RISK COMMUNICATION AND CRISIS MANAGEMENT: LESSONS LEARNED FROM THE HURRICANE KATRINA EXPERIENCE

by

JUSTICE D. SMYTH, IV

J. SUZANNE HORSLEY, COMMITTEE CHAIR
KENON A. BROWN
ADAM BROOKS

A THESIS

Submitted in partial fulfillment of the requirements for the degree of Master of Arts in the Department of Advertising and Public Relations in the Graduate School of The University of Alabama

TUSCALOOSA, ALABAMA

2018
ABSTRACT

In August of 2005, the City of New Orleans and its surrounding environs fell victim to Hurricane Katrina, one of the most destructive natural disasters to occur in the United States over the past 100 years.

This study addressed the question of whether, and, if so, to what extent, local media in the greater New Orleans area communicated to the population groups with the most limited resources the grave risks associated with hurricanes in general and Katrina in particular. This study examined two local newspapers, the Times-Picayune and the Louisiana Weekly, for risk communication content published from June 1, 2005, through August 29, 2005.

The results of the study found that while adequate information was published in the pages of the newspapers under examination, many citizens in the Greater New Orleans Area either did not, or could not, act upon the advice and instructions given. Possibilities for this inaction included distrust of the messages or messengers, optimism bias due to previous personal experiences during storm season, or an inability to act due to circumstantial realities related to socio-economic status of the many at-risk citizens living at, or below, the poverty level.

Hurricane Katrina resulted in more than 1,300 deaths and property damage in excess of $100 billion. Effectively communicating about risk is important, and the consequence of failure can be very serious. This research has endeavored, therefore, to provide meaningful analysis of certain effects which were visited upon vulnerable population groups in New Orleans, at least in part, as the result of the risk communication process related to Hurricane Katrina.
DEDICATION

This thesis is dedicated to my father, Jay. Among many other things, he taught me to see things through to completion and enjoy the journey along the way. His love for the people of New Orleans, and people in general, inspired this work.
ACKNOWLEDGMENTS

I take this opportunity to express my thanks to many colleagues, friends, family, and faculty members who have encouraged me to complete this research project. I am especially grateful to Suzanne Horsley, the chairman of this thesis, for her support. I am also grateful to Kenon Brown and Adam Brooks for agreeing to serve on this committee. The guidance from the entire committee has been invaluable. Finally, I wish to show my appreciation to the Graduate School, particularly Susan Carvalho, for working with me to complete this degree.
CONTENTS

ABSTRACT .........................................................................................................................ii
DEDICATION .....................................................................................................................iii
ACKNOWLEDGMENTS ....................................................................................................... iv
LIST OF TABLES ................................................................................................................. vi
CHAPTER 1 INTRODUCTION .................................................................................................1
CHAPTER 2 LITERATURE REVIEW ......................................................................................5
CHAPTER 3 METHOD ..........................................................................................................29
CHAPTER 4 FINDINGS .........................................................................................................38
CHAPTER 5 CONCLUSIONS .................................................................................................47
REFERENCES ....................................................................................................................53
LIST OF TABLES

1. Descriptions of Coded Story Units.................................................................34
CHAPTER 1
INTRODUCTION

On August 29, 2005, the landscape of the city of New Orleans and surrounding parishes were forever altered as they fell victim to Hurricane Katrina, a monstrous hurricane regarded as the most costly and destructive natural disaster to befall the nation in nearly 100 years (Townsend, 2006). Hurricane Katrina caused more than $100 billion worth of property damage, killing more than 1,300 people, displacing thousands more, and evoking psychological disorders, such as post-traumatic stress disorders, that continue to plague Gulf Coast residents affected by the storm. While in the Gulf of Mexico, Hurricane Katrina grew to a Category 5 storm, yet by the time it hit Buras, Louisiana, 54 miles south of New Orleans, the storm had fallen to a still powerful Category 4 hurricane (Brinkley, 2006).

With a diameter of several hundred miles, hovering above the Gulf Coast from southwestern Louisiana to the northwestern edge of the Florida Panhandle, Katrina produced sustained wind speeds of more than 150 miles per hour, moving at the relatively slow speed of 15 to 20 miles per hour. Because of its size, strength, and slow speed, Katrina remained above Gulf Coast residents for hours, dumping large quantities of rain over the saturated and swollen waters, producing a storm surge of 28 feet in some areas along the Gulf Coast. In New Orleans, such huge water deposits led to water overtopping vulnerable levees, leading to breaches or failures among insufficient or weakened areas (Brinkley, 2006). Within hours of the original breaches, 80 percent of New Orleans became inundated with water.
The City that Care Forgot: Ignoring Infrastructure Deficiencies

Hurricane experts, as well as city leaders, local citizens, and news media personnel had questioned the structural soundness of the New Orleans levee system for years, identifying the antiquated and arcane pumping stations as clearly inadequate. In addition, potentially deadly flaws existed in the city’s disaster preparedness, for the funds necessary to solve the problems had not materialized. Rather than allocating essential dollars for a new levee system or the improvement of existing structures, federal dollars barely patched the maze of levee-type structures that protected the citizens of the Crescent City (Brinkley, 2006).

Not since the 1960s, when the Gulf Coast faced two significant hurricanes, Betsy and Camille, had the federal, state, and local governments been confronted with a challenge of this magnitude. Because of the domestic terrorist attacks of September 11, 2001, President George W. Bush had overhauled the national emergency response system (Brinkley, 2006). Yet, despite such measures, New Orleans and most of the Gulf Coast were caught woefully unprepared on August 29, 2005, when Katrina made landfall, destroying houses, schools, churches, and businesses.

Furthermore, research investigating the events of Katrina found overwhelming consensus among scientific experts, emergency workers, and government leaders that basic and fundamental risk communication failures occurred in New Orleans during the summer of 2005. These failures have more than theoretical impact, of course. Such failures are inevitably linked to property loss, personal injury, and death; in the case of Katrina, all of these would have been substantially reduced if appropriate risk communications and evacuation plans had been executed. While governments had reached a consensus regarding appropriate and effective risk communication messages and delivery systems associated with catastrophic natural disasters
(e.g., flash floods, brush fires, blizzards, hurricanes, and tornadoes), that evoked desired risk avoidance responses or behaviors (Brandon, 2002), such plans often fail to take into account audience diversity. Cutlip, Center, and Broom (1985) have argued that a public relations maxim for effectiveness is *specific* messages, through *specific* channels, that must be targeted to *specific* audiences, for *specific* results. Yet, risk communicators treat all audiences the same, providing consensual categories of risk details to media personnel, believing that disparate groups react similarly to risk information.

Furthermore, what is transmitted by news reports is not necessarily the same; in other words, the news media do not serve as a neutral conduit of risk information, for they will add or subtract information sensationalizing, dramatizing, or personalizing the information, which distorts its intended meaning (Johnson-Cartee, Graham, & Foster, 1993). In short, while risk communicators may frame risk messages in a particular scenario, news reporters may alter or change the scenario content. Studies have shown that trivializing or omitting essential risk details will fail to evoke the desired risk avoidance behaviors. Therefore, any analysis of risk communication messages available to the citizens of New Orleans, in the three months prior to Katrina, makes for important social indicators.

This thesis utilized a qualitative thematic analysis of available newspaper stories containing risk communication messages in the New Orleans area prior to the Katrina disaster. The New Orleans *Times-Picayune*, the leading daily newspaper in the greater New Orleans area, covers local, state, regional, national, and international events, reaching around 250,000 area residents and tourists each weekday (Dedman & Doig, 2005). This study also analyzed the risk messages provided by the *Louisiana Weekly*, a weekly African-American newspaper that has served the African-American community since 1925 and had a readership of
44,000 each week (Personal communication, *Louisiana Weekly* staff member David T. Baker, June 9, 2009). News reports from June 1, 2005, through August 29, 2005, both related and unrelated to the approaching storm, were examined and reviewed in order to determine what information was available to New Orleans residents through local print media. By examining news coverage available to residents, this study assessed the sufficiency of the risk communication presented and is based on academic literature regarding risk communication.

An examination of the news reports containing risk messages within two local newspapers revealed the structure of attention and tone of risk messages among federal, state, and local leaders, scientific experts, community leaders, or ordinary citizens. Were flood and hurricane risks communicated to the citizens of New Orleans prior to the storm making landfall? What persuasive appeals were used? Was community diversity taken into account when providing risk communication to the citizens? Were natural biases and fears based on past discriminations considered when crafting and disseminating risk messages? Was there any evidence of optimism bias, and if so, how did that complicate the risk messages in the newspaper articles? Such an analysis can provide guidelines for communicating with diverse audiences during future threats from natural disasters.

Hurricane Katrina blew open the door to many long neglected, existing gross inequalities in America, which prevented many citizens from protecting themselves and their loved ones from adverse weather conditions. For this reason, this study has examined how to more effectively communicate risk to the most vulnerable citizens among us, and the factors to consider when doing so, in order to avoid or minimize loss of life during future natural disasters.
CHAPTER 2
LITERATURE REVIEW

New Orleans is a city known and loved for its rich blend of cultures, architecture, style, music, distinctive peoples and especially, its world-renowned cuisine and night life. Year after year, thousands of revelers flock to the Crescent City to participate in its elaborate festivals and sporting events. And, unlike other major American cities, New Orleans, in addition to San Francisco, has a distinctive European flair, and for this reason, New Orleans has long been considered the cultural jewel of the South.

New Orleans has been described as a melting pot of civilization (Rodriguez, 2009). Yet, New Orleans is perhaps more analogous to a bowl of gumbo, for the city is similar to the dish that uniquely portrays its native culture. Indeed, the secret to making a good gumbo, as in a great city, lies in its multiplicity of ingredients. Gumbo incorporates a rich blend of spices and vegetables, married into a thick stew with assorted meats and seafood. Each component is combined to contribute to the overall taste of the dish, a synergistic taste extravaganza. Famed American playwright Tennessee Williams is credited with saying, “There are only three American cities: New York, San Francisco and New Orleans. Everywhere else is Cleveland.” This is an entertaining quip, but it has some merit. Similar to New York and San Francisco, New Orleans has retained its authentic heritage and unique characteristics through generations of change. Inhabitants include descendants of the original Native Americans and many early settlers including French-Canadian, French, Spanish, English, Greek, Italian, African-American, and almost any other nationality. These various cultural influences are easily found in the city’s
distinctive architecture, street names, traditions, folklore, as well as tourist attractions. With such diversity in one location, visitors from around the country and the globe flock to The Big Easy, and its native citizens maintain a certain sense of pride in calling New Orleans home.

A City Below Sea Level: Safety Precautions

Aside from its matchless cultural atmosphere, the geographic characteristics of the city also make New Orleans unique. New Orleans is a city that was built mostly below sea-level and is bordered on three sides by bodies of water: the Mississippi River, Lake Pontchartrain, and Lake Borgne. As a result, the city’s storm and flood damage precautions are especially significant for the protection of the city. New Orleans is protected by a complex system of levees, floodwalls, bridges, canals, closable gates, and culverts. In addition, the Army Corps of Engineers designed four main compartmentalized basins intended to limit the flooding impact on the population if either the levees or floodwalls failed (Townsend, 2006). During a storm, the levees are theoretically designed to offer protection from rising water, ranging from 11 feet to approximately 17.5 feet above sea level. The levee system is designed to withstand a Mississippi River flood similar to that of a Category 2 or a mild Category 3 hurricane (Townsend, 2006).

Risk Communication

Stern and Fineberg (1996) define “risk” as the “things, forces or circumstances that pose danger to people or to what they value” (p. 216). Risk also includes the probability or likelihood that those dangers will occur (McComas, 2006). Thus, as Ulmer, Sellnow and Seeger (2015) write, risk communication is “an interactive process of exchange of information and opinion among individuals, groups, and institutions” (p.197).

Unlike general communication, risk communication forecasts the potential for property loss and personal injury or death, and as a result, such exchange of information naturally
involves more than transmission of facts. Risk communication campaigns take into account
governmental officials’ abilities to package and to deliver crisis information in a timely and
credible manner to diverse audiences. For risk communication to be considered effective,
messages must reach specific audiences and result in desired responses from targeted groups.
The National Research Council (1989) advocates that risk communication be an interactive
dialogue among those who are facing risk and those who have some capacity for controlling or
reducing that risk (Ulmer, et al., 2015).

*Development of Risk Messages*

On the surface, risk communication appears straightforward and simple, with the goal
being to communicate useful information to targeted audiences, which may be effectively
utilized and efficiently considered during individual decision-making processes. However,
because so many forms of risk exist in everyday life, as well as different audiences with varying
needs for information and specific preferences for message delivery, no universal template may
be utilized for effectively communicating risk. Every circumstance involving risk
communication is unique; therefore, the development of the risk message must proceed on a case
by case basis, taking into account the unique facts of each situation.

Palenchar and Heath (2002) suggest the basic question for risk communication is, “how
best can spokespersons develop and deliver targeted, data-driven risk messages as well as engage
in symmetrical dialogues to reduce or increase key publics’ awareness of, understanding of, and
tolerance for risks?” (p. 128). According to Fischhoff, Riley, Kovacs, and Small (1998),
answering that question means risk communicators must fill in the contextual blanks that exist in
the audience’s knowledge in a timely, effective fashion, in order to not lose the audience’s
interest.
As Fischhoff, et al., (1998) write, the delivery of essential risk information to a potentially affected audience involves the following steps:

1. Determine what information is most critical to understanding how a risk is created and controlled.
2. Assess consumers’ current beliefs regarding those facts.
3. Design messages focused on the critical gaps between what consumers know and what they need to know.
4. Evaluate the effectiveness of those messages in closing the gaps, in tests with consumers forced to consider them.
5. Develop and evaluate a delivery mechanism capable of drawing actual consumers’ attention. (p. 664)

**Technical vs. Democratic Risk Communication Models**

According to Fiksel and Covello (1987), the risk communication process also includes “conveying to interested parties the outputs of the various stages of risk analysis and risk management” (p. 146). As Rowan (1991) asserts, this view suggests risk communication is a process of having experts inform the public about risks, potentially effective responses to the risk, indicating a correlation between risk communication and risk analysis and management. Rowan (1991) further notes that, “some see risk communication as simply the process of informing the public of conclusions reached by risk analysts and managers. Others see risk communication as an integral part of both assessment and management processes” (p. 302).

The difference of opinion results in two models of risk communication that Fiorino (1989) calls the “technical” and “democratic” models. According to Rowan (1991), the “technical” model focuses on a scientific, statistical model for predicting risk, in which experts assess the likelihood a danger will occur and evaluate the severity of the hazard in order to determine the level of the threat, while the “democratic” model involves all affected and interested parties in the decision-making process. When approaches utilize the “democratic” model, the experts involve average persons in the risk evaluation and decision process regarding
responses. In this way, individuals who might be affected by the risk believe they share in the decision-making process and therefore, they will become more inclined to participate in the discussion of the risk.

*When Risk Communication is Used*

Gostin (2000) notes that governmental and public health agencies have a responsibility to not only protect and to promote the well-being of the public, but also to inform citizens of any safety threats. Risk communication is intended to advise the community about existing and potentially dangerous future threats to the public’s health, safety or well-being and to recommend specific empowering actions or behavioral changes, which will effectively combat such threats.

Scholars and social scientists agree that the transmission of information alone may not result in public action, but communicating appropriate information that prepares the audience for both the potential threat, as well as the means to avoid it, is the first necessary foundation for effective risk prevention (Institute of Medicine, 2002).

*Routine Risk Communications*

The public uses risk communication in times of calm and during crisis situations; therefore, governmental agencies, public health officials, and public relations or affairs practitioners must be able to communicate risks to the public effectively, and in a timely, credible manner. Rudd, Comings, and Hyde (2003) write that in times of calm, when no immediate threat exists, public health officials often craft messages that provide citizens with information designed to enable them to make responsible health-related decisions in their day-to-day lives. These messages draw upon known patterns of social behavior and successful communication efforts of the past and may be delivered “through various population groups, and
. . . supported by local and mass communication media” (Rudd, Comings, & Hyde, 2003, p. 105).

Crisis Related Risk Communications

In crisis situations, when time is of the essence, information must be delivered swiftly to the public in order that efforts may be made to minimize or eliminate the threat. However, effectively communicating risk in an emergency situation may be a substantial challenge because, as Covello (1998) notes, in highly stressful times, people have difficulty understanding, remembering, and correctly interpreting the information they have been given, for the information may be very confusing because of inconsistent assessments of the perceived threat, contradictory causal explanations, and conflicting response recommendations from multiple credible sources.

Risk Communication Process Variables

Communicating a message that motivates people to act is a difficult proposition in and of itself. Combining the already tricky nature of encouraging action through communication, with the many obstacles associated with a crisis situation, equals a particularly daunting task. Several factors must be considered when providing the public with adequate risk communication.

Uncertainty in Risk Situations

Public uncertainty in a high-risk situation is an important element in the risk communication process and involves two factors: the probability an event will occur, and the probability that its outcome will have a positive or negative impact (Palenchar & Heath, 2002). Palenchar and Heath (2002) note that uncertainty is, “a measure of confidence regarding (a) the ability to estimate a risk and its consequences, and (b) the ability to communicate knowledgeably on the facts and issues surrounding any specific risk” (p. 131). They suggest that since
uncertainty is uncomfortable, and most people have a hard time judging the probability a risk will occur, making predictions about a risk, or attempting to cope with uncertainty, people will become motivated to seek out information regarding the risk in order to reduce their level of uncertainty.

*The Need for Personal Control*

Seeking out information in situations of uncertainty demonstrates an inherent need for obtaining some sense of personal control. According to Palenchar and Heath (2002) control is defined as, “the belief that an individual or organization can influence an event, or at least has the ability to choose to influence the aversive situation” (p. 132; see also, Thompson, 1981). Griffin, Neuwirth, Dunwoody, and Giese (2004) write personal control is a self-evaluation of the perceived ability one has to avert or overcome a hazard. Higher levels of perceived control result in lower levels of perceived risk, just as lower levels of perceived control result in higher, even exaggerated, levels of perceived risk.

*Risk Perception*

Rimal and Morrison (2006) assert that risk perception is made up of both susceptibility and severity. Susceptibility is one’s perceived vulnerability to risks that have a negative outcome, while severity is the perceived harmful effects associated with the outcome of the risk. How individuals respond psychologically to perceived risks relates to their willingness to accept or tolerate risk.

Heath, Liao, and Douglas (1995) note that, “persons who are less risk tolerant believe that sources of risk are harmful more often than risk tolerant persons do” (p. 93). Covello (1992) maintains that expert evaluations of a risk will differ from the psychological evaluations of an audience of “lay persons.” As Rowan (1995) writes, “physical risks are perceived to be more
hazardous by lay audiences if these risks are viewed as not observable, unknown to those exposed, delayed in their effects, unfamiliar, uncontrollable, globally catastrophic, fatal, not fair, risky to future generations, and involuntary” (p. 309; emphasis in original). On the other hand, lay persons perceive risks to be less hazardous if these characteristics are not present.

Optimism Bias

According to popular belief, people tend to think of themselves as invulnerable, or at least, less vulnerable than others (Weinstein, 1980). Indeed, many people imagine rosy futures and rarely do they picture themselves as prospective victims of unfortunate circumstance. Weinstein (1980) calls this pattern of behavior unrealistic optimism, or optimism bias, while others have called an optimism bias a self-positivity bias (Tyler & Cook, 1984). Weinstein (1980) notes unrealistic optimism may be more than a positive outlook and is potentially harmful.

Rimal and Morrison (2006) argue, “the tendency to view oneself as being more vulnerable than the average person (i.e., a pessimistic bias) would result in unacceptable levels of personal anxiety, and hence, by extension, viewing oneself in a positive manner is less noxious” (pp. 209-210; see also, Kirscht, Haefner, Kegeles, & Rosenstock, 1966; Sherwood, 1981; Taylor & Brown, 1988).

Weinstein (1980) makes several crucial observations concerning optimism bias:

1. People believe that negative events are less likely to happen to them than to others, and they believe that positive events are more likely to happen to them than others.
2. Among negative events, the more undesirable the event, the stronger the tendency to believe that one’s own chances are less than average; among positive events, the more desirable the event, the stronger the tendency to believe that one’s own chances are greater than average.
3. The greater the perceived probability of an event, the stronger the tendency for people to believe that their own chances are greater than average.
4. Previous personal experience with an event increases the likelihood that people will believe their own chances are greater than average.
5. The greater the perceived controllability of a negative event, the greater the tendency for people to believe that their own chances are less than average; the greater the perceived controllability of a positive event, the greater the tendency for people to believe that their own chances are greater than average.

6. When a stereotype exists of a particular type of person to whom a negative event is likely to happen, people will tend to believe that their own chances are less than average. (pp. 807-808)

In short, people want to believe they have more control over a situation than they sometimes do. However, optimism bias may have far more consequences than wishful thinking, for such self-positivity biases may border on a dangerous detachment from objective reality. Such deceptive beliefs may place the individual in unnecessary danger.

**Efficacy**

Witte (1994) writes, “efficacy pertains to the effectiveness, feasibility, and ease with which a recommended response impedes or averts a threat” (p. 114). Two underlying components of efficacy are response efficacy and self-efficacy. Response efficacy refers to how effective a recommended response is in avoiding or reducing a threat, and self-efficacy refers to the extent an individual feels able to perform the recommended response. Witte (1994) defines perceived response efficacy as “thoughts or cognitions about the effectiveness of the message’s recommendations in deterring the threat . . . while perceived self-efficacy is an individual’s beliefs about his or her ability to perform the advocated response to avert the threat” (p. 114).

**Fear Appeals**

Of course, individuals may perceive themselves as more or less vulnerable to threats than they actually are. For instance, Witte’s (1992) extended parallel process model (EPPM) which expanded upon Leventhal’s (1970) danger control and fear control frameworks as well as Rogers’ (1975) protection motivation theory examines both risk related content and fear appeals that are likely to appear in risk messages. The content of a risk message, or fear appeal, triggers
two assessments of the message, and the product of the assessment is either a dominant danger control process or a dominant fear control process (Witte, 1992).

The first assessment of the message is to determine the seriousness of the communicated threat. If the threat level is high, individuals are prompted to begin the second assessment of the message, which is an evaluation of the usefulness of the recommended response and their ability to perform the response. If no recommended response is available, individuals will rely on past experience to determine their ability to cope with the threat (Witte, 1992).

When individuals believe they are able to effectively deal with a threat, either through the use of a recommended response or prior experience relating to the threat, the danger control process is activated, and they become motivated to take action to reduce or diminish the threat. However, when individuals perceive the threat to be beyond their control, because they see the recommended response as ineffective, they have no prior experience relating to the threat, or believe they are unable to perform the recommended response, fear control processes are activated and little is done to protect against the threat (Witte, 1995). In addition, Rowan (1995) and Witte (1992) note in risk situations that appear to be beyond an individual’s control, one may initiate psychological processes, such as denial, as a way to mitigate their fear, even though the threat is no less real.

Witte (1995) defines fear appeals as “messages that evoke fear by focusing on severe and probable threats in order to induce adherence to recommended courses of action” (p. 230). Rogers and Mewborn (1976) add fear appeals are messages “describing the unfavorable consequences that might result from failure to adopt the communicator’s recommendations” (p. 54). According to Witte (1995), fear appeals generally contain two sections, the first of which attempts to raise the level of perceived threat by stressing the severity of the threat and the
probability it will occur, while the second section is intended to enhance the perceived efficacy of the recommended response by “(a) outlining specific feasible and easy steps to avert the threat (self-efficacy) and (b) emphasizing the effectiveness of the recommended response in averting or minimizing the threat (response efficacy)” (p. 230).

Witte (1994) writes, “fear appeals have the potential to be potent persuasive strategies” (p. 119). However, using fear appeals in risk communication messages may have unintended effects. When too much fear is elicited, recipients of the message may become overwhelmed by the impending danger and have such low self-efficacy levels that they perceive the risk as too much to bear (Witte, 1994). When this occurs, the message backfires and, as a result, little or no action is taken to guard against the threat. Therefore, when using fear appeals in risk messages, public health officials, governmental agencies, risk communication practitioners, and journalists must strive to seek a balance between high and low levels of fear.

Understanding African-American Culture

The make-up of the family in African-American social structures is an important element to understand. Within the African-American community, families commonly include extended family members, and in some instances, titles such as “Aunt” or “Uncle” are given to unrelated individuals that are viewed as important to the immediate family (Welch, 2003). Single women or grandparents heading households are also more common within the framework of the African-American community than in the white community (Welch, 2003). As a result, grandparents may take on more prominent roles within African-American families than that of white families.

The role that gender plays is important in any racial population, but it is of particular significance within the African-American community because of its historical context. According to Welch (2003) female slaves mostly served their masters in submissive roles as
domestic servants, and in her own home, was considered the primary caregiver, but was also submissive to her male partner. Today, “black women are often single heads of households and outnumber black men in the workforce, but they are among the lowest paid workers” (Welch, 2003, p. 34). As a result, African-American women carry the burden of providing for a family financially and serving as the caregiver at home, and although relationships with friends and extended family may sometimes help to alleviate some responsibilities, they may also become additional sources of strain for African-American women (Welch, 2003). For example, elderly family members may become burdensome because they may require more attention and care because of illnesses or other disabilities.

Modern-day African-American men have struggled to gain respect as leaders, primary bread-winners, and family caregivers. As Welch (2003) writes, “slavery stripped black men of their masculinity, forcing them to be submissive servants, useful solely because of their physical strength” (p. 34). Often as victims of discrimination, many African-American men have been denied access to higher education and well-paying jobs and have sought out other ways to display their masculinity, such as, “certain demeanors, styles of dress or hair, content and flow of speech, and handshakes” (Welch, 2003, p. 35). Within the African-American community, men often try to bury painful or sad emotions in an attempt to improve self-esteem and project images of strength, power, and courage (Welch, 2003). Welch (2003) also notes, “with the attainment of higher education and economic advantage, black men may exhibit fewer of these behaviors” (p. 36; see also, Harris, 1992). However, because African-Americans of every social status face similar institutional prejudices, middle-income African-American men may at times display these same alternative behaviors.
Distrust of Government and Institutional Activities among African-Americans

Throughout the history of the 20th century, members of minority groups in general, and African-Americans in particular, have often exhibited a fundamental distrust of governmental and institutional activities (Welch, 2003). In his testimony before the National Commission on AIDS, Dr. Mark Smith, a physician with the School of Medicine at Johns Hopkins University during the 1990s, described the African-American community as a population already believing themselves to be at odds with the government and the health care system, and skeptical of the intentions of those who would come to their communities to help them (National Commission on AIDS, 1990). While some of this mistrust is clearly hyperbolic, certain actions by governmental and institutional entities, such as the Tuskegee Syphilis Study, have provided justifiable grounds for a certain amount of distrust. According to Thomas and Quinn (1991), certain factual revelations, for instance the Tuskegee study, have led to understandable fears, such as the belief that some African-Americans hold that the states or federal government may have conspired to create the HIV/AIDS virus as a means to exterminate African-American populations.

In order to more effectively serve minority communities, public health officials and risk communication practitioners must be able to adequately recognize the social frameworks that exist within the communities, as well as any fears or apprehensions that the population group holds toward governmental or institutional entities. Traditionally, African-Americans have not been influenced by the news media or political advertisers as much as Caucasians in the United States, relying on African-American community leaders such as preachers and political activist group leaders. They also rely on school teachers and social workers in the community, making interpersonal communication prominent among African-Americans (Welch, 2003). Communicating with African-Americans
Effectively communicating with African-Americans involves recognizing the unique communication styles that exist within the African-American community. Welch (2003) writes, “African American communication styles include direct eye contact, conveying a sense of concern for the person and the problem, a nonjudgmental approach, and listening” (p. 39). In addition, communicators should avoid negative stereotypes and strive to take into account the individual’s point of view, beliefs, and life experiences (Welch, 2003).

Meredith, Eisenman, Rhodes, Ryan, and Long (2007) stress the importance of gaining the trust of African-Americans when delivering messages to them. African-Americans are particularly distrustful of government and institutional entities because of their history of racial discrimination. Meredith, et al. (2007) provide several trust components that are important to remember when communicating with African-Americans: honesty, consistency, fiduciary responsibility, competency, and faith.

According to Meredith, et al. (2007) African-Americans view the honesty of communicators to be of the utmost importance. In risk situations, many African-Americans do not believe they receive the whole truth from governmental officials or media personnel. African-Americans believe that many media outlets do not present an objective view of information in risk situations because of a desire to sensationalize the situation (Meredith, et al., 2007). For accurate information, many African-Americans will turn to family members or friends believed to have an “inside” view of the situation.

In addition, African-Americans are concerned with how to determine which messages to trust. In an effort to validate messages presented from the multitude of sources, many people will compare the information from the sources and check for consistency. If the messages are similar, the content is perceived as being trustworthy (Meredith, et al. 2007). Meredith, et al.
(2007) also note that the use of official symbols and documentation, such as county or state seals, lends more credibility to communicators. African-Americans also look to see how public health personnel, such as public affairs officers or spokesmen, behave during crisis situations. The authors found African-Americans believe officials who use direct eye contact and who put themselves in harm’s way to be far more reliable and credible than those who do not.

Because of community recognized past discriminations, many African-Americans do not believe that governmental officials have their best interest at heart. In order to overcome the history of discriminatory treatment, public health officials and public relations practitioners must try to gain the respect of the audience by behaving in ways that indicate they indeed “care” for the citizens they seek to help.

African-Americans also prefer competent officials responding to disasters. Meredith, et al. (2007) suggest that officials’ credentials and past experiences of officials are perceived as superior measures of an individual’s competency. Furthermore, when citizens have confidence in officials, by judging that these experts “know what they’re talking about” then both public and perceived trust and credibility are enhanced (Meredith, et al. 2007).

Meredith, et al. (2007) write that the audience’s trust in the message or plan is critical to a risk message’s success. Maintaining the trust of the audience is easier than trying to regain it. Most people will believe the message or plan until the messenger makes an unforgiveable mistake, such as lying about whose responsibility the disaster was or by blaming the victims of the disaster for negative outcomes. People also believe not cooperating with public health officials is consequential, and therefore the perceived rewards associated with trusting officials and abiding by their recommended responses outweigh the potential problems of deferential reliance.
Communicating with African-Americans, a population segment known to have lower trust levels in government and the public health system than Caucasians, means that public affairs officers must strive to tailor information specifically to African-Americans. Meredith, et al. (2007) write risk communicators should use credible sources to build trust, providing the audience with accurate and complete information for specific audiences, demonstrating sincerity through behavior such as eye contact or putting themselves at risk in order to help the public, and involving the public as a partner in the communication process.

Risk communicators undoubtedly attempt to develop and execute communication strategies that are capable of reaching as many people as possible. As Hooper and Fearn-Banks (2006) note, standard risk communication tactics include, “press releases, brochures, public service announcements, flyers, television appearances, press conferences, speeches, attendance at community meetings, video news releases and photographs, as well as use of communication technologies such as e-mail, webpages, internet and intranet systems” (p. 147).

The Importance of Trust in Risk Communication

Gaining and maintaining the trust of an audience is an essential facet of effective risk communication. As McComas (2006) writes, “even the most carefully developed risk messages are destined to fail if people do not trust the messengers” (p. 82). Palenchar and Heath (2002) maintain public skepticism of government is easily noticeable because citizens often believe they have no reason to trust governmental officials because of previous encounters with them. Slovic (1992) maintains the public distrust of government represents a significant challenge to risk communicators’ ability to present persuasive risk arguments to the public.

Regarding the public’s lack of trust in governmental officials’ ability to deliver quality risk information to the public, Juanillo and Scherer (1995) write, “large segments of the public
now demand more involvement in debates over risk issues and challenge conclusions and recommendations from scientists and experts” (p. 292). Noting the complex nature of risk communication, Otway (1992) writes, “risk communication requirements are a political response to popular demands” (p. 227). In other words, the response to community needs and supporting social relationships may be as important as the risk information itself.

During crisis situations, when individuals must respond to potentially life-altering situations, the perceived credibility and trustworthiness of risk communicators are especially important. Rhoads and Cialdini (2002) assert when circumstances do not allow for individual reflections, people will likely make a decision based on the perceived credibility of the communicator.

In order to gain the audience’s trust, Covello, Sandman, and Slovic (1988) suggest that risk communicators be caring and friendly toward the audience, give credible and understandable descriptions of the risk, establishing homophily with the audience members by what they wear and their manner of speaking. Lazarsfeld and Merton (1954) define homophily as the tendency for people to form friendships with persons of similar backgrounds, experiences, and characteristics. In addition, Palenchar and Heath (2002) assert that risk communicators should also note patterns of conflict and negotiation within the community, striving to, “see the risks from the perspective of concerned members of the community who often believe they have reason not to trust any statement regarding risks” (p. 128). Successful risk communication necessarily involves both empathy and demonstrated homophily, especially among marginalized group members, such as minorities, the elderly, and the poor.
Risk Reporting

Metzler (1979) defines news as an item that generally includes qualities of timeliness, consequence, prominence, rarity, proximity, conflict, change, action, concreteness, and personality. In times of crisis, members of the public turn to the media for both information about the risk and the means to avoid it. Accordingly, the media must strike a careful balance between the provision of these two information resources. Johnson-Cartee, Graham, and Foster (1993) note the critical role of newspapers in providing the public with informed, balanced coverage of the issues in crisis situations through the use of scientific experts, as well as, governmental officials and documents. Journalists must present stories, “that enlighten rather than heighten the controversial nature of the occasion” (p. 71). Therefore, during a crisis situation, the timely and accurate delivery of high-quality information is critical to the public’s ability to process often complicated information and arrive at a reasonable risk analysis, which is then used to determine individual responses.

Social Responsibility

Journalists must turn to city, state, and federal officials to deliver pertinent information to target audiences in order for the newspaper’s reporting to reflect the essential details which might assist people in understanding the severity of the situation as well as the various recommended alternative strategies for confronting the problems which are being presented. Journalists are also called upon, in many practical ways, to assist local communities and their leaders in developing a willing, if not enthusiastic, response to the plans being offered by governmental and community leaders.

Wilkins and Patterson (1987) note that, “a journalist’s definition of a good news story means a catastrophe for someone else” (p. 80). As the news media’s adage goes, “if it bleeds, it
leads,” which demonstrates the potentially significant difficulties that risk communicators face when alerting reporters to potentially dangerous situations. For, “potentially dangerous situations” do not constitute the reporters’ definition of objective reality; reporters typically devote their time and resources to reporting when situations deemed risky are posed as the resulting failures of governmental leaders. News reporting focuses on conflict, writing stories that involve age-old conflicts (Johnson-Cartee & Copeland, 1997a). If journalists are to provide a social service to the community at-large, then the reporting of potential risks to the community should not be viewed only as “a good news story,” but, also as educating the public of the impending disaster, be it natural or man-made, and also warning of the possible ramifications.

*Newsroom “Norms”*

Conversely, Dunwoody (1992) argues that occupational norms of the newsroom prevent journalists from providing extensive details of a risk in their stories. These norms include an emphasis in story selection based on events rather than processes; a belief that a journalist’s task is to inform, not to educate, and, finally, the growing tension that all journalists recognize that today’s news must not only convey information but entertain to attract and hold readers.

Because of the increasingly commercialized atmosphere of newsrooms, a journalist is under pressure to present a daily news product to management, which forces journalists to simplify the day’s events rather than elaborating on linkages that explain the greater social process that produced the event. In essence, a journalist is expected to fill in the holes on the newspaper page without consuming too many column inches.

In addition, Dunwoody (1992) notes that another newsroom “norm” is that the audience members either comprehend the news or do not, and journalists’ responsibility is not to ensure greater comprehension among the most members, but to report the news accurately. This
approach allows the journalist to report the news, but not necessarily explain it. Dunwoody (1992) writes that journalists “regard explanatory detail as not only a waste of time but also as potentially dysfunctional” (p. 84). Yet, recounting the facts, as a journalist sees them, and focusing primarily on what happened, when, where, and to whom, diminishes the reporter’s ability to elucidate why an event occurred, which further reduces the ability to communicate the implications for the audience. Moreover, Dunwoody (1992) observes that newspaper readers often only attend to the headlines or leads, for they are very busy or are not particularly interested in tedious news details; therefore, unless the reporter, or copy editor who typically assigns headlines, attracts the audience’s attention in the lead or headline, readers will often ignore the body of the story.

Reporters often have an image of news consumers in mind when writing, and they believe them to be largely disinterested, unmotivated, and incapable of comprehending complex matters (Johnson-Cartee, 2005). Consequently, words may be used without key definitions, and risks are assessed without providing crucial information deemed necessary for anyone to effectively judge the risks. While these norms may, and often do, have a great deal to do with how successful a particular medium is in terms of attracting and holding readers, they undoubtedly serve to limit the amount of effective risk information which can be effectively passed on to target audiences.

*Risk Communication and Media Criticism*

Some scholars go so far as to suggest that the media should not intentionally play a significant role in the area of risk communication. For instance, Keeney and Winterfeldt (1986) maintain the reason for a smaller risk communication role for the media is the “highly selective, often sensational, and sometimes inaccurate media reporting of risks and regulatory actions to
control them” (p. 417). Mazur (1981) argues that the mass media fail to explain adequately the many risk forms, which various natural disasters may create. Furthermore, the media fail to explain the often subtle, but very important scientific and political complexities that determine the governmental responses to disasters.

Because of the inherent difficulties which lay-persons associate with interpreting scientific, socio-political or technological media coverage, readers, listeners, and viewers often become alienated or isolated from society, exhibiting increasing inofficiousness, or the believed inability to positively exert control over their existence. Consequently, they ignore or selectively attend to crisis or risk communication, often engaging in either a self-positivity bias or optimism bias. If the reports do not provide a readily available means to avoid the disaster or catastrophe, with explicit and easily followed directions on how to avoid the disaster, this sense of alienation, their perception of the risks often becomes exaggerated (Rogers & Mewborn, 1976).

Hornig (1990) argues, “these negative reactions could be mitigated by coverage that ‘normalizes’ science—makes it more familiar—by placing it in its social and political context” (p. 769). By reporting news in a fashion that is commonly understood and recognized, audience members may more fully comprehend and appreciate the information provided.

As Wilkins and Patterson (1987) have noted, news stories will generally focus attention on an individual event rather than the underlying issues which may have given rise to the event. Rather than concentrating their efforts on what is the root cause of the event, journalists instead focus on recounting an event so as to tell a story and attract readers.

Carey (1969) maintains, “all journalism, including objective reporting, is a creative and imaginative work, a symbolic strategy: journalism sizes up situations, names their elements, structure and outstanding ingredients and names them in a way that contains an attitude toward
them” (p. 36). While journalists tend to deliberately frame stories, by naming and prioritizing the news, they often ignore essential facets of risk communication—an assessment of the options which can and should be considered in order to avoid or reduce the particular risks at hand, and recommended means of avoiding the risks. As a result, reporters fail to provide readers with the essential facts, which must be considered when deciding upon life-altering actions, such as whether to leave one’s home, when a hurricane looms, for what is the likelihood of flooding or high winds that would destroy both the home and its inhabitants.

Because most people do not routinely think about the likelihood of a particular risk, the news media is confronted with the social responsibility to report the risk and present options concerning how to avoid such risks. Hadden (1989) asserts that risk communication should “enable laymen to make better choices about risks they face” (p. 301). In many cases, in order to illustrate the seriousness of a given situation and simultaneously lend credence to the matter being covered, journalists and risk communication practitioners alike turn to experts in the field relating to a given situation. These experts may be governmental officials, community leaders, or scientists, such as volcanologists, meteorologists, or geologic oceanographers.

Taking this approach, one might assume that by convincing targeted audiences of the validity of the experts’ risk assessments, public concerns might be heightened, increasing their intention to avoid risks. However, as Sharlin (1986) asserts, risk regulators and technical experts think differently about risks than do targeted audiences. Typically, experts interpret and evaluate risks on a macrorisk level, meaning their assessments are based on local, national, or global probabilities, which are supported by historical data. Yet, target audiences are more likely to interpret risks on a personal level, what scientists call a microrisk evaluation—an assessment formed by personal experience and the perceived likelihood the risk will directly impact specific
individuals and those they love (Sharlin, 1986). Such audience perceptions establish the risk’s saliency. However, Gay and Heath (1995; see also, Kasperson, 1986) note that lay persons are at a disadvantage when it comes to evaluating risks because they have difficulty understanding the probabilities or severity of risks; furthermore, the technicality of the subject matter is often a substantive barrier, which creates undermining assessments of institutional resources, particularly with regards to their credibility. These difficulties become amplified when little background information is provided to the public and when the experts disagree.

One suggestion for combating this problem is opening a dialogue between interested and affected parties in order to determine what information and risk assessments are correct; what are the consequences of ignoring the risks, and what are the actions that should be taken in order to avoid or minimize the risks. Gay and Heath (1995) suggest that risk messages work best when risk communicators “involve technical experts who can comment effectively through the media as well as give technical presentations and engage in useful conversation with members of the community” (p. 215).

Risk communicators should strive to understand the culture and values of the community infrastructure within which they work. Additionally, they should cooperate with various networks within the community. Specifically, community-based opinion leaders who are considered both credible and reliable must be utilized as conduits for information in order to facilitate effective communication strategies which are easily understood, appreciated, and believed. By doing so, the information needs of the audience are met, for their questions are answered by facts and potential effective actions to save their lives in the face of impending danger.

Lumpkins, Len-Rios, and Cameron (2006) suggest stories in African-American newspapers are framed in such a way that African-American readers are naturally attracted to them. Stories in African-American newspapers are geared toward an African-American audience, and as a result, the stories become more socially and culturally relevant.

In an attempt to raise awareness about specific subjects, African-American newspapers may use conflict as a news value (Lumpkins, Len-Rios, & Cameron, 2006). Conflict is used by comparing an occurrence, such as the rate of cancer, violent crime, or poverty, within the African-American community as compared to other population segments. By focusing on how something affects the African-American community comparatively, many African-Americans will become more interested in the story, because it is more relevant to them and people like them (Lumpkins, Len-Rios, & Cameron, 2006).
CHAPTER 3

METHOD

This study is based on a qualitative thematic analysis of hurricane related risk communication news stories provided by the *Times-Picayune* and the *Louisiana Weekly* prior to Hurricane Katrina’s landfall in 2005. The time period under consideration is June 1-August 29, 2005. Hurricane season officially begins June 1 each year, ending on November 30 (Dorst, 1993). Hurricane Katrina made landfall along the Gulf Coast in the early morning hours of August 29, 2005 (Brinkley, 2006).

Although Hurricane Katrina devastated much of the Gulf Coast, from New Orleans to Mobile, this study will focus on what was known by New Orleans area residents. Prior to Katrina, New Orleans was the 38th most populous city in the United States, the largest city in Louisiana, and African-Americans accounted for 67 percent of the population, with nearly 28 percent of the overall population living below the national poverty level (U. S. Census Bureau, 2009).

Typically during hurricane season, the news media provide significant risk communication stories to alert residents of potential dangers associated with high winds, storm surges, and flooding. Generally, individuals turn to newspapers for risk information, for newspapers provide scientific, in-depth reports on risk and a means to avoid it; while people use television, radio, and the Internet for immediate crisis information (Johnson-Cartee & Copeland, 1997b). For this reason, the focus of the content analysis will be on news reports or news related
entries, within two major newspapers serving the greater New Orleans area from June 1 to August 29, 2005.

As an examination of risk communication available to newspaper consumers prior to the landfall of Hurricane Katrina, this study provides for a longitudinal comparative medium which examines the largest daily newspaper in New Orleans, the *Times-Picayune*, as well as a large African-American weekly newspaper, the *Louisiana Weekly*. This study provides the opportunity for learning what coverage was provided to residents, and is based on academic literature regarding risk communication. An assessment of the sufficiency of risk communication presented will be given.

*The Journalistic Character*

Originally known simply as *The Picayune*, named for the 6.25 cent Spanish coin it cost, the *Times-Picayune* has been serving the citizens of New Orleans since 1837. Covering local, state, regional, national, and international events, the *Times-Picayune* is the leading daily newspaper in the greater New Orleans area, reaching more than 250,000 residents and tourists each weekday at the time of interest to this study (Dedman & Doig, 2005). Throughout its history, the *Times-Picayune* has been the recipient of numerous awards and accolades, and has been recognized as one of the leading newspapers in the country, making a name for itself as a vital source of information, not only for the citizens of Louisiana, but also the United States. The reputation as an authoritative news source in the New Orleans community makes the *Times-Picayune* an obvious choice for this study.

For more than 90 years the *Louisiana Weekly* has been considered the voice of the African-American community in New Orleans and throughout Louisiana, reaching more than 44,000 readers per week (Personal communication with *Louisiana Weekly* staff member David
T. Baker, June 9, 2009). Established in 1925, the Louisiana Weekly has been committed to leading the fight for social justice and equality for all people and cultures. The newspaper’s reporting focuses on a number of issues of significant concern to the African-American community, such as education, politics, health, and social unrest.

Their community journalism style of reporting allows the newspaper to focus on issues that directly impact the lives of its readers, and news stories often include profiles of community leaders and events. Moreover, because of African-American newspapers’ history of advancing African-American culture and fighting racial injustice, they remain trusted sources of information for African-American citizens (Lacy, Stephens, & Soffin, 1991). African-Americans believe newspapers targeting minority communities contain information not seen in mainstream media outlets, such as issues or diseases that disproportionately affect the African-American community (Sylvester, 1993). News stories in African-American newspapers are framed in such a way that they naturally attract African-American audiences, for the stories are more salient to the readers (Lumpkins, Len-Ríos, & Cameron, 2006).

Furthermore, interpersonal communication sources play a role as a competing or complementary channel with regard to mass communication effects (Katz & Lazarsfeld, 1955). Southwell and Torres (2006) note conversations with others “play a role in information diffusion, persuasion, and decision-making as the phenomena relate to science and health” (p. 335). Recently, scholars have also examined interpersonal communication as a moderator of mass media effects (Hardy & Scheufele, 2005; Southwell, 2005). Because the African-American community is uniquely reliant on African-American or minority owned media outlets, and interpersonal communication channels, the Louisiana Weekly was chosen for this study.

Research Questions
A general consensus exists about what effective risk communication messages must contain in order to evoke desired risk avoidance behaviors (Fischhoff, Riley, Kovacs, & Small, 1998). This case study answers a variety of questions suggested by the risk communication literature, such as: the nature of coverage in general, the specific risk communication elements provided by the two newspapers, the mode of the information supplied, the nature of fear appeals, and the safety policy concerns expressed by various sources such as, hurricane experts, elected officials, news reporters, and private citizens. Therefore, this thesis posed the following research questions:

RQ 1: Were flood and hurricane risks communicated based upon prior research findings of responsible media risk reporting?

RQ 2: Did articles from the two newspapers address the particular cultural needs of the African-American community?

RQ 3: Is there any evidence of optimism bias, and if so, how did that complicate the risk messages in the newspaper articles?

Sampling

This study used all news stories, opinion-editorial pieces, and columns presented in the newspapers from June 1-August 29, 2005, which dealt with hurricane related information or hurricane preparedness. A LexisNexis search was used to discover hurricane risk related stories in the Times-Picayune, by entering the following key terms: hurricane(s), Katrina, levee(s), evacuate, evacuation, flood, floodwall(s), risk, danger, wind, storm, harm, and shelter. The Times-Picayune had 111 detected entries found in the following sections of the newspaper: National (40), Metro (33), Metro-Editorial (21), Money (4), Sports (4), Living (4), Food (3), and Inside Out (2).
The 2005 volume of the *Louisiana Weekly*, in microfilm form, was obtained through an Interlibrary Loan request. A careful reading of the *Louisiana Weekly* revealed only five stories during the time period. The researcher read the entire weekly newspaper, thoroughly examining all articles for mention of any of the aforementioned criteria, from June 1-August 29, 2005.

The observation unit for the coding process is a story unit (i.e., article). An article may have many news sources that provide risk information, fear appeals, or policy recommendations. By coding each news story in totality, and by identifying specific items attributed to individual news sources or media personnel, the structure of attention and tone are clearly delineated. In this way, any disparities and similarities between sources are clearly distinguished. See Table 1 for a breakdown of story units coded for the *Times-Picayune* and the *Louisiana Weekly* during June 1-August 29, 2005.

For purposes of this case study, “Hard news” refers to a newspaper item that relates serious news of widespread import, concerning politics, foreign affairs, or the like, as distinguished from routine news items, feature stories, or human-interest stories; “Soft news” refers to a newspaper item that relates to commentary, human interest or entertainment, arts and lifestyle; “Column” refers to a regular feature or series in a newspaper; “Opinion-Editorial” refers to a news item that is the opinion of the newspaper editorial board; and “Letters to the Editor” refer to entries written by individuals not affiliated with the newspaper and submitted to the newspaper for publication.
Table 1. Descriptions of Coded Story Unit

<table>
<thead>
<tr>
<th>Newspaper</th>
<th>Month</th>
<th>Hard news</th>
<th>Soft news</th>
<th>Column</th>
<th>Opinion-Editorial</th>
<th>Letters to Editor</th>
<th>Total by month</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Times-Picayune</em></td>
<td>June</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>36</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>11</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>22</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>32</td>
</tr>
<tr>
<td>Total by Category</td>
<td></td>
<td>66</td>
<td>13</td>
<td>10</td>
<td>8</td>
<td>14</td>
<td>111</td>
</tr>
<tr>
<td><em>Louisiana Weekly</em></td>
<td>June</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total by Category</td>
<td></td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

Qualitative Thematic Analysis Methods

This study uses the qualitative thematic analysis approach described by Gans (1979). This method is intended to determine if any important aspects in the story units were left out by the quantitative analysis and asks the question, “What is the theme of the story unit?”

The coding categories used in the thematic analysis were developed from a review of the risk communication literature in Chapter 2. Because newspaper analysts have found that newspapers are often woefully inadequate in their risk portrayals, an informal content analysis of the selected newspapers was not first done to create coding categories, which is a routine manner of determining codes (Johnson-Cartee, Graham, & Foster, 1993). Instead, coding categories were generated by a thorough analysis of risk communication literature. Because a consensus now exists about risk communication, as well as risk communication management, on what constitutes an effective risk communication message that will likely produce desired risk avoidance behavior, a defining set of codes was established.
The coding categories were pre-determined based on a review of the relevant literature. The coding categories used were as follows: the newspaper source and the date of the story unit, the primary source of story unit, the topic of the story unit, the fear appeals found in the story unit, and the tone of the story unit.

1. *The newspaper source and date of the story unit.* The newspaper source was coded as either the *Times-Picayune* or the *Louisiana Weekly*. The date of the story unit was coded by the month and day of its publication.

2. *The primary source of the story unit.* Sources appearing in the story units include newspaper reporters, columnists or editorial board members; elected officials such as mayors and council members; civic organizations, such as churches or the American Red Cross; governmental bureaucrats, such as directors of emergency preparedness operations or military and police personnel; scientific experts, such as meteorologists, or officials from the National Hurricane Center; and private citizens.

3. *The topic of story unit.* The topic(s) of the story units include information regarding hurricanes, in general; mentioning of Hurricane Katrina; hurricane preparedness, in general, and means to avoid or minimize danger; potential severity of the storm or reporting on damage rendered by storm; levee deficiencies, improvements to levees, or concerns about structural soundness; availability and locations of public shelters; flood information, potential flood-prone areas; governmental officials, actions taken by officials related to hurricanes or protection from hurricanes; social issues, such as poverty and race; and policy concerns related to hurricane preparedness, in general, and specific concerns, such as levee structure or evacuation plans and routes.
4. *The fear appeals found in the story unit.* The fear appeals found in the story unit include terms or topics related to floods or flooding; high winds; power outages; lack of food or water; looting; death; destruction of property; evacuation plans; warnings from official sources, such as the National Weather Service or governmental officials; public shelters; and any other fear evoking terms or topics.

5. *The tone of the story unit.* The entire story unit was coded as to whether the content contained within the story unit concerning risk information left the impression of a citizen’s ability to avoid what is feared (high citizen efficacy), an inability to avoid what is feared (low citizen efficacy), or no impression or apparent view. Story units were coded as positive if “the apparent view” of the article concerning risk information was positive, or if the article was overwhelmingly positive in nature, resulting in high citizen efficacy. Story units were coded as negative if “the apparent view” of the article was negative, or if the story unit was overwhelmingly negative in nature, resulting in low citizen efficacy. Story units were coded neutral if the content concerning risk information did not contain any “apparent view” toward the information reported. Often the story units were a composite of many positive references as well as many negative references; these story units were coded as neutral.

**Data Gathering**

This study is based on a qualitative thematic analysis of hurricane related risk communication news stories provided by the *Times-Picayune* and the *Louisiana Weekly*, prior to Hurricane Katrina’s landfall in 2005. The time period under consideration is June 1-August 29, 2005. During the three-month period under consideration, this study revealed 116 total articles in the two newspapers.
The *Times-Picayune*

The *Times-Picayune* contained 111 hurricane-related risk communication articles during the June 1-August 29 period under study. During that time, 90 issues of the newspaper were published. Monthly totals were as follows: June—15 articles (12.9 percent); July 64 articles (55.2 percent); and August—32 articles (27.6 percent).

The *Louisiana Weekly*

The *Louisiana Weekly* contained 5 hurricane-related risk communication articles during the June 1-August 29 period under study. During that time, 13 issues of the newspaper were published. Monthly totals were as follows: June – 2 articles (40 percent); July – 2 articles (40 percent); and August – 1 article (20 percent).
CHAPTER 4

FINDINGS

RQ 1: Were flood and hurricane risks communicated based upon prior research findings of responsible media risk reporting?

Journalists have a social responsibility to deliver pertinent information to target audiences in order to assist people in understanding the situation. In many practical ways, journalists are called upon to assist local communities and their leaders in developing a willing, if not enthusiastic, response to the plans being offered by governmental and community leaders. On the surface, risk communication appears straightforward and simple, with the goal being to communicate useful information to targeted audiences, which may be effectively utilized during decision-making processes. Fischhoff, et al. (1998) write, the delivery of essential risk information to a potentially affected audience involves determining the information that is most critical, assessing the consumer’s current beliefs regarding those facts, designing messages focused on critical gaps between what consumers know and what they need to know, and keeping the attention of the consumers. Communicating a message that motivates consumers to act is a difficult task. Scholars and social scientists suggest that the transmission of information alone may not result in action, but preparing an audience for the potential threat, and providing a means to avoid it, is the first necessary step for effective risk communication (Institute of Medicine, 2002). Several variables must be considered when communicating risk to the public. Palenchar and Heath (2003) write that public uncertainty that an event will occur and the positive or negative impact its outcome will have are two important elements to consider.
Rimal and Morrison (2006) assert that one’s perceived vulnerability to risks also play a role in how they respond to risk communication messages.

Regarding the risk communication messages which began emanating from the local news media, a review of the coverage *Times-Picayune* and the *Louisiana Weekly* from June 1 through August 29 reveals that both newspapers ran articles urging readers to prepare for hurricane season by saving financially for unexpected expenses by purchasing emergency kits and verifying insurance policies such as homeowner’s, renter’s, or flood insurance (“Get ready,” 2005); having an evacuation plan and acting quickly, because State officials would be implementing a “contraflow” traffic plan which would let “traffic move out of the city on both sides of the interstate” (Schleifstein, 2005a); being familiar with evacuation routes by using maps made available from the Louisiana Department of Transportation which explained “details of the new contraflow route” (LaCoste, 2005); preparing children for weathering storm. Parents and guardians were advised to “remain calm….explain in simple terms what a hurricane or tropical storm entails….let children participate in the preparations….discuss possible changes in your family’s routine” (“Prepare children,” 2005); the role the wetlands and barrier islands play in protecting the area. Because Louisiana was losing so much land due to coastal erosion, Sidney Fauria, a coastal oceanographer explained, “we used to have a buffer zone between where we are now and the open water” (Elie, 2005b); the infrastructure deficiencies and engineering challenges associated with the area’s floodwalls and levees. Because of the changing dynamics of the Louisiana coastline, the levee system designed to withstand a Category 3 hurricane now appeared vulnerable to a less powerful Category 2 hurricane. As Gerald Spohrer, executive director of the West Jefferson Levee District, said, “the steady flow of money pouring into levees both big and small is not keeping pace with the physical changes on the coast” (Brown, 2005);
and, many other issues, including, the dangers of “riding out the storm” at home. Local officials warned of “devastation to buildings….devastating power outages that could last for weeks….trees snapped or uprooted….vicious winds and high waters” (Russell, 2005).

Results of this study reveal no question that the two newspapers under consideration reported the risks associated with hurricanes; there is very clear evidence to support this finding. There was certainly more coverage available in the pages of the *Times-Picayune* than the *Louisiana Weekly*. This could be due to the size of the respective staffs, the resources available to them and, of course, the frequency with which the newspapers were published.

RQ 2: Did articles from the two newspapers address the particular cultural needs of the African-American community?

“Source credibility” has been defined as the level or amount of “believability” which is ascribed to a source of information by its receiver(s). This is not a new concept. Indeed, Aristotle suggested, more than 2000 years ago, that source credibility – ethos – was the most fundamental component in the process to persuasion (Aristotle, n.d./1960). The traits of ethos (intelligence, character, and good will) are, of course, determined by the audience and their perception of the source. This issue has been studied in relation to both interpersonal (Hamilton, 1998; McCroskey, 1993) and mass communication (Hovland, Janis & Kelley, 1953) media. In conjunction with the study of mass communication, the Hovland et al. concept became more formalized in studies conducted by Gunther (1992) who asserted that “credibility” is often more of an audience response than an attribution related to the message source. Gunther’s opinion is that “a person’s involvement in situations, issues or groups” will quite often explain how the individual or group perceives the credibility of the communicating source. Said another way, the mass communication message that is delivered can, and often does, differ from the mass
communication message that is being received; such difference may often be attributed to personal experiences of the receiving individual or audience.

As Welch (2003) notes, effectively communicating with African-American audiences involves understanding and recognizing unique communication styles and complexities that exist within the African-American community. Trust and honesty of communicators are of the utmost importance to African-Americans. Many African-Americans do not believe they receive the whole truth from governmental officials or media personnel and also believe that many media outlets do not present an objective view of information in risk situations because of a desire to sensationalize the situation (Meredith, et al., 2007).

Because of community recognized past discriminations, many African-Americans do not believe that governmental officials have their best interest at heart. The perception among the African-American community in New Orleans was that the wealthy elites would sacrifice the poorer communities in an effort to preserve their own assets. Rumors persisted, for generations, that in the event of a major storm, levees would be intentionally damaged, even dynamited, so that commercial areas and tourist attractions would be spared and less affluent areas would absorb the brunt of a flood (Brinkley, 2006).

A successful risk communicator must try to gain the respect of the audience by behaving in ways that indicate they “care for the citizens they seek to help (Meredith, et al., 2007). The authors write that because African-Americans make up a population segment known to have lower trust levels in government and media than whites, public affairs officials must try to tailor information specifically to that audience, providing them with accurate and complete information, demonstrating sincerity through behavior, and involving the public as a partner (Meredith, et al., 2007).
The risk messages published in the *Times-Picayune* and the *Louisiana Weekly* presented neutral, objective views of the risks associated with hurricanes. While there is evidence to support the notion that both newspapers contained reports suggesting a need for city officials to enhance their efforts related to evacuating those without personal transportation ("Saving the stranded," 2005), and helping those with special needs (Sealy, 2005), there was nothing mentioned in either newspaper which specifically addressed the needs of African-Americans and hurricane preparedness.

The *Louisiana Weekly*, like many African-American newspapers, has a history of advancing African-American culture, and fighting against racial injustice that still exists. In doing so, many of the stories found in that publication would not typically be seen in mainstream newspapers, such as the *Times-Picayune*. The community journalism style of the *Louisiana Weekly* allows the newspaper to focus on issues that directly impact the lives of its readers, and stories often included profiles of, and editorials from, community leaders.

RQ 3: Is there any evidence of optimism bias, and if so, how did that complicate the risk messages in the newspaper articles?

Optimism bias, sometimes referred to as "unreal optimism," has long been recognized as a serious challenge in risk communication strategy. Indeed, some researchers believe it should be a paramount concern in situations such as Katrina. While individuals may acknowledge the existence of a risk in general, they simultaneously often conclude that "it can’t happen here" or "it can’t happen to me." In short, the more confident the public is that it understands a potential problem, based on past experiences or perceptions, the more “control” citizens (incorrectly, in many cases) feel they have about possible adverse outcomes (Weinstein, 1989). This perception is very difficult to overcome and, in fact, it can even cause risk communication messages to fail
of their essential purpose. For this reason, the risk message must be tailored to target specific groups within the general population. As has been previously mentioned, hurricanes and the threat of wind and flood damage was nothing new to residents of New Orleans. For centuries, coastal Louisiana has dealt with the possibility of being washed away by a powerful storm. Yet, because New Orleans had seemingly “dodged the bullet” many times in the past, with regard to a direct hit from a powerful storm, some residents determined they were unlikely to be too negatively impacted.

Remembering Weinstein’s (1980) theory that people believe negative events are less likely to happen to them than to others, and they believe that positive events are more likely to happen to them than others, we can determine that among the greater New Orleans populace, at least some optimism bias existed in the days, weeks, and months prior to Hurricane Katrina’s landfall. A review of the newspaper articles in the *Times-Picayune* demonstrates that residents of New Orleans were victims of optimism bias with regard to the warnings about Katrina, and hurricanes, in general.

For instance, the *Times-Picayune* published the results of a University of New Orleans study which found that “more than half of the residents believe they would be safe during a Category 3 hurricane” (Hurwitz, 2005). UNO political science professor Susan Howell, who directed the survey, said that “residents based their evacuation decisions on their perception of the risk they face in their location. And the two factors that weigh most heavily in that perception are past experiences with hurricanes and whether they feel their home is sturdily built.” (Schleifstein, 2005b). In addition, letters to the editor poured in from private citizens of the New Orleans area with titles such as, “Time to terrorize the public on storms again” (Ripberger, 2005), “Weather forecasters cry wolf” (Hoekstra, 2005), “Hysteria’s bad for the
economy” (Blancher, 2005), and “Doomsayers leave some frantic, others helpless” (Harris, 2005). Even some on the Times-Picayune staff got in on the act with articles calling the coverage of Hurricane Dennis a “hot air event” (Lind, 2005), and others remembering hurricane preparations from years-gone-by as being as simple as buying batteries, bottled water, canned goods and masking tape (Elie, 2005a).

Because they had either “dodged the bullet” with earlier storm warnings, or they had been successful in “riding out the storms” in the past, they erroneously developed the attitude that “it’s not likely to happen to me.” As one survivor remarked, “If I survived Hurricane Betsy, I can survive that one, too. We all ride the hurricanes…” (Elder, et al., 2007). Sadly, what many New Orleans residents presumably did not consider was that while the storms had not necessarily increased in power and strength over the years, the state’s changing and deteriorating environmental conditions meant that the “coastline and levees no longer protect residents from a Category 3 storm, which can deliver winds of 130 mph and an 18-foot-high combination of storm surge and waves” (Schleifstein, 2005b).

Each story unit was analyzed and coded on the basis of the newspaper source and date, primary source, topics, fear appeals, and tone, of the story unit.

1. The newspaper source and date of the story unit. The newspaper source was coded as either the Times-Picayune or the Louisiana Weekly. The date of the story unit was coded by the month and day of its publication.

2. The primary source of the story unit. Sources appearing in the story units include newspaper reporters, columnists or editorial board members; elected officials such as mayors and council members; civic organizations, such as churches or the American Red Cross; governmental bureaucrats, such as directors of emergency preparedness operations or military and police
personnel; scientific experts, such as meteorologists, or officials from the National Hurricane Center; and private citizens. While many story units contained multiple sources, the story unit was coded based on the dominant or primary information source.

3. The topic of story unit. The topic(s) of the story units include information regarding hurricanes, in general; mentioning of Hurricane Katrina; hurricane preparedness, in general, and means to avoid or minimize danger; potential severity of the storm or reporting on damage rendered by storm; levee deficiencies, improvements to levees, or concerns about structural soundness; availability and locations of public shelters; flood information, potential flood-prone areas; governmental officials, actions taken by officials related to hurricanes or protection from hurricanes; social issues, such as poverty and race; and policy concerns related to hurricane preparedness, in general, and specific concerns, such as levee structure or evacuation plans and routes. Some of the story units contained information regarding many of the identified themes while others focused on only one or two topics. In each case, the story unit was coded based on all of the topics contained in the article.

4. The fear appeals found in the story unit. The fear appeals found in the story unit include terms or topics related to floods or flooding; high winds; power outages; lack of food or water; looting; death; destruction of property; evacuation plans; warnings from official sources, such as the National Weather Service or governmental officials; public shelters; and any other fear evoking terms or topics. For example, on August 29, *Times-Picayune* staff writer Gordon Russell published an article detailing the potential catastrophe that would accompany Hurricane Katrina’s landfall. Included in the article were warnings that Katrina could “level the city and flood whole neighborhoods….buildings were likely to sway dangerously….destroy the electrical distribution system” (Russell, 2005).
5. The tone of the story unit. The entire story unit was coded as to whether the content contained within the story unit concerning risk information left the impression of a citizen’s ability to avoid what is feared (high citizen efficacy), an inability to avoid what is feared (low citizen efficacy), or no impression or apparent view. Story units were coded as positive if “the apparent view” of the article concerning risk information was positive, or if the article was overwhelmingly positive in nature, resulting in high citizen efficacy. Story units were coded as negative if “the apparent view” of the article was negative, or if the story unit was overwhelmingly negative in nature, resulting in low citizen efficacy. Story units were coded neutral if the content concerning risk information did not contain any “apparent view” toward the information reported. Often the story units were a composite of many positive references as well as many negative references; these story units were coded as neutral.

In order to verify accuracy in story unit coding, 15 articles were chosen haphazardly from the total collection. Two coders were used to evaluate each article. Scott’s pi (Scott, 1955) was used to test intercoder reliability. The following formula was used: \[ \pi = Pr(a) - Pr(e) \cdot 1 - Pr(e). \]
Intercoder reliability results were as follows: Newspaper Source and Date: 1.00; Primary Source: 0.92; Topics: 0.82; Fear Appeals: 0.88; Tone: 0.93
CHAPTER 5
CONCLUSIONS

Anyone who has ever spent time in New Orleans knows it is a strange and truly unique place. The city was built – and it has survived, at least down to the present – in a location which literally and figuratively invites disaster. It is not too surprising, then, that people living in a place known as “the land of dreams” might have had a difficult time facing the reality that one day, at the appointed time, the city could be devastated by a hurricane and storm surge that could wash it away.

In 2005, it nearly happened.

This thesis has sought to review the relevant literature in risk communication and management, with an eye toward “what went wrong” before Katrina struck the Crescent City. Looking at both traditional and non-traditional models of risk communication systems, the writer has examined how vulnerable residents of New Orleans were seemingly “left out of the loop” when it came to being provided usable information on the scope and extent of the risk that was posed by the approaching storm and how to avoid, or minimize, that risk. What kind of job was done by the local media, and what sort of message was received – or not received – by those who were at the highest risk for property loss, personal injury and death? Was the message communicated in such a manner and fashion as to consider natural biases and fears of the receiving audience, and how, if at all, did race play a part in the way the information was processed and acted upon?
There is no question but that there was extensive, detailed, coverage of both the anticipated effects of hurricanes, in general, and Katrina, specifically, during the period preceding the arrival of the storm. A more fundamental question, however, is how much of the information that was being communicated by the local New Orleans media was deemed genuinely useful to the most at-risk population groups in the city. A review of the local news coverage indicates that while there was quite adequate information available about the risks associated with, and the damage likely to be inflicted by, the wind, flooding and storm surge that was expected to accompany the arrival of Katrina, many people in the highest-risk areas of New Orleans either never completely got the message, failed to act upon the advice received, or were unable to act due to a variety of possible reasons, such as having special physical needs, limited financial resources, or lack of personal transportation. Others presumably received risk communication information that was either not properly understood or appreciated or which came to them from unfamiliar sources or outlets which they did not fully trust.

New Orleans was a city in which 27.9% of the residents lived below the poverty line; 11.7% were age 65 or older; and upwards of 27% of the residents did not have automobiles or other means of transportation. A greater than average number of people suffered from disabilities: 10.3% of 5-20-year-olds, 23.6% of 21-64-year-olds, and 50.1% of those who were age 65 and older (U. S. Census Bureau, 2009). These statistics could explain, at least in part, why tens of thousands of New Orleans’ nearly half million residents did not evacuate well in advance of the storm.

Regarding the risk communication messages that began emanating from governmental officials and media outlets, the issue was not whether people were being advised to either take shelter or prepare to evacuate. Rather, the problem this research has subsequently uncovered
was that the risk message and crisis management plan from the state and local government was simply not tailored to address circumstantial realities of the citizens who were in the highest risk categories. For example, state and local officials realized that tens of thousands of Gulf Coast residents either could not leave their homes or they would not do so (Brinkley, 2006). While some of the response was likely based on the optimism bias, which has often predominated coastal Louisiana during storm season, there were a significant number of residents who did not own a vehicle of their own and who depended upon relatives, friends, charities, or public transportation to evacuate.

How many lives could possibly have been saved if the people comprising the Lower 9th Ward had fully understood – and immediately appreciated – the actual risks which were associated with the coming storm? If buses and trains had been timely located and boarded for points north, what might have been the outcome? If clear instructions had been given, received and acted upon by those residents in the low-lying and vulnerable areas of the city, might there have been an increase in the total number of individuals who would have opted for a prompt evacuation rather than trying to “ride out” the hurricane on first and second floors, attics and, finally, from the rooftops of their humble, but at least familiar, homes?

The evidence suggests that many more people would have acted proactively before the storm. The possibility of even one life being saved is reason enough for New Orleans’ public officials and media to look more carefully and more thoroughly at developing and utilizing the most effective means of risk communication in the future. New Orleans may, in fact, be washed away one day by a storm of even greater proportions than those of Hurricane Katrina.

The people, however, do not have to be washed away with the city.
Limitations of the Study and Future Research

There are several limitations to this study. The first is the broad nature of risk communication, in general. Many variables exist to consider and this writer struggled, at times, to narrow the scope of the study to two or three areas of interest.

Secondly, this study only examined pre-storm coverage from June 1, 2005, through August 29, 2005. A review of post-storm reporting would likely reveal what worked and what did not work in terms of effective risk communication messaging.

Finally, because the writer did not conduct surveys or interviews of those who lived through Katrina, it is impossible to accurately assess if the reports in the local newspapers were received, and, if so, what difference, if any, they made in consumers’ pre-storm decision making process. The only determination that can be made from this study is whether risk communication messages existed in the chosen publications.

Looking beyond the issue of whether the risk communication messages delivered to the residents of New Orleans was extensive enough in the days immediately prior to Katrina’s arrival, there is also the issue of how effective those messages were perceived to be by those members of the population the messengers sought to influence.

Was there a credibility gap between the New Orleans African American community and the local and state media outlets? How do the *Times-Picayune* and *Louisiana Weekly* compare in terms of trustworthiness and credibility among the New Orleans African-American community and also among the population, as a whole? This is not an insignificant issue, because if persons receiving a risk message do not perceive that the information is being communicated by sources which are both trustworthy and credible, the message can be misunderstood, reinterpreted or, in the worst case, ignored.
What role did readership demographics play in how the risk messages were received? Did the individual reader’s race, age, socio-economic status, educational attainment level impact whether they received the messages? If so, how? A study of each newspaper’s readership could help answer this inquiry. An interesting consideration for future research would be a racial demographic breakdown of the readership for both newspapers and a survey to compare their perceived credibility and trustworthiness.

Did the residents of coastal Louisiana receive too much storm and hurricane coverage? Is it possible that being told over and again to prepare for storm season fall on deaf ears until a catastrophic event occurred? Much like a child is warned repeatedly to avoid a hot surface, does it take being burned to fully understand and appreciate the message? Future research should be conducted to determine if the amount of hurricane and storm coverage contributed to an optimism bias among the greater New Orleans population. Could it be true that because coastal Louisiana residents were so accustomed to reading and hearing storm warnings that the messages became all too familiar, routine, or ignored altogether?

How were the risk communication messages from state and local elected officials received by the public? What was the perception of the leadership at both levels? Were the messages clearly communicated or disjointed and confusing? What strategies might future leaders use to improve the effectiveness of the message and achieve the desired results?

Finally, what other media platforms would be as, or more, effective in terms of delivering a message? With the popularity of social media sites and apps such as Facebook and Twitter, how might risk communicators be more effective in delivering critical information to the masses? A question for future research is whether the reports published by the Times-Picayune
and Louisiana Weekly were effective messages that encouraged decisive action on the part of their readers.
REFERENCES

(Original work published no date).


Brandon, W. T. (2002). An introduction to disaster communications and information  
systems. *Space Communications*, 18, 133-138.


Brown, M. (2005, June 3). Storming the gates; South Louisiana communities outside the  
fort-like metro levee system face possible devastation from even a small hurricane. *The  

In P. Halmos (Ed.), *The Sociology of Mass Media Communication*. (pp. 23-38). England:  
University of Keele.

research. In S. A. Deetz (Ed.), *Communication yearbook 15* (pp. 359-373). Newbury  

communication in crisis and non-crisis situations. In R. Kolluru (Ed.), *Environmental  
strategies handbook: A guide to effective policies and practices* (pp. 359-373). New  

Covello, V. T. & Allen, F. (1988). Seven cardinal rules of risk communication. For the  
U.S. Environmental Protection Agency, Office of Policy Analysis, Washington, D.C.

risk comparisons: A manual for plant managers*. Washington, DC: Chemical  
Manufacturers Association.


