year to another. These differences within one family were often explained as part of changes in family life, for example less time. This explanation connects preparedness to the stage or point of the family’s life-cycle and other transitional stressors they may be facing (Boss, 2002). As mentioned in the ABC-X model and double ABC-X model a pileup of stressors before a crisis may impede adequate crisis coping and recovery. It seems that a pileup of stressors may also decrease preparedness levels in a family.

Cloudman and Hallahan (2006) described preparedness for organizations as both a state and a process. The authors provided a list or inventory that described what an organization should have in place and what steps make the organization be prepared. This description has been adopted by Hilyard et al. (2011) to refer to families and used to describe families as being in a state of preparedness. Similarly, FEMA (2011) provided messages that encourage families to be in a state of preparedness by having a disaster kit and a communication plan, and staying

informed. Especially in campaigns such as “get ready” messages focused on reaching a preparedness state rather than focusing on the process character of preparedness.

Similarly, Coombs (2007) described the pre-crisis stage for organizations as consisting of crisis prevention and preparation. Preparation included diagnosing vulnerabilities, assessing crisis, selecting and training a crisis team, developing a crisis (management) plan, and reviewing the communication system. Preparedness is defined by having these various elements in place (Coombs, 2007). This study provides a slightly nuanced view to defining preparedness. Specifically hurricane preparedness emerged as a two-stage process, with preparedness increasing from a level one to a level two. All families had a certain amount of level one preparedness. A warning sign increased the level of preparedness from level one to the highest level. In this study all families had a certain level of preparedness during hurricane season. With the forecast of the last hurricane, Hurricane Ike, all families described how they increased their preparedness actions to get ready for the storm. They stocked up on additional supplies, prepared their homes, and followed their evacuation plans.

Being able to have a basic level of preparedness, which can quickly be increased to a higher level, may be a novel approach to describing and approaching the pre-crisis phase, not just for families but also for organizations. Although hurricanes provide ample warning to increase preparedness, unlike other crises, focusing on achieving a stage one preparedness level may decrease the response time to reach the second level of preparedness after warning signs appear. This view of preparedness provides a connection between prevention and preparation (Coombs, 2007). The information from risk assessment, reputation management, and issues management, all elements of prevention, could provide the information and timing to increase an

organization's preparedness level from a stage one to a stage two. This stage approach would allow for a broader level of basic preparedness with room for quick increases according to specific warning signs.

Another nuance of preparedness was how families made sense of material preparedness. For example, only two families had disaster kits prepared; however, many families had traditional disaster kit materials stocked in their home. Many used the materials that they also relied on for preparedness in their everyday lives. For example, water was stockpiled at all times but was also being used. The water supply was maintained at a high level. Similarly, non-perishables were present in many households. They were used by the families in everyday cooking but were also re-stocked regularly. The idea of a kit seemed less feasible to those families who actively integrated supplies into their lives, such as food, water, flashlights, and batteries. Some families had their documents in a secure location and ready to go. These were not part of everyday life and could easily be stored in one location. So, although there was no formal kit in most families, many families did have in their homes many of the supplies that would commonly be included in such a kit. Because they often used these supplies, it was questionable if a disaster kit is the best idea to prepare a family for disaster. This suggests that future research should evaluate the actual benefit of a kit over the "scattered preparedness" all of the families in this sample had.

Evacuations

Unlike the lack of disaster kits, all families had an evacuation plan in place. This study revealed that evacuations were more complex than the term initially elicits. Three types of evacuations were found in this study. One type, the one usually thought of as evacuation, was

leaving the place where a disaster was predicted to hit. The families that choose this tried to get out of harm's way. Due to the nature of the greater Houston area, these types of evacuations have caused major problems in the past, with one infamous example being the evacuation during Hurricane Rita (Heath, Lee, & Ni, 2009).

A recent study on evacuation willingness in a high-risk Norwegian community found that trust in government, higher levels of education, and knowledge of the disaster history increased a person's willingness to evacuate (Rød et al., 2012). The authors focused their analysis of evacuation on leaving the place where the disaster was predicted to hit. They did not consider the two other forms of evacuations that emerged in this sample. One referred to traveling within the city, to a different location, usually one that was perceived as more safe. The other type was evacuating after the storm had passed, which was a backup plan in case something went wrong during the hurricane. These nuances have not been sufficiently addressed within communication campaigns or crisis and disaster research.

In general, more research on the varying levels of evacuations is needed. Especially in geographically expansive regions, such as the greater Houston area, an evacuation from the south to the north may already decrease the impact of a hurricane. However, most communication campaigns seem to focus on leaving the region entirely. A more nuanced understanding and communication approach may increase family's willingness to evacuate. Furthermore, the wish to be with other family members during a disaster has been shown to influence family decision making (Rød et al., 2012). Boss (2002) uses the term of ambiguous loss to describe a situation in which a family member is not physically present in the family but the family members feel like

the person is with them. Therefore, having to leave family members behind in an evacuation can increase this feeling and lead to problematic reactions.

Families and Children as Stakeholders

This study furthermore set out to focus on better understanding of one specific group of stakeholders, families with children age 8 to 12. In public relations, specifically in risk and crisis communication, the importance of stakeholder discourse has been noted for successful communication and relationship building (e.g., Hance, Chess, & Sandman, 1989; Heath & Gay, 1997; McComas, 2003; Palenchar, & Heath, 2002). The preparedness levels in most families did not match the communication campaign goals (e.g., the three steps from the “get ready” campaign). This suggests that there may be lack of communication and understanding of families in respect to preparedness.

Many families provided suggestions to increase preparedness levels. Some requested less “biased” media information, and others suggested that campaigns targeting children would help better prepare a family. For example, children should learn about preparedness in schools and on their favorite TV channels. This could spark communication in families. However, the analysis revealed that there are family types that may be more conducive to this type of campaign than others. This type of intervention would most likely be successful in families high in conversation orientation. In these family types all members are asked to share in open communication about a wide array of topics (Koerner & Fitzpatrick, 2002; 2006). Therefore, preparedness topics may be introduced into the family communication through the children. In contrast, for those families low on the conversation dimension this may be a less helpful. Communication through sources addressing parents may be more appropriate to reach protective and laissez-faire family types.

This would require further research on the prevalence of the different types of families in geographical regions.

Children emerged as an important indirect key stakeholder group. Most of the parents mentioned that the actions they took were to protect their children from harm. Children, especially in consensual and pluralistic family types, have input in the families' communication topics and influenced family actions. This suggests that public relations scholars and professionals should not neglect children as important stakeholders. However, the relationship may be moderated by the family system. As the conformity orientation suggests, parents may have more input and influence on children's attitudes and beliefs (Koerner & Fitzpatrick, 2002; 2006). The family type should therefore be taken into consideration when communicating with child stakeholders. More research in the future should continue exploring children as stakeholders for organizations, especially also in their role as part of a family system.

This leads to another question and consideration. Although stakeholder research differentiates between different levels and types of stakeholders, and situational theory similarly differentiates among the importance of publics (e.g., Major, 1998), there may be an additional dimension to take into consideration and more fully examine—the interconnectedness of stakeholders (e.g., Mish & Scammon, 2010). Especially with new media, this idea has been more common, yet the interconnections of individual stakeholders as part of family groups has not been actively explored in public relations, and especially risk and crisis communication. This study showed the importance of family types in one preparedness situation.

Furthermore, one important source of information about preparedness is family members. Major (1998) found that interpersonal discussions play a very important role in preparedness

understanding. Most public relations campaigns, according to Major, focused on individuals and the media and less on the community and social networks. Especially with social media, there are more opportunities for public relations campaigns to use the interpersonal networks of families and friends to achieve an increase in disaster preparedness. In general, future research in public relations should consider further exploring family systems as stakeholders and their impact on the communication process with organizations. More specifically, research should also focus on better understanding stakeholder networks and creating campaigns that rely on the ties in these networks.

Extension of the Extended Parallel Processing Model

The analysis of the data revealed a link to the extended parallel processing model. The EPPM was adapted to shed light on some of the connections that emerged from the data. However, EPPM originally described the response to fear appeal messages and not to on-going risk situations (Witte, 1992; 1994). Therefore, the tenets of the model should be extended to include situations where a manifestation of risk into a crisis is inevitable, such as natural disasters. The decision process, as suggested from the data here, followed the same paths of fear or danger control to describe which reactions a family will take. The EPPM has been extended to contexts beyond health risk messages, for example into the realm of intercultural communication (Sobre-Denton & Hart, 2008) and has also been applied in a natural disaster setting (Roberto et al., 2009).

An additional extension is the inclusion of the concept of “family efficacy.” Most efficacy research has focused on an individual level construct. However, researchers have begun to further explore the constructs and family efficacy (e.g., Bandura et al., 2011; Caprara et al.,

2004). Roberto et al. (2009) proposed the extension of the EPPM to integrate perceived collective efficacy as part of the efficacy variable. Smith et al. (2007) found support for this extension of the EPPM. Roberto et al. (2009) furthermore suggested that there may be a relationship between the community or society level of efficacy and the individual level. When society is perceived to have a higher level of efficacy on a specific topic (e.g., actions to reduce global warming), then the individual may mirror a higher level of perceived self efficacy. By extension, families living in a community with higher efficacy in respect to hurricane preparedness and response should also display higher levels of perceived family efficacy. This assumption is further underscored by the concept of disaster subcultures in those communities with a past disaster experience (Helsloot & Ruitenberg, 2004). Members in these subcultures display higher levels of readiness.

Additionally, another finding from the analysis may be explained in this context. Families who have lived in their homes for over 10 years tended to have a higher level of material preparedness. They also described the close community connections they experienced after the last hurricane. The neighbors helped one another rebuild, cook, and just spend time together. The families remembered this time after the storm fondly and described it as a positive experience. Research on disaster recovery has shown the importance of volunteering and helping after a disaster to increase coping and resilience (e.g., Steffen & Fothergill, 2009). These findings may further support the inclusion of learning processes into the hurricane preparedness model and maybe even for the EPPM. As mentioned above, family preparedness may vary from year to year. Furthermore, learning from a positive hurricane experience may further increase perceived family efficacy and increase preparedness in the future. Unfortunately, there is little longitudinal

research to better understand these learning processes and their impact on preparedness, efficacy, risk perceptions, and crisis response. This is another area in which future research is desperately needed.

Future Research Directions

In this study, complexities of the hurricane preparedness processes became clear. Nevertheless, areas for future research remain, and several have already been suggested above. The findings thus far call for an increase in research focusing on different family constellations, such as single-parent households, the differences between disaster kits versus “scattered preparedness,” the implications of different types of evacuations, the importance of children and families as stakeholders for organizations, and the applicability of the proposed hurricane preparedness model and the EPPM, such as family efficacy.

Preparedness as a process variable should be explored in the future and in other contexts. Specifically contexts in which there is little warning before a crisis hits. To flesh out the concept of preparedness, future research could study preparedness in other natural disaster settings, such as earthquakes. These natural disasters do not come with advance warning and allow little time to get ready. Would a state of readiness be more advantageous in these situations? Furthermore, preparedness may vary further when studying different crisis types. Industrial crisis or management crisis tend to come with warning signs and some scholars suggest that they could be prevented (e.g., Coombs, 2007).

Gaining access to one group instrumental in preparing for natural disasters has provided complexities of this particular phenomenon. Studying preparedness in organizations using a

similar grounded theory approach would be a promising endeavor to better understand how organizations prepared.

Future research should further explore the hurricane preparedness model proposed here. The strength and directionality of some of the relationships should be tested for broader audiences in the future. Extensions to other disaster settings would also be an interesting and enriching direction for future research to expand and specify this model further.

Practical Implications

A few implications for communication campaigns have been mentioned above, such as targeting preparedness messages to specific stakeholders like single-parent households and the different needs they may have in comparison to other family types. Other practical implications are related to (1) family level communication, (2) a focus on stakeholder needs, and (3) an increase of a general preparedness culture.

Family level communication.

Future communication campaigns should consider a greater focus not on individuals but on families. Especially because family members are a main source of information for preparedness actions targeting families, their networks, and communities, an extension of the target audience, is warranted. Aside from trying to communicate a direct increase of preparedness it may be more beneficial to focus on interpersonal communication which may, by extension, have a positive impact on preparedness actions.

Roberto et al. (2009) bring up the concept of societal risk judgments. This concept suggests that people may perceive risks not for themselves but for others and may therefore encourage others to take actions. Morrison (2005) and Lindsey (2005) have studied this concept

in an adaption of the EPPM. Both authors found a positive relationship between indirect fear appeal messages and actions taken to reduce the risk to another person. These studies underline shifting the communication focus away from trying to increase an individual's preparedness to encouraging family and community networks to assist in increasing natural disaster preparedness.

Another important shift in focus identifies children as stakeholders. Children have influence in their families. In concert with King (2000), presenting natural disaster information and preparedness in educational settings, such as schools, may increase awareness and spark conversations in the family. Again, the indirect paths to behavior change seem very promising for future communication campaigns.

Focus on stakeholder needs.

It seems that many of the current preparedness messages do not reach the intended stakeholders. This may partially be attributed to a lack of clear definition of who the actual stakeholders for communication tactics are. For example, the "get ready" campaign describes that it targets both individuals and families in the United States (Hocke, 2011). With such a broad definition of stakeholders, it is difficult to find the appropriate strategies and tactics to communicate effectively. It is therefore even more important to clearly identify which stakeholders are to be reached and what the actual gaps in preparedness may be. For example, although most families in this study did not have disaster kits, they did have many of the content that is usually defined as essential for disaster kits, in their homes. Messages that advocate disaster kits may therefore fall short because the families already have a form of "scattered

preparedness.” Focusing on increasing the type of preparedness families already have in place should yield more impact.

Furthermore, most campaigns, such as “get ready,” have one message that is supposed to prepare a family for all different types of natural and human-made disasters. However, this study suggested that families evaluate the crisis risks they are most prone to and consider preparedness accordingly. In Houston, for example, wildfires are not common. With the drought of 2011, the city was faced with wildfires very close the city limits. Most families had not considered wildfires to be a threat. Similarly, even tornados were not considered a natural disaster that all families prepared for. Both natural disaster examples leave little preparation time. Most families in this study felt that they were not prepared for these types of disasters. This suggests that providing information about those disasters that could actually afflict families in a certain region may have a better impact than the general messaging. Furthermore, some families were very active in searching for additional information. Providing a basic stock of information about probable disasters and means for accessing more information has been proposed in the past but has not been introduced as a strategy in natural disaster preparedness campaigns.

Create a general preparedness culture.

Research suggests that disaster subcultures, collective efficacy, and societal efficacy can create an environment in which individuals and families will increase their preparedness. The creation of a culture of preparedness, not just for natural disasters but crisis in general, should encourage higher levels of preparedness from individuals, families, to organizations, and society in general.

Higher levels of community efficacy have shown positive impacts on individual and family actions (e.g., Roberto et al., 2009; Smith, et al., 2007). Steffen and Fothergill (2009) further encourage increasing volunteering and helping after disasters as a means of coping and recovery. This also applies to preparedness, so the authors. To create this culture of preparedness, supporting the Community Emergency Response Teams (CERT) is a valuable way to increase citizen group resilience and preparedness. Aside from assisting in creating awareness and preparedness in communities, CERTs are essential as first responders in the aftermath of a disaster (Steffen & Fothergill, 2009). Therefore, encouraging this type of community preparedness culture can increase preparedness of community members in general but will also provide assistance for the recovery from disasters.

Limitations

As with every research approach, there are also some limitations to this study. One main limitation of most qualitative research is that the findings cannot be generalized to a larger population. However, as grounded theory research suggests, patterns that emerge with consistency among a group of participants provide a consistent explanation that may be extended to a larger context.

The data collection process did not work as originally planned. The snowball sampling technique did not bring the anticipated results. This may explain why many of the participating families did not live within the city limits of Houston but within the greater Houston area, including Tomball, Katy, and League City, Texas. More diversity in the sample in respect to ethnicities may have brought some additional insights into risk perceptions, family types, and hurricane preparedness.

The interviews varied in length and not all participants were as readily interested in sharing a lot of context information about themselves or their families. This inhibited some of the context analysis for some of the families. Additionally, many of the parents and children did not slip into a dialogue or natural conversation style but focused on answering questions. It seemed they remained very aware of a role they created for themselves, that of the interviewee, instead of the role of an active participant. Of course, the researcher may have also contributed to this. Body language, personality traits, and the situation of visiting a family in their home may have contributed to creating the roles of interviewer-interviewee. The researcher had placed a lot of effort into her appearance and reflected on body language and communication, however, there may still be room for improvement for future studies.

Nevertheless, especially emotional topics of disaster experiences allowed the participants to share in more detail about themselves and their experiences. With the busy lifestyles most families had, the two hour long interview seemed inconvenient to some of the parents. Carving out two hours in the schedules of most families seemed a daunting task and could also explain some of the varied lengths of interviews. At the end of a busy day, the parents and children sometimes were tired and maybe not as willing to discuss natural disasters and preparedness.

Strengths

Even with these limitations, the study revealed new insights into the understanding and construction of hurricane preparedness in families with children. Relying on grounded theory revealed the core category after the open and axial coding steps and brought depth to the connections and relationships between categories. This approach allowed the freedom to observe families in their homes and in constellations that made them comfortable. It provided the

necessary flexibility and guidance to interview parents from different backgrounds and different family types and a variety of different children. With the complexities of today's families, a grounded theory approach was best suited to capture and make sense of these varying family constellations and sense-making processes while focusing on natural disaster sense-making and preparedness.

In addition, a family perspective continues to be taken less often than individual approaches, even in the family stress field. Therefore, this study adds weight to an approach that provides depth to public relations, disaster, and family stress research. It was one of the great strengths of this study that not only parents but also children were interviewed, to provide a more nuanced understanding of family sense making processes. Furthermore, being allowed access to family homes greatly increased the value and understanding of context for natural disaster preparedness.

As mentioned at the beginning of this study, little research has focused on the crisis preparedness stage of the crisis management process. This study was successful in capturing some intricacies of this stage. Family natural disaster preparedness can now be better understood and with these findings, communication campaigns targeting families can be further advanced. The extensions to the EEPM are valuable for theory extension in the field as well as providing more depth to the application of communication in risk situations.

Conclusion

In conclusion, this study was able to provide in-depth insights into preparedness actions of families with children age 8 to 12. The grounded theory approach revealed connections between categories that had not been considered before. Furthermore, research from family

studies, family communication, risk and crisis communication, and public relations was found to connect and provide new and helpful insights. The findings answered two research questions about hurricane sense-making and hurricane preparedness in families. They also raised many new questions for future research. With both the academic and practical implications the findings could be used to better prepare society, organizations, and families for future natural disasters.

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Appendices

Appendix A – Interview Guidelines

Appendix A – Interview Guidelines

Parent Interview Guideline

General question areas	Possible probes
Personal information and about family life	Tell me about yourself? Tell me about your family? - Ups & downs - Children - Things children talk about / worry about - Everyday family life
Media usage	Which media outlets do members of the family possess? Who uses which media? When? Preferences?
Natural disaster experience?	- What is a natural disaster in your opinion? - Do you have experience with any? Which ones? What do you think about...? - Knowledge about disasters and consequences?
Disaster Preparedness	Do you feel prepared for natural disasters? - Why? Why not? - Which ones? - Should you prepare? - How do you prepare? - Have you thought about / talked about preparation? How do you prepare as a family? Are you preparing with your children? How? Why? Why not? Media's role in disaster preparedness? Knowledge about specific preparedness elements: - Communication plan - Evacuation plan - Disaster kit
Other	(Emergency; fire safety; school safety) (how can preparedness be increased?)

Child Interview Guideline

Getting to know the child: (Communication Plan as a guide)	What is your name? Tell me about yourself?
Tell me about yourself?	What do you do in your free time? What do you do after school/ with your friends? Tell me about your family ⇓
Media usage	Media usage: Which? When? How often? Favorites? Why? Tell me about your favorite: TV shows, movies etc.
Disasters	Tell me what kind of things you think about when you hear the word: - Disaster? - Emergency? What would you do in an emergency / disaster? Do you know what a Tornado / Hurricane / Thunderstorm is? Have you ever experienced any of these? Tell me about your experience with...
Preparedness	Have you talked to your parents about disasters/emergencies? Which ones? Tell me about that. What would you do if you got separated from your parents? Have you talked about disasters at school? Have you learned any way to protect yourself?
END FORMAL INTERVIEW / CONTINUE WITH QUESTIONS DURING ACTIVATION TECHNIQUE	
Activation Technique	I brought some materials that we could use to prepare for a disaster. Do you know what a disaster kit is? What do you think should go into one and why? Why don't you help me pack one?

Appendix B – Debriefing Materials

Appendix B – Debriefing Materials

Information about Disaster Preparedness for Families and Children

Disaster Preparedness for Families (Disaster Communication/Information Kit):

The National Center for Missing & Exploited Children (NCMEC) reminds families that it's important to plan for your family's safety.

Families may become separated during the chaos of a natural disaster, especially when evacuation is required. NCMEC offers the following recommendations to all families potentially impacted by a natural disaster:

- **Know where your kids are** at all times.
- **Stay together.**
- **Take photos of your children** with you when evacuated.
- **Give children identification information to carry with them**, including the child's name, date of birth, address, phone numbers, etc. *If a child is too young or otherwise unable to speak for him- or herself, consider writing his/her name, date of birth, parents' names, home address, and telephone/cell numbers somewhere on the child's body in indelible marker.*
- **E-mail digital photos of all family members** to extended relatives and/or friends.
- **Photocopy important documents** and mail to a friend/relative in a safe location.
- **Make a plan** with your children, so they know what to do if your family becomes separated during an evacuation.

(for additional information you can also access:

http://www.missingkids.com/missingkids/servlet/PageServlet?LanguageCountry=en_US&PageId=3252)

Other online sources that include activities for children and families to prepare for disasters are:

<http://www.fema.gov/kids/>

<http://www.ready.gov/kids/home.html>

<http://www.sesamestreet.org/ready>

Information materials for parents:

*<http://www.ready.gov/america/index.html>

http://www.nasponline.org/resources/crisis_safety/naturaldisaster_ho.aspx

http://www.nctsn.net/org/nctsn_assets/pdfs/age_related_reactions.pdf

Information from the city of Houston:

<http://www.houstonoem.net/go/site/1855/>

<http://www.hcoem.org/Default.aspx?P=Home>

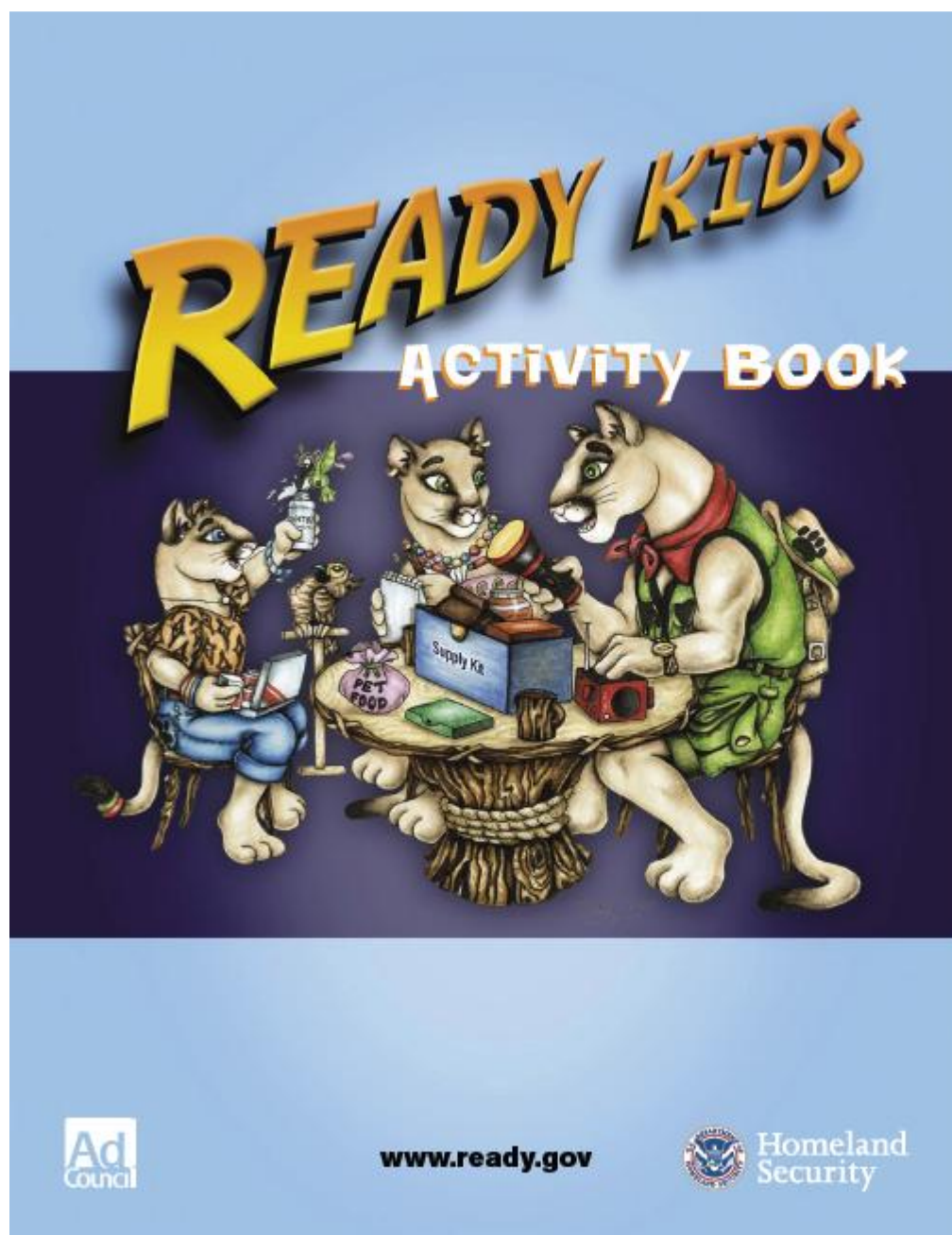
Counseling Information:

Psychology Research and Services Center at the University of Houston

Contact: 713-743-8600 (Option 2)

Website and Information: <http://www.uh.edu/prsc/>

Activity Book retrieved from: <http://www.ready.gov/kids/home.html>



BE PREPARED IN EVERY SITUATION

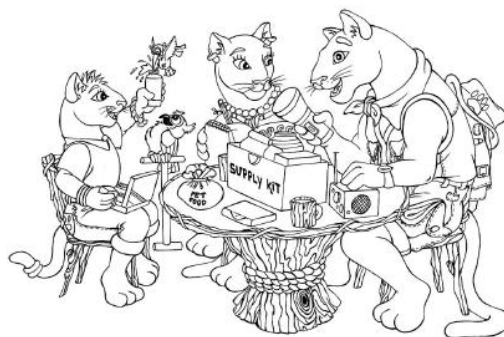
You're already a great planner! Every day you get your homework done, get to music or sports practice on time, and plan where and when you'll meet up with your friends. Are you ready to put your planning skills to good use? Are you ready to help your family get prepared for the unexpected?

It's simple! It just takes planning and practice and these fun coloring and activity pages from *Ready Kids* will help. Together with Rex, the *Ready Kids* mountain lion mascot and his family, you will learn how to make an emergency supply kit, a family emergency plan, and be ready for many different kinds of unexpected situations.

You and your family can learn even more about preparing for the unexpected by visiting the *Ready Kids* website at www.ready.gov. Log on with your parents and click on *Ready Kids* to find easy steps that will help your family be ready!



FAMILY EMERGENCY SUPPLY KIT

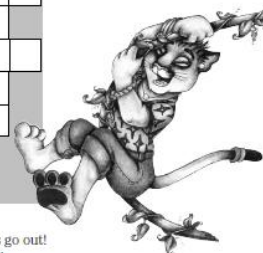
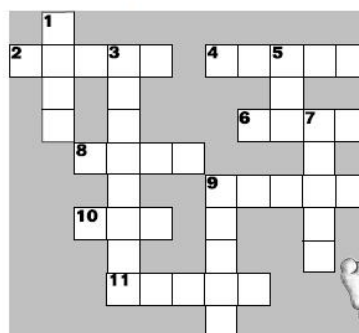


FAMILY COMMUNICATION PLAN





EMERGENCY PREPAREDNESS CROSSWORD PUZZLE



ACROSS

2. _____ light: A handy tool to have if the lights go out!
3. _____ Every person needs one gallon of this per day!
4. _____ This comfortable piece of furniture should not be part of a family's supply kit.
5. _____ Furry family members that should be part of your preparedness plan.
6. _____ Some people have a _____ between meals if they are hungry.
7. _____ You might find water, a flashlight, or a whistle in an emergency supply _____.
8. _____ Fun items that families can play together.

DOWN

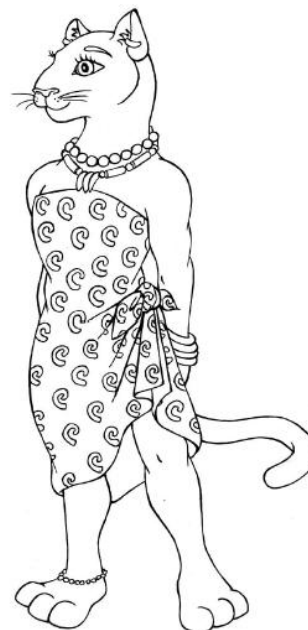
1. Families can create a communication _____ so that they know where to meet and whom to call during an emergency.
3. _____ bag: Great for napping or keeping warm.
5. Every family member should carry a contact list with at least _____ different phone numbers that will allow you to keep in touch during an emergency.
7. It's important to get the _____ about different kinds of emergencies, so that you know what to expect.
9. Keep an extra pair of these in your supply kit to keep your feet dry!

Source: www.bls.gov.
 Note: All figures are in millions of dollars.

REX



PURRCILLA



FAMILY OUTING



EMERGENCY PREPAREDNESS WORD SEARCH

LEAFBEHSCYLCDDQO
 CARDAOUCUQFTTPIQ
 TSEJQMGP I RNKDNF
 UFNPF I PQPLAHKJ
 ABOWZJWLENRDZUB
 MGRWWGYJ EABAC
 AVPOGAUKBPOTCNW
 FKLAHWIHNLSJL
 YIPUZEMTKUPAEIN
 MEETINGPLACENN
 BMJYDOSLCYTEFAS
 GUJCALMKMLOLKJC
 ENODLSWKEHFNLT
 HCHPVQJMIQSLJS
 AFQSZQKNLVMOTXN

WORDS TO FIND:

- ☐ BACKPACK
- ☐ CALM
- ☐ FAMILY PLAN
- ☐ LISTEN
- ☐ MEETING PLACE
- ☐ PHONE
- ☐ RADIO
- ☐ SAFETY
- ☐ SUPPLY KIT

RORY



HECTOR



REX



Ready Kids is part of the Ready campaign, a common-sense framework designed by the U.S. Department of Homeland Security and the Advertising Council to educate and empower Americans to prepare for and respond to emergencies.



READY *KIDS*

U.S. Department of Homeland Security
Washington, DC 20528



Family Supply List

Emergency Supplies

Water, food, and clean air are important things to have if an emergency happens. Each family or individual's kit should be customized to meet specific needs, such as medications and infant formula. It should also be customized to include important family documents.

Recommended Supplies to Include in a Basic Kit:

- ✓ **Water** one gallon per person per day, for drinking and sanitation
- ✓ **Non-perishable Food** at least a three-day supply
- ✓ Battery-powered or hand crank **radio** and a **NOAA Weather Radio** with tone alert and **extra batteries** for both
- ✓ **Flashlight** and **extra batteries**
- ✓ **First Aid kit**
- ✓ **Whistle** to signal for help
- ✓ **Filter mask** or cotton t-shirt, to help filter the air
- ✓ **Moist towelettes, garbage bags** and **plastic ties** for personal sanitation
- ✓ **Wrench** or **pliers** to turn off utilities
- ✓ **Manual can opener** if kit contains canned food
- ✓ **Plastic sheeting** and **duct tape** to shelter-in-place
- ✓ **Important Family Documents**
- ✓ **Items for unique family needs**, such as daily prescription medications, infant formula or diapers
- ✓ **Cell phone and chargers**



If you live in a cold weather climate, you must think about warmth. It is possible that the power will be out and you will not have heat. Rethink your clothing and bedding supplies to account for growing children and other family changes. One complete change of warm clothing and shoes per person, including: important family documents.

Clothing and Bedding:

- ✓ **A jacket or coat**
- ✓ **Long pants**
- ✓ **A long sleeve shirt**
- ✓ **Sturdy shoes**
- ✓ **A hat and gloves**
- ✓ **A sleeping bag or warm blanket** for each person



Family Supply List

(continued)

Below are some other items for your family to consider adding to its supply kit.

Some of these items, especially those marked with a * can be dangerous, so please have an adult collect these supplies.

- ✓ Emergency reference material such as a first aid book or a print out of the information on **www.ready.gov**
- ✓ Rain gear
- ✓ Mess Kits, paper cups, plates and plastic utensils
- ✓ Cash or traveler's checks, change
- ✓ Paper towels
- ✓ Fire Extinguisher
- ✓ Tent
- ✓ Compass
- ✓ Matches in a waterproof container *
- ✓ Signal flare*
- ✓ Paper, pencil
- ✓ Personal hygiene items including feminine supplies
- ✓ Disinfectant *
- ✓ Household chlorine bleach * - You can use bleach as a disinfectant (diluted nine parts water to one part bleach), or in an emergency you can also use it to treat water. Use 16 drops of regular household liquid bleach per gallon of water. Do not use scented, color safe or bleaches with added cleaners.
- ✓ Medicine dropper
- ✓ Important Family Documents such as copies of insurance policies, identification and bank account records in a waterproof, portable container.



Activity book for children from Sesame Street; retrieved from
<http://www.sesamestreet.org/ready>

Let's Get Ready!

Join Grover and Elmo
to learn how families get ready
for emergencies.





Parents and Caregivers:

Together, You Can Get Ready! Use everyday moments to talk to your child about the things you can do together to help keep your family safe if there is an emergency. Just as you help your child get ready for a car trip by buckling up her car seat, your family can get ready for emergencies by creating a plan. Watch your child's confidence rise as she helps. And when you use songs and games, learning important personal information can be fun!

Together with your child, share this story and find out how Grover and Elmo get ready for emergencies with their own families. Guide your child through the activities that help her practice important phone numbers, her whole name, your whole name, and her address. You can reread this story with your child anytime to get her comfortable with your family's emergency preparations - all with a little help from her pals on Sesame Street!

Hello, everybodeeee!

I, your furry, blue friend Grover, have a story to share. Are you wondering what it is about?
I will give you an itty-bitty hint: It is about getting ready for emergencies! Oh boy, that was a big hint. Do you want to get ready, too? You do?
Oh, I am so pleased. Then read this story with me, and let us get ready together!



Oh, I am so excited! Elmo is going to get ready for emergencies with us!

Elmo can't wait to get ready! But...what's an emergency?



"An emergency is something that we do not expect to happen," Grover explains. "Together we act quickly to keep ourselves safe."

"We do things every day to be safe," says Grover's mommy.

"Yeah," says Elmo. "When we ride our tricycles, we always wear helmets!"

"That's right," says Grover's mommy. "And families can be safe in an emergency by making a family emergency plan."

"Wow!" says Elmo. "But...what's a family emergency plan?"

"It is when you talk with your family about what you will do if an emergency ever happens," Grover answers.

"Elmo hopes Elmo's family has a family emergency plan," says Elmo.

Grover smiles. "Let us go find out!" he says.



As they walk along, Elmo asks, “Who will tell Elmo what to do if there’s an emergency?”

“Elmo, your mommy and daddy will tell you what to do,” Grover’s mommy assures him. “And if you’re not with your parents, there are other grown-ups who can help you, like police officers, firefighters, and doctors. They are called neighborhood helpers. And teachers are there to help, too.”

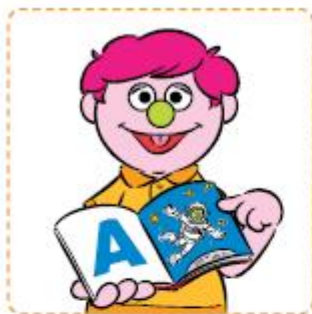


The Helpers in Your Neighborhood Use your finger or a crayon to help Elmo, Grover, and Grover’s mommy visit their neighborhood helpers.





Helping Hands Cut out the cards. Match the helpers to their workplaces in the maze on page 2. On the blank cards, draw pictures of other helpful people, such as a neighbor. A grown-up can help you write on the backs of the cards how each person is helpful.



Make Finger Puppets! In the blank space, draw or paste a picture of yourself. Cut out the picture, wrap it around your finger, and tape it closed. Wear it to visit neighborhood helpers on page 2. Store cutouts in an envelope, and use them again!





Guess Which Helper I Am! Play this with a friend or a grown-up. Pick a card and pretend you are the person on the card. Tell about how you help people. See if your friend can guess who you are!

I'm a doctor.
At the hospital, I help
people who are sick
or hurt feel better.

I'm a teacher.
I help children to learn
and play at school.
And I'm here if you need
someone to talk to.

I'm a firefighter.
I help put out fires.

I'm a police officer.
I help people stay safe.



Use the puppet
with your picture
on it to come
along with Elmo
and me to learn
more about
getting ready for
emergencies!



Now get ready
to talk numbers—
phone numbers,
that is!



“Visiting our neighborhood helpers was fun!” says Elmo.

“The police officer told Elmo and Grover to press the numbers 9-1-1 on the phone when help is needed during an emergency and there is no other person to help.”

“When we call 9-1-1 we can ask grown-ups for help,” says Grover’s mommy.

Grover says, “Let us remember the number this way:
To get help, dial 9-1-1!”

“*To get help, dial 9-1-1!* Elmo likes that! Does Grover know his own phone number? Elmo knows *Elmo’s!*”

“My mommy and I practice it together,” says Grover. “It is part of our family emergency plan. Now let us practice dialing our phone numbers!”



Know Your Number! Ask a grown-up to help you write your phone number on the line. Then use your finger to practice pressing the numbers. You can also practice dialing 9-1-1 to get help.

()

My Phone Number





As Elmo, Grover, and Grover's mommy continue to Elmo's house, they see Rosita and Big Bird.

"Hi!" says Big Bird. "We were just talking about names. Did you know that Rosita's whole name is Rosita de las Cuevas?"

"Sí. I have a first and a last name," explains Rosita. "And Big Bird does, too!"

"That's right. It's called a whole name," says Big Bird.

"We practice both our names so we'll remember them if there is an emergency."

"I made up a song to help me remember my whole name!" says Rosita.

*"My first name is **Rosita**; I'll sing it loud.
My last name is **de las Cuevas**; it makes me proud!
I'm **Rosita de las Cuevas**; now I bet
That's a name you'll never forget!"*

Now sing Rosita's song using your own whole name. Very good. Now let us get wild and crazy! Sing the song using your parents' first and last names. Oh, I am so impressed!



The friends are almost at Elmo's home.

"Does Grover know Elmo's address?" asks Elmo. "Elmo made up a special song to help Elmo remember!"

Elmo knows his own address.

This is where he lives:

4-5-6 Sesame Street.

This is where he lives!



Draw a picture or paste a photo of your home in the box below. Ask a grown-up to help you write your address on the line.

My Address _____

Practice Elmo's address song using your own name and address! I practice my address, too, so I can tell a grown-up where I live if there is an emergency.



Family Activity:

Pretend one of the puppets on page 3 is a police officer. Talk with your child about the importance of knowing his address, his whole name, and your whole name. You might say, "I want to help you get home. Can you tell me what your address is?" He can share the information with a trusted adult, such as his teacher, to reach you in an emergency.



At Elmo's house, Grover and Elmo share with Elmo's mommy and daddy what they've learned about making a family emergency plan.

"And part of an emergency plan," says Elmo's daddy, "is to choose a special meeting place in case we can't get home."

"But, Daddy, where is our meeting place?" asks Elmo.

"We haven't picked one yet, Elmo," says Elmo's mommy. "It should be a place we all know. How about Hooper's Store?"

"Great idea!" says Elmo. "Elmo's happy you'll take Elmo to Hooper's Store!"

Where will your family go if there is an emergency and you cannot be at home?



Where To Meet Paste a photo or draw a picture of your family's meeting place in the box below.

My Family's Meeting Place

"Let's pack our family emergency kit, Elmo," says his mommy.

"Elmo would love to!" says Elmo.

"But...what's a family emergency kit?"

"It's where we can put things we might need, such as food and water, in case something happens that we don't expect," says Elmo's mommy. "It's part of our family emergency plan."

Can you help Elmo find these items for his family emergency kit? What special things are in your family's kit?



Family Activity: Help your child look for more items in the picture that you might include in your own family kit. As you pack your kit, ask your child to pick a toy or stuffed animal she'd like to include - one she won't miss if it's packed away.

Good-bye, everybodeeee!

We have reached the end of our story. You have learned so much about getting ready for emergencies! I, your lovable friend Grover, have learned a lot, too! Please come back soon and read this story with me again. I will be waiting for you!



Family Activity: Just like his Sesame Street pals, your child can have fun getting ready for emergencies with his family. Ask for his help as you make your family plan, choose your meeting place, and pack your emergency kit. Have fun practicing names, addresses, and phone numbers using the songs and activities in this book. And remind your child that if there's an emergency, you or his caregivers and neighborhood helpers will be there to help him.



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A creation of
sesameworkshop.

The nonprofit educational organization behind Sesame Street and so much more

Produced in partnership with and funded by



Additional support from

The Blanche and Irving Laurie Foundation

Initial support provided by Bear Stearns Charitable Foundation



Printed by a Carbon Zero company using vegetable-based inks.

Sesame Street Family Overview retrieved from: <http://www.sesamestreet.org/ready>

Let's Get Ready!

Planning Together for Emergencies™



Parents and Caregivers

You and your family help one another every day by getting ready for work and school. You also do things to keep one another safe, such as buckling up in the car. Preparing for emergencies is another great way to get ready and keep your family safe.

Young children can help! Through simple activities and games, you can discover how to get ready for emergencies together. Everyday moments you share, such as passing by a police officer, are great opportunities to talk about the people, places, and things that will help keep your family safe if an emergency happens.

Guide your child through the activities on this page to help him practice important personal information. If he's not with you during an emergency, he can share this information with trusted adults. To view the "Let's Get Ready" video and access more downloadable materials, visit sesamestreet.org/ready. You'll find activities, tips, and other easy ways to help the whole family prepare for emergencies – together!

Hello, everyone!

I, your furry, blue friend Grover, am getting ready for emergencies! Did you know that an emergency is something that happens that we do not expect? Families can get ready for emergencies by making an emergency plan together. And you can also get ready by practicing your name, your phone number, and your address. Will you practice with me? You will? Oh, I am so pleased!



Sing Your Name With Rosita.

Now try it with your parents' first and last names. We'll sing!

My first name is Rosita; I'll sing it loud.

My last name is de las Cuevas; it makes me proud!

I'm Rosita de las Cuevas; now I bet – That's a name you'll never forget!



Practice Your Address On a sheet of paper, draw a picture or paste a photo of your home. Ask a grown-up to help you write your address on the picture.



Dial Your Number

Ask a grown-up to help you write your phone number on the line. Then use your finger to practice pressing the numbers.



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My Phone Number

A creation of

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The nonprofit educational organization behind Sesame Street and so much more

Produced in partnership with and funded by



Additional support from

The Blanche and Irving Laurie Foundation

Initial support provided by Boer Stoerms Charitable Foundation

In consultation with the Department of Pediatrics of Weill Medical College of Cornell University

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► A SPECIAL
MAGAZINE FOR
PARENTS AND
CAREGIVERS



Let's Get Ready!

Planning Together for Emergencies™



Make an **Emergency Plan** With Your Family

Help Your Child **Learn and Practice** Personal Information

Create a **Family Emergency Kit**

Let's Get Ready Together!



You and your family help one another every day by getting ready for work and school. You also do things to keep one another safe, such as buckling up in the car. Preparing for emergencies is another great way to get ready and keep your family safe.

Young children can help! Through simple activities and games, you can discover how to get ready for emergencies together. Everyday moments you share, such as passing by a police officer, are great opportunities to talk about the special people, places, and things that will help keep your family safe in case an emergency ever happens.

Sesame Workshop has created *Let's Get Ready! Planning Together for Emergencies* with tips, activities, and other easy ways to help the whole family prepare for any type of emergency – together! Here's what you'll find in this special publication:

Contents

TALK ABOUT IT Tips on talking with children about emergencies.....	2
IT'S A PLAN! Ways to include your child as you create a family emergency plan.....	4
OUR FAMILY'S HEALTH AND CONTACT INFORMATION Reproducible pages that help you create your family's emergency plan.....	6
LET'S GET PERSONAL Songs and activities to help your child learn and practice important personal information.....	8
OUR FAMILY'S EMERGENCY KIT A handy checklist for creating and packing your kit.....	9
TOGETHER, WE CAN BE READY! Fun games to help you remember and practice your plan.....	10





Talk About It: What's an Emergency?

With simple words and familiar examples you can answer this question! Your child will discover that preparing for emergencies is important. And she'll feel secure in learning about all the things that already help us stay safe.

EXIT Talk with your child about emergency EXITS. The next time you are in a public building, such as a school, point out the EXIT signs. Say, "If something happens and we need to get outside in an emergency, we can use the special door with the big red EXIT sign. It will help us get outside quickly and safely." Occasionally try making a game of looking for EXIT signs. Soon your child will be aware of them on her own.



All around us, there are people who help keep us safe. Our communities are full of special people who are ready to help us if we need it. For instance, a crossing guard holds up a stop sign to traffic so we can safely cross the street.

Every day, your family does things to stay safe, too.

Talk about how you hold hands and look both ways before crossing the street and how your family always wears seat belts in the car. Your child also does things to protect himself, such as wearing a helmet when he rides a bike. You can say, "Just like we get ready for these things, we can get ready for emergencies: For example, we have a flashlight *just in case* the lights go out."

Everyday Emergency Signs and Signals

From time to time, talk with your child about things she might see or hear during an emergency. That way, if an emergency happens, she'll be familiar with the signs and signals around her. Together, use your eyes and ears to notice some of these things:

 **Sirens and Lights** If you hear a siren or see its flashing lights, you might say, "When we hear the siren or see the flashing lights of an ambulance, a fire truck, or a police car, that's a sign that there's an emergency and someone is coming to help."

 **Emergency Alarms** Explain to your child that in an emergency, buildings can make loud sounds, too! If your child has ever experienced a fire drill and heard a fire alarm, you can use it as an example and say something like, "Alarms help people know when they should leave a building and go to a safe place."



Q+A

ABOUT EMERGENCIES

As a parent or caregiver, you know that some of your child's questions are trickier than others! Here are some ways to respond to questions about emergencies:

What is an emergency?

An emergency is when something happens that we do not expect and we have to act quickly to keep ourselves safe.

Is an emergency going to happen to us? Maybe not, but it is a good idea to get ready for one, just in case.

What will happen if you aren't there? The grown-ups you're with – your teacher, babysitter, grandparents – will help you reach me and will help to keep you safe.

Have you ever been in an emergency? If you've been in an emergency, you might say something like, "Yes. I felt a little scared, but there were lots of people who helped me stay safe."

“Aunt Sandi! She’s one of the people who will help us if there’s an emergency.”

It's a Plan!

Creating a Family's Emergency Plan in Four Simple Steps

A family emergency plan will help everyone know what to do if an emergency ever does happen. Below are four simple steps you can take to create your plan. You don't need to do them all at once. Take your time – there will be plenty of moments in your family's daily routines to talk about and develop your plan.



Creating Your Family Emergency Plan

Use pages 6-7 to fill in the details.



1. Choose two emergency contacts.

These people will help reunite your family if you're separated. An **out-of-town emergency contact** may not be affected by the emergency and can help make sure you're all OK. A **local emergency contact** can help you with tasks such as picking up your child from child care.

Help your child remember your contacts' names. Every once in a while if you see one of your contacts, talk to that person by phone or e-mail, or spot him or her in a photograph, you might say something to your child like, "It's Aunt Sandi! Did you know her whole name is Sandra Gold? She's one of the people who will help us if there's an emergency."



2. Select an emergency meeting place.

This is the safe place where your family will meet if you can't get home during an emergency. Pick a child-friendly place that's open late, such as a grocery store. If your child is with a caregiver during an emergency, it is safest for him to stay with that person until you can get to him. Talk to your child's caregivers: Is there an evacuation place where they'll meet up with parents?

Remind your child of your meeting place.

From time to time, you might say, "Look, there's the store we'll take you to if there's an emergency. We'll all meet there."



3. Reach out to your community. Friends, neighbors, and emergency workers are your neighborhood helpers. Show your child that these trusted adults are people he can go to for help in an emergency. Take a trip together to fire and police stations to talk about the many important ways these people help. Or on a doctor's visit, talk to nurses and doctors about how they take care of people who are sick or hurt.



4. Learn about the facts. Contact your local fire station, emergency management office, or public safety office to learn how to prepare for specific risks in your area. For instance, if you live in an area where tornadoes are more likely to happen, you might be told to use your basement as your meeting place. Investigate local emergency plans, such as your area's evacuation route, in case there is a major emergency and you need to leave the area completely.



Info to Know
Share copies of your emergency plan with your child's caregivers and teachers, your family emergency contacts, relatives, trusted neighbors, and friends, so they know how to get in touch with you in an emergency. You might ask your child to join you as you share your family plan with a relative or neighbor. Hearing you talk about the plan in a calm way will help reassure your child that if an emergency happens, your family will be ready. This is a simple way to show your child how well prepared you all are!



Our Family's Health and Contact Information



The _____ Family's Emergency Plan

YOUR FAMILY'S LAST NAME

Photocopy this page or download it at sesamestreet.org/ready.

Use this page to write down important contact information for your family members and keep track of the important people and places involved in your emergency plan.

Make copies of your family's emergency plan and share it with the important grown-ups in your child's life, such as your family members, your emergency contacts, her teacher, a key caregiver, or a special neighbor.



This information will help emergency workers care for your family in the event of an emergency.

1.

FAMILY MEMBER'S WHOLE NAME

RELATIONSHIP (MOTHER, FATHER, SON, DAUGHTER, ETC.)

ADDRESS

DAYTIME PHONE

CELL PHONE

E-MAIL

DATE OF BIRTH

MEDICATIONS

ALLERGIES/IMPORTANT HEALTH INFORMATION

2.

FAMILY MEMBER'S WHOLE NAME

RELATIONSHIP (MOTHER, FATHER, SON, DAUGHTER, ETC.)

ADDRESS

DAYTIME PHONE

CELL PHONE

E-MAIL

DATE OF BIRTH

MEDICATIONS

ALLERGIES/IMPORTANT HEALTH INFORMATION

3.

FAMILY MEMBER'S WHOLE NAME

RELATIONSHIP (MOTHER, FATHER, SON, DAUGHTER, ETC.)

ADDRESS

DAYTIME PHONE

CELL PHONE

E-MAIL

DATE OF BIRTH

MEDICATIONS

ALLERGIES/IMPORTANT HEALTH INFORMATION

4.

FAMILY MEMBER'S WHOLE NAME

RELATIONSHIP (MOTHER, FATHER, SON, DAUGHTER, ETC.)

ADDRESS

DAYTIME PHONE

CELL PHONE

E-MAIL

DATE OF BIRTH

MEDICATIONS

ALLERGIES/IMPORTANT HEALTH INFORMATION



Emergency Contacts

Call the out-of-town contact to help keep track of and connect your family members. Call the local contact if you need help with a task in your area.

1. Out-of-Town Emergency Contact

WHOLE NAME _____
 ADDRESS _____
 E-MAIL _____
 HOME PHONE _____
 CELL PHONE _____
 WORK PHONE _____

2. Local Emergency Contact

WHOLE NAME _____
 ADDRESS _____
 E-MAIL _____
 HOME PHONE _____
 CELL PHONE _____
 WORK PHONE _____



Emergency Meeting Place

Meet here if you can't get home. Young children should not go to this place alone; they should stay with a caregiver and wait for their parent/guardian to arrive.

NAME OF LOCATION _____
 TYPE OF ESTABLISHMENT (GROCERY STORE, BOOKSTORE, ETC.) _____
 ADDRESS _____
 PHONE NUMBER _____



Schools and Workplaces

1.
 CHILD'S WHOLE NAME _____
 SCHOOL/CHILD-CARE PROGRAM _____
 SCHOOL/CHILD-CARE PROGRAM ADDRESS _____
 TEACHER'S/CHILD-CARE PROVIDER'S WHOLE NAME _____
 PHONE _____
 EVACUATION LOCATION (IN THE EVENT OF AN EMERGENCY, THE CHILD WILL GO HERE WITH THE TEACHER/CHILD-CARE PROVIDER WHILE WAITING FOR A PARENT/GUARDIAN TO ARRIVE.) _____

2.
 CHILD'S WHOLE NAME _____
 SCHOOL/CHILD-CARE PROGRAM _____
 SCHOOL/CHILD-CARE PROGRAM ADDRESS _____
 TEACHER'S/CHILD-CARE PROVIDER'S WHOLE NAME _____
 PHONE _____
 EVACUATION LOCATION (IN THE EVENT OF AN EMERGENCY, THE CHILD WILL GO HERE WITH THE TEACHER/CHILD-CARE PROVIDER WHILE WAITING FOR A PARENT/GUARDIAN TO ARRIVE.) _____

3.
 PARENT'S/GUARDIAN'S WHOLE NAME _____
 WORKPLACE (OR OTHER DAYTIME LOCATION) _____
 ADDRESS _____
 PHONE _____
 EVACUATION LOCATION _____

4.
 PARENT'S/GUARDIAN'S WHOLE NAME _____
 WORKPLACE (OR OTHER DAYTIME LOCATION) _____
 ADDRESS _____
 PHONE _____
 EVACUATION LOCATION _____



Trusted Adults

If parents/guardians cannot be located, please contact the following people on behalf of the child.

1.
 WHOLE NAME _____
 RELATIONSHIP TO CHILD (AUNT, FRIEND, NEIGHBOR, ETC.) _____
 ADDRESS _____
 E-MAIL _____
 HOME PHONE _____
 CELL PHONE _____
 WORK PHONE _____

2.
 WHOLE NAME _____
 RELATIONSHIP TO CHILD (AUNT, FRIEND, NEIGHBOR, ETC.) _____
 ADDRESS _____
 E-MAIL _____
 HOME PHONE _____
 CELL PHONE _____
 WORK PHONE _____



Doctor/Insurance Information

PRIMARY CARE PHYSICIAN _____
 PRIMARY CARE PHYSICIAN'S PHONE NUMBER _____
 FAMILY HEALTH INSURANCE PROVIDER _____
 HEALTH INSURANCE PROVIDER'S PHONE NUMBER _____
 POLICY NUMBER _____





“Together draw pictures of your house or apartment number and street sign.”



Let's Get Personal

Learning and Practicing Personal Information

Over time, help your child learn important personal information.

Help your child learn her whole name, the whole names of those she lives with (including different last names), her address, and your phone number. If she is not with you, she can share it with trusted adults in an emergency.

Sing a song to help your child remember her whole name and the names of the people in her family!

My first name is _____; I'll sing it loud.
(FIRST NAME)

My last name is _____; it makes me proud.
(LAST NAME)

I'm _____; now I bet
(FIRST NAME) (LAST NAME)

That's a name you'll never forget!

Use pictures to help your child remember her address.

Together, take photographs or draw pictures of your house or apartment number and street sign. Now your child has a visual reminder of where she lives!

Let your child practice phoning you. First with your cell phone turned off or a toy phone and later with a working phone, help your child enter your number.



Info to Know Talk to your child about the ways he can use a phone to get help.

Practicing on both a home and cell phone, teach him how to use speed-dial to call you or your family emergency contact. Explain that 9-1-1 is a special number your child can call when help is needed during an emergency and there is no other person to help. Write "9-1-1" on a piece of paper and help him say the numbers out loud. Pretend by asking questions such as "9-1-1, what's your emergency?" and "What's your address?"

Our Family's Emergency Kit



Create a family emergency kit.

Use this checklist to think about what you might need in case of an emergency. As you add items to your kit, check them off the list. Then keep the kit in your home and let everyone in your family know where it is.

Remember to review your kit's contents regularly (for instance, whenever you check your smoke alarms) to make sure items such as your personal ID and medications are up-to-date.

Let's Get Packing!

Help your child get familiar with your family emergency kit and its child-friendly contents. Try a **family scavenger hunt!** Make a list of items such as a flashlight, whistle, and toy. Then "hunt" together for these items. Let your child be the one to put them in your kit. You might also **decorate your kit together**.

Recommended Items:

- ☐ 2 copies of your family emergency plan (pages 6-7)
- ☐ Personal identification for each family member
- ☐ \$20 minimum cash
- ☐ Extra copies of family health records, list of prescriptions, and insurance papers
- ☐ First-aid kit and manual
- ☐ Prescription and nonprescription medicines for at least 3 days, and an extra pair of eyeglasses or contact lenses
- ☐ 3 gallons of water per person
- ☐ 3-day supply of ready-to-eat nonperishable foods and a manual can opener
- ☐ Battery-powered or hand-cranked radio
- ☐ Flashlight and extra batteries
- ☐ Tools (wrench or pliers) to turn off utilities
- ☐ Personal hygiene items
- ☐ 1 comfort item per child (a teddy bear or other toy)
A teddy bear or a soft blanket may go a long way to comfort your child in an emergency. Ask her what she'd like to include in the kit, such as a doll she uses less often.
- ☐ Pet supplies (food, water, pet carrier, collar, or leash)

Additional Items to Consider:

- ☐ Whistle to signal for help
- ☐ Spare set of car and house keys
- ☐ Local maps
- ☐ Paper cups and plates, and plastic utensils
- ☐ Blankets or sleeping bags
- ☐ Moist towelettes and/or handwashing gel
- ☐ Plastic trash bags
- ☐ Change of clothing, rain gear, and sturdy shoes for each family member
- ☐ Sunscreen and insect repellent
- ☐ Additional items for children (paper, crayons, books, and travel-size games)
- ☐ Special items for infants (small toys, nonperishable snacks) and/or the elderly





Together, We Can Be Ready!

Well done! You've followed the simple steps and worked together to create your Family Emergency Plan. Now that you have a plan, try these fun activities to help everyone practice and remember its key parts:

Help your child practice family names. Every so often, sing the song on page 8 and play a "What's My Name?" game to help her remember that family members have both first and last names.

Play games to refresh everyone's memory about the emergency plan. Pretend to be an emergency contact and challenge the family to guess who you are. Or whisper your emergency meeting spot and have your child draw it for others to guess.

Use everyday moments to talk about the emergency kit.

On a grocery-shopping trip you might see an item you have in your kit. Say something like, "Look – bottles of water. We have those at home in our family emergency kit."

Preparing together helps everyone to feel safe and secure. After all, you've got a plan! As you and your child get ready together, you'll be encouraging him, and everyone in your family, to feel empowered and confident. You've created a strong, caring, and prepared team. This will help all of you respond to any emergency.



Go Online For more information about getting ready for emergencies, visit these helpful Web sites:

- aap.org
- aspc.org
- ready.gov
- redcross.org
- savethechildren.org/useemergency



To view the "Let's Get Ready" video, and access more downloadable material, please visit sesamestreet.org/ready. We invite you to share this information with friends and family.



Your opinion counts! We really want to know what you think of the "Let's Get Ready" materials. Please fill out our survey by visiting sesamestreet.org/ready.



SESAME STREET LET'S GET READY!

A SPECIAL MAGAZINE FOR PARENTS AND CAREGIVERS

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Produced in partnership with and funded by



Additional support from



Initial support provided by Bear Stearns Charitable Foundation

In consultation with the Department of Pediatrics of Weill Medical College of Cornell University

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Vita

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