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Race, Class, Risk and Trust: Risk Communication in Post-Katrina New Orleans

Bruno F. Battistoli
Syracuse University

Abstract

The main focus of this study is on risk communication about dangerous environmental events in post-Katrina New Orleans, and the influence that race and class have on that process. It seeks to determine the assessment of New Orleans residents of the various possible sources of risk information that are available to them, and how race and socioeconomic class affect their level of trust in those sources. A 37-question telephone survey was conducted in Orleans Parish by the Public Policy Research Lab at Louisiana State University in June and July of 2012. There were 414 completed surveys, with 278 landline telephone and 136 cell phone respondents. The overall margin of error was +/- 4.8% at a 95% confidence interval. SPSS software was used to analyze data testing four hypotheses for each of two research questions on risk assessment: the first on race, the second on class (socioeconomic status, or "SES"). An ANCOVA was used to test the hypotheses of the first research question, while Pearson's Product Moment Correlation Coefficient Test was used to test the second. A trust index was constructed by aggregating Likert-scales responses to questions on the elements of trust in sources, and an SES index was constructed by aggregating education and income responses. After controlling for SES, Whites were shown to have significantly more trust in mass media, local community leaders and spokespersons, and interpersonal communication than Blacks did. After controlling for race, SES was found to be negatively correlated with trust in local TV news, non-news websites, and social media sites. Tests of correlation were also run on frequency of media use and trust in sources of risk messages.

Keywords: Katrina, risk, race, class, trust, media

RACE. CLASS, RISK AND TRUST:
RISK COMMUNICATION IN POST-KATRINA NEW ORLEANS

By
Bruno F. Battistoli
B.A. State University of New York at New Paltz, 2003
M.A. Syracuse University, 2007

DISSERTATION

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Introduction

"*Our society has not determined whether it is the responsibility of the professional scientists to communicate only to their peers, or also to elected or appointed government officials, or directly to the public."*

-Anne Branscomb, American Bar Association (Branscomb, 1981, p.6)

The Gulf Coast of the United States, and New Orleans in particular, has been subjected to the effects of hurricanes for centuries. These storms have wreaked havoc on the residents, many of whom have lost their lives either in the storms or their aftermath. Weather forecasting has improved dramatically in recent years, due primarily to technological advances in radar and satellite imagery. In addition, the accuracy of computer models simulating the effects of natural disasters has increased. The Federal Emergency Management Agency (FEMA) commissioned a hurricane simulation exercise that was conducted in Baton Rouge, Louisiana, in the summer of 2004, called "Hurricane Pam" (FEMA, 2004), one year before Katrina made landfall.

In addition, FEMA commissioned Integrated Emergency Management, Inc. ("IEM"), a Baton Rouge firm that specializes in "catastrophic planning and preparedness" (Committee on Homeland Security, 2006) to prepare a "Southeast Louisiana Catastrophic Hurricane Functional Plan" based on the findings of the Hurricane Pam exercise. A draft of the report was released on August 6, 2004, more than a year prior to Katrina (IEM, 2004).

In her testimony before Congress on January 24, 2006, at a hearing before the Committee on Homeland Security on the Hurricane Pam exercise, IEM CEO Madhu Beriwal compared the statistics from the Pam exercise to those of Hurricane Katrina (Committee on Homeland Security, 2006). They included the following data:

Table I: ***Data comparison: Hurricane Pam Exercise and Hurricane Katrina Actual***

Hurricane Pam Exercise	Hurricane Katrina Actual
20 inches of rain	18 inches of rain
Overtopping of levees	Levees breached
Over 55,000 in public shelters prior to landfall	Approx. 60,000 in public shelters prior to landfall
Over 1.1 million La. residents displaced	1 million Gulf Coast residents displaced
233,986 collapsed buildings	250,000 homes destroyed
Over 60,000 deaths	1,110 deaths reported in La. to date [final death total - 1,836 (hurricanekatrinarelief.com)]
36% evacuated prior to landfall	80-90% evacuated prior to landfall

By most measures the Hurricane Pam exercise would be considered a success, especially in hindsight after Hurricane Katrina. The accuracy of many of the predictions listed above would support that assertion. Yet despite the accuracy of the forecasting, 1,836 people did not survive Katrina, and the nation watched in horror as thousands suffered for days in inhuman conditions, waiting for help that took too long to get there,

or arrived too late to help.

This study will explore the manner in which Black and White residents of New Orleans receive messages of risk. The purpose of this study is to examine how racial, social, and cultural variables impact risk communication. In *Popular Beliefs, Media, and Biotechnology*, Priest (1999) notes the complex environment in which scientific messages are received:

> The news stream is only one component of a much broader information environment in which individual human beings, members of a persistent culture and (typically) of many intersecting subcultures, selectively choose and actively process what messages they will attend to. This information environment is made up of marketing messages as well as objective journalism, of fictional entertainment as well as factual news, and of material intended to educate as well as report (p.101).

The use of models to confront environmental challenges is a long-established tradition in the environmental sciences, and many of these models seek to incorporate public input in the process (Creighton, 1980; Manno et al, (undated); Peterson et al; 2004; Senecah, 2004). For the most part, these efforts see science research and science communication as separate and sequential: first the research, then the communication. This study is intended to make a contribution toward the embedding of mass communication strategies in scientific models, so that from the outset of each scientific research project that is seen to have a potential public impact, the communication profiles

and patterns of those affected by the research will be considered, and communication strategies will be developed in tandem with the scientific research. Drawing on the literature of risk communication, this study seeks to contribute to the development of a risk communication model for natural disasters that takes into account the racial, social, economic and cultural elements of the communication environments of the target audiences.

This study is based upon an analysis of data collected by means of a telephone survey (both land line and cell phones) of residents of Orleans Parish in Louisiana. I designed and wrote the survey, which was conducted by the Public Policy Research Lab at Louisiana State University. In Chapter 2, I review the literature relevant to this study, including an extensive exploration of risk communication theory and models, the concept of trust, particularly in trust of the media, and the theories of Media System Dependency ("MSD") and Uses and Gratifications ("U&G"). In Chapter 2, I also explore the connections among race, class, poverty, and communications, and outline the two research questions of the study and the four hypotheses of each.

Chapter 3 offers a detailed explanation of the methods employed in the study, particularly in the construction of the telephone survey, as well as an elucidation of my approach to the analysis of the data. I present the results of the study in Chapter 4, including tabular data presenting the findings of the statistical tests conducted in SPSS. In Chapter 5, I discuss the limitations of the study, as well as its implications and suggestions for future research.

Chapter 2

Literature Review

This study entails an exploration of the means, methods, and processes that people of different races and economic classes, acting in different cultural and social environments, use to access messages of risk. The four hypotheses of each of the two research questions seek to test ways in which those means, methods, and processes might be different. The data from this study is intended to further illuminate the process of risk communication.

Risk Communication Theory

Since this inquiry is concerned with scientific messages associated with natural disasters such as Hurricane Katrina, the literature on risk communication theory should help to illuminate the broader inquiry. The Committee on Risk Perception and Communication of the National Research Council ("NRC") offers a useful definition of risk communication in their study, "Improving Risk Communication" (NRC, 1989):

> Risk communication is an interactive process of exchange of information and opinion among individuals, groups, and institutions. It involves multiple messages about the nature of risk and other messages, not strictly about risk, that express concerns, opinions, or reactions to risk messages or to legal and institutional arrangements for risk management (p. 21).

The authors use the term "interactive process" to describe risk communication. It

is helpful to look at the concepts it embodies. The authors explain that the first word of the term, "interactive," denotes a distinction between communication, which is multidirectional, and messages, which are unidirectional. Their definition also serves to identify the risk message as an element of a process that occurs in a large and diverse social context. This distinction is not only relevant within the field of risk communication, but is also applicable when risk communication is sited on the longitudinal continuum of communication research. Beginning with the propaganda theorists in the First World War, early researchers saw communication as a linear process, one that was elegantly summed up by one of those researchers, Harold Lasswell (1949), as "Who says what to whom through what medium with what effect." The linear model held sway through two World Wars, and was the dominant model when researchers studied the formation of voter opinion (Lazarsfeld, Berelson, & Gaudet, 1948; Berelson, Lazarsfeld & McPhee, 1954; Katz & Lazarsfeld, 1955). While expecting to find direct effects of communication messages transmitted by powerful media to a susceptible public in accordance with the linear model, the researchers discovered the important role that opinion leaders played in the formation of public opinion. Rather than following a straight line from active message creator to passive message recipient, they found that the transmission of messages is a process in which the message is received by individual message recipients, some of whom, by virtue of their position in the community, are considered influential. These "opinion leaders" process the message in accordance with their own values and attitudes, and then, through interpersonal communication, share the message, transformed by those values and attitudes, with other

members of the community. Perhaps most importantly, Katz and Lazarsfeld recognized that the communication process occurred within interpersonal networks that were shaped by a "social reality" unique to the specific community in which it occurs. In their discussion of how this social reality affects message reception and the formation of opinion, they cite Festinger, Schachter and Back (1950), who argue that, "The 'reality' which settles the question in the case of social attitudes and opinions is the degree to which others with whom one is in communication are believed to share these opinions and attitudes." The linear model of direct effects began to give way to that of contingent effects, and graphic diagrams of the communication process changed from unidirectional to multidirectional.

The NRC authors note that public agencies have recognized the importance of community opinion leaders in risk communication, even, in some cases, relying on those leaders for risk message dissemination. Citing Stern and Aronson (1984), they argue that "public agencies can sometimes be more effective in delivering technical information to individual citizens by using trusted sources as intermediaries than by designing and disseminating messages themselves" (NRC, 1989, p. 25). Consistent with their view of risk communication as a multidirectional process, they note that these community opinion leaders, functioning in the role of "trusted intermediaries" in the risk communication process, can offer valuable input to public officials regarding the most effective methods to disseminate risk messages in their communities.

The NRC authors use the second word of the term "interactive process" to describe the complexity and scope of risk communication, which "includes all messages

and interactions that bear on risk decisions" (p. 22). They note that not only does risk communication include the traditional "announcements, warnings, and instructions moving from expert sources to non-expert audiences," but also includes many other kinds of messages that include "personal beliefs and feelings concerning risks and hazards, about reactions to risk management actions and institutions" (p. 22). Their recognition of the importance of viewing risk communication as a dynamic process that operates in a social environment is summarized in the following statement:

> Our use of the term risk communication also pays explicit attention to the social interaction and debate that are essential to democratic political choice and that often contribute to personal decisions about hazardous activities. Risk communication includes messages moving in various directions – not only from experts to nonexperts but also from nonexperts to each other, from nonexperts to experts, and especially the messages of political participation, from citizens to public decision makers. Decisions in government depend on dialogue between the decision maker and staff within the responsible agency and between the decision maker and various political participants, who influence the decision maker's view of the risks and the risk management options (p. 22).

Who are the key actors in this process? In addition to the community opinion leaders described above, the NRC authors include experts in governmental agencies, their staff members, mass media, interpersonal channels, community organizations, and members of the community. Covello, von Winterfeldt, and Slovic (1986) offer a

definition of risk communication that is complementary to that of the NRC, and provides further detail on the risk communication process and the actors who participate in it:

> Risk communication is the act of conveying or transmitting information between parties about (a) levels of health or environmental risks; (b) the significance or meaning of health or environmental risks; or (c) decisions, actions, or policies aimed at managing or controlling health or environmental risks. Interested parties include government, agencies, corporations, and industry groups, unions, the media, scientists, professional organizations, public interest groups, and individual citizens (p. 172).

The NRC (1989) offers an additional level of detail to the analysis of the process, giving examples of various pathways of communication: *interpersonal*: doctor to patient, friend to friend, within family; *within groups*: workplace, classrooms; *within community*: libraries, malls, fairs, local government; and *mass media* (p. 140). They argue that scientists and risk managers must be aware when constructing risk messages for distribution to the mass media that journalists often struggle with framing the technical and social dimensions of risk (p. 4).

The NRC authors suggest that community organizations can be used to "reinforce and expand upon media messages," and note that this communication avenue "can require less time than reliance on interpersonal channels" (p. 140). In another NRC report on energy use (NRC, 1984), the NRC notes that although using organizations as intermediaries in the communication process is often helpful, it is important to recognize

that these organizations have their own interests, which they may view as being helped or harmed by the message, and therefore may either promote or interfere with the message when they transmit it (NRC, 1984, p. 128).

When describing the members of the community who are the targeted recipients of risk messages, the NRC authors emphasize the diversity of the audience and the challenges of reaching them, warning that "the public is not homogeneous" (p. 4), that "the people who need information most seem to be the least likely to pay attention" (p. 136), and that "different people rely on different information channels" (p. 137). Key assumptions of the NRC view of risk communication include:

a) The effectiveness of risk messages is dependent in large part upon recognition by the message creator of the characteristics (attributes) of the intended audience. These attributes include "cultural background, shared interests, concerns and fears, social attitudes, and…facility with language"

b) Each medium of communication (interpersonal, direct mail, advertising, broadcast, print, etc.) has advantages and limitations that must be recognized by the message creator;

c) source credibility is key to effective (successful) risk messages;

d) where widespread mistrust of public sources of information exists, message creators should utilize opinion leaders in the community as both transmitters of and sources for risk information (pp. 24-25).

The authors caution against the tendency to evaluate the success of risk

communication from the point of view of the sender in "getting the message across" (p. 20). They argue that this perspective encourages an unacceptable perspective on risk communication: "the image is of experts enlightening or persuading an uninformed and passive public" (p. 20). This top-down view of risk communication is inconsistent with the dynamic model that they present in their study. They see risk communication as part of risk management, the key to which is the "selection of risk control options" (p. 21). They argue that it is "the process that provides the information on which government, industry or *individual decision makers* [emphasis mine] base their choices" (p. 21). When a community is facing a natural disaster of the magnitude of Hurricane Katrina, as New Orleans was in August of 2005, the effectiveness of this risk communication process can be a matter of life and death. Guion, Scammon and Borders (2007) note that in risk communication in natural disasters, prior experience with a similar disaster, source credibility, and the personal relevance of the risk are all factors that come into play in message processing (p. 27). In a study of flood warning messages in a small Texas town, Perry and Mushkatel (1984) found that source credibility was nearly twice as important in personal risk assessment among Blacks than among Whites (p. 72). In ranking of credibility of sources by confidence expressed in each, Blacks rated police or firefighters first, neighbors or friends second, and personal judgment third. Whites ranked mass media (radio and television) first, police or firefighters second, and personal judgment third (p. 74).

The concept of source credibility is a key element in risk communication. The NRC (1989) argues that the recipients' opinion of the degree of expertise of the source

and the degree of trust they have in that source influence they way they process risk messages. Citing McGuire (1985), the authors offer a useful definition: "The term 'credibility' is used by researchers in this field to refer to an attribute of a source that derives from a combination of expertise and trust, as seen by the audience" (p. 24). They note that different sources are seen as credible on some issues, but not on others.

Renn and Levine (1991) connect the concepts of source credibility and trust: "Trust in communication refers to the generalized expectancy that a message received is true and reliable and that the communicator demonstrates competence and honesty by conveying accurate, objective, and complete information" (p. 179). The authors also draw a distinction between trust and confidence. They note that although the two terms are often used interchangeably, "confidence in a source can be distinguished from trust as a more enduring experience of trustworthiness over time" (p. 179). They argue that trust is a "prerequisite for social orientation," and that a minimum level of trust must exist between the actors involved in the communication, "at least to the point that they share a common meaning of the elements of the communication process" (p. 184).

Communications researchers working since the publication of the NRC study have concentrated on the role that social environment and culture play in the communication process. Renn (1992) notes that "anthropologists and cultural sociologists have suggested that social responses to risks are determined by prototypes of cultural belief patterns, that is, clusters of related convictions and perceptions of reality" (pp. 72-73). Rayner (1992) offers a cultural theorist's perspective that sees risk communication as a process occurring within the social organizations in which it is received: "Cultural

theory argues that risks are defined, perceived, and managed according to principles that inhere in particular forms of social organization"
(p. 84). Consistent with the view of the NRC authors, he rejects the linear communication model, arguing that, "the dominant model of risk communication essentially is one of information transmission with the goal of educating the recipient … But information transmission is only one part of communication, which also involves developing shared meaning among individuals, institutions, and communities and establishing relationships of trust" (p. 85). Using Lasswell's (1949), "Who says what in which channel to whom with what effect" as a template, he argues that the primary concern of risk communication is "how to pass quantitative information about the probabilities of and consequences of events from one information bearer (the transmitter) to another (the receiver) through a medium (the channel) with the minimum of distortion" (Rayner, 1992, p. 85).

The common thread that runs through these studies of risk communication is the vital role the individual message recipient plays in the process. Without a message recipient, the risk message becomes the proverbial one hand clapping. Potter (2009) emphasizes the effect of individuality on message reception:

> Each audience member brings to the exposure situation a complex array of personal experiences and needs; this complexity substantially shapes the meaning construction process. Thus, the meaning that the sender thinks he or she has built into the message is not always the meaning that is received by audience members (p. 22).

Krimsky (1992) places the individual recipient of risk messages in a social context, arguing that, “The choice people make about risks is settled by the choices they make in the kinds of social institutions with which they associate” (p. 20). Kasperson (1992) argues that risk message processing occurs in a context unique to each cultural or social group, one in which each group selects certain risks as worthy of concern while deselecting others as unworthy. Within each group, individuals or groups of individuals collect information about risk, and when transmitting information about those risks that are selected as worthy of concern, they act as “amplification stations,” while those risks deemed unworthy of attention will be de-emphasized or ignored, resulting in what is termed “risk attenuation” (pp. 160-161).

Kasperson (1992) sees culture as a “super-variable that shapes characteristics of all stages, components, and processes in the framework, and even the risk or risk event itself”

(p. 163). Entman (1993) defines culture in terms of frames: “The culture is the stock of commonly invoked frames; in fact, culture might be defined as the empirically demonstrable set of common frames exhibited in the discourse and thinking of most people in a social grouping” (p. 53). Kasperson (1992) attempts to quantify the influence of cultural factors on (and in) the risk communication process through the introduction of a concept that he terms “the social amplification of risk framework”: “The concept of social amplification of risk is based on the thesis that events pertaining to hazards interact with psychological, social, institutional, and cultural processes in ways that can heighten

or attenuate perceptions of risk and shape behavior" (pp. 157-158). Kasperson et al. (1988) note the function of elements of message content on reception, including factual (type of risk, source of message), inferential (conclusions that can be drawn), and symbolic, e.g., cultural referents, such as "big business" or "high technology" (p. 180). They argue that this symbolic content is an important factor in gaining audience attention, and it also affects the decoding process.

In his study of media coverage of oil spills, Leschine (2001) found that messages are amplified when they resonate in a socio-cultural atmosphere consistent with the message frame ("social amplification") and attenuated in one inconsistent with that message frame ("social attenuation"). Kasperson's concept of people as "amplification stations" (Kasperson, 1992, p. 159) is a direct corollary to the "opinion leaders" of Katz and Lazarsfeld (1955):

> The individuals or groups who collect information about risks communicate with others, and through behavioral responses act, in our terminology, as *amplification stations*. Amplification stations can be individuals, groups, or institutions. It is obvious that social groups and institutions do not act or react merely in their roles as private persons, but rather according to the specification associated with their positions. Amplification my therefore differ among individuals in their roles as private citizens and in their roles as employees or members of social groups and organizations (p. 159).

Kasperson (1992) notes that the effects (harms) associated with a risk event are

both direct and social, such as "the social processing of those events, social stigmatization, group conflict, loss of community and social disruption" (p.161). Renn (1992) offers what he calls the Arena Metaphor, "to describe the symbolic location of political actions that influence collective decisions or policies" (p. 181). He chooses the term "arena" because he sees risk communication as a struggle, one in which social groups with different messages compete in a political arena in an effort to mobilize social resources to act in a manner consistent with their goals. In Renn's model, the outcome of the struggle is determined not only by the actions of individuals or groups, but also by the structure of the arena itself, and the interaction of the competing groups within it. He is careful to say that these arenas are "neither geographical entities nor organizational systems, but rather, "describe the political actions of all social actors in involved in a specific issue" (p. 181). Kasperson compares the risk communication process to a rock thrown into a pond, creating ripple effects that reach beyond the initial meeting of stone and water.

In a comprehensive analysis of risk communication and the social amplification and attenuation of risk messages, Renn (1991) emphasizes the effect that social context has on risk messages: "The main thesis of the social amplification concept is that events pertaining to hazards interact with psychological, social, and cultural processes in ways that can heighten or attenuate public perceptions of risk and shape risk behavior" (p. 287). Rayner (1992) emphasizes the social context of risk communication: "But information transmission is only one part of communication, which also involves developing shared meaning among individuals, institutions, and communities and

establishing relationships of trust" (p. 85). He sites risk communication in a social context of shared meaning, in which trust is a key element in its effectiveness. It is relevant to this inquiry into risk communication in post-Katrina New Orleans to explore the concept of trust in some detail.

Trust

In an experiment by the Yale Communication Research Program that studied audience reactions to identical messages received from sources viewed as either trustworthy or untrustworthy, Hovland and Weiss (1951) found that "changes in opinion are significantly related to the trustworthiness of the source used in the communication" (p. 647). Earle and Cvetkovich (1995) argue that traditional interpretations of social trust, such as those of Hovland and his colleagues at Yale, view trust within the boundaries of interpersonal communication, and fail to take into consideration the influence of the culture in which that communication takes place:

> People do vary in the values they consider most important when dealing with other personas and institutions. And this diversity of values, as well as changing social contexts, may provide varying, perhaps conflicting, bases for judgments of social trust (p. 29).

They further argue that a basic function of social trust is to reduce cognitive complexity. This observation is supported by the findings of researchers working in risk communication models based on psychological processing, such as the Elaboration Likely Model (ELM) and Heuristic-Systematic Model (HSM), which are discussed in

some detail later in this section.

Kasperson, Golding, and Tuler (1992) personalize and individualize the concept of social trust: "We define social trust as a person's expectation that other persons and institutions in a social relationship can be relied upon to act in ways that are competent, predictable, and caring" (p. 36). Siegrist, Cvetkovich, and Roth (2000) define social trust in the context of risk analysis: "Social trust is the willingness to rely on those who have the responsibility for making decisions and taking actions related to the management of technology, the environment, medicine, or other realms of public health and safety" (p. 354).

Newton (2001) argues that social trust is based on the individual's belief that, at the least, the group will not harm him/her, and, in the best of circumstances, it will act in his/her interests. In this view, social trust is a primary component of social capital, one that cements social bonds that make collective behavior both possible and productive (p. 202). Putnam (1995) defines social capital as the "features of social organization, such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (p. 66). Bradbury, Branch, and Focht (1999) draw the distinction "between system, or macro-level trust, and trust based on interpersonal, micro-level relationships" (p. 120). Earle and Cvetkovich (1999) argue that social trust should be moved beyond the rationalist tradition and sited within the narratives of the culture: "Social trust is a social construction that is based on varying sets of cultural values – the values of specific persons and institutions living in certain times and places – as expressed in cultural narratives" (p. 10). In what they term a cultural values interpretation, the authors argue

that “social trust is based on values similarity: people tend to trust other people and institutions that ‘tell stories’ expressing currently salient values, stories that interpret the world in the same way they do” (p. 11). They note that “social trust tends to be a within-group phenomenon. Individuals are inclined to trust within group boundaries and to distrust outside them” (p. 21). `Fessenden-Raden, Fitchen, and Heath (1987) argue that, “In spite of differences in individual experiences and perceptions within a community, collective interpretations of the risk may develop and will often override individual experiences” (p. 97). They site risk communication in the cultural and social context in which it occurs:

> People’s reception of the risk information is partially shaped by their perceptions of the responses of people around them. Although ultimately the receivers of the risk information are individuals, each person is embedded in a social surround that shapes his or her individual reception of the information (p. 95).

As described by these researchers, social trust appears not to be a static concept, but rather fluid and dynamic, formed by the relationship between values held by the individual, the relationship of the individual to a group or group, and the perceptions of both the individual and the group(s) of institutions and organizations involved in the risk management process. Earle and Cvetkovich (1999) break social trust into two categories: pluralistic and cosmopolitan. They see pluralistic social trust as more static, “rooted in the pasts of existing groups” (p. 21). By contrast, they see cosmopolitan social trust as “multiple, created in the emergence of new combinations of persons and groups” (p. 21).

They argue that cosmopolitan trust is more useful in risk management, because the new social combinations "are based on new sets of values that are constructed for the solution of specific problems" (p. 21). They envision successful risk management programs in the future "based in part on encouraging people to move toward more cosmopolitan forms of social trust" (p. 21). This may be more easily accomplished in communities that are themselves in flux, as is the case with many urban areas in the U.S. But in cities like New Orleans, with at-risk neighborhoods that have changed little in demographic makeup over many generations, it would appear that overcoming the pluralistic social trust might be difficult. In fact, it might even suggest that risk management program designed with the specific values of that pluralistic social trust might be more effective than one designed to encourage members of that community to move toward a more cosmopolitan perspective. Earle and Cvetkovich (1995) note that people make "judgments of social trust … to manage uncertain environments by enlisting the help of others" (p. 120).

Earle and Cvetkovich (1999) designed a survey experiment to test their" cultural values interpretation of social trust," i.e., "social trust is based on value similarity: people tend to trust other people and institutions that 'tell stories' expressing currently salient values, stories that interpret the world in the same way they do" (p. 11). The survey tested correlations between the value structures of the respondents and their perceptions of the value structures of organizations and institutions described in newspaper-style stories that they read, for which they were asked to rate their level of trust. They found that the "cultural matches between respondents and stories produced the highest judgements of social trust and trust values for all groups of respondents" (p.14).

If these researchers are correct, and individuals trust sources found within their group boundaries for information on risk, it raises the question of whom within those boundaries they trust for that information. In their explication of the model of two-step flow of communication, first published in 1955, Katz and Lazarsfeld (2006) outline the role of opinion leaders in the community in influencing public opinion. Although the basic description of their model posits a rather passive audience influenced by active leaders, a view that has been largely abandoned in more recent research, they make an important observation on the role of opinion leaders in the communication process:

> Opinion leaders are not a group set apart, and … opinion leadership is not a trait which some people have and others do not, but rather that opinion leadership is an integral part of the give-and-take of everyday personal relationships. It is being suggested, in other words, that all interpersonal relations are potential networks of communication and that an opinion leader can best be thought of as a group member playing a key communications role (p. 33).

Earle and Cvetkovich posit a dynamic communications environment that exists within a community, one in which the role of "opinion leader" is fluid, shifting from person to person within interpersonal communications. This finding is supported in the related voting study of Berelson, Lazarsfeld, & McPhee (1954), in which they argue (with an interesting simile), that "in practice there must be unending circuits of leadership relationships running through the community, like a nerve system through the body" (p. 110). Bandura (1994) puts it succinctly: "There is no single social network in a

community that serves all purposes" (p. 84). Although investigating different aspects of communities and the interpersonal communications that occur within them, there is a common thread among the inquiries of these researchers: they see "community" as a complex organization of people with different interests, who interact with each other through interpersonal communication with a frequency and intensity that varies with the issue at hand.

In a study of trust analyzed in the larger context of social capital, Uslaner (2004) conducted a meta-analysis of national survey data of states from studies spanning the last two decades of the 20th Century. He explored the concept of "generalized trust," which he defines as "a moral value that connects people to others who may be different than themselves" (p. 501). He found that those states with higher overall levels of generalized trust, regardless of race, had higher levels of trust and participation in government by Blacks and other minorities. One of the variables that Uslaner used as an indicator of social trust was the suspension ratio of black to white students. Louisiana had the fifth-highest ratio, behind only Mississippi, Georgia, Alabama, and South Carolina, while having the third –lowest index of generalized trust, behind only Alabama and Mississippi. In his longitudinal study of national public opinion surveys conducted in 1965, 1975, and 1985, Putnam (1996) found a downturn in joining and trusting that led to an erosion of social capital that was greater among Blacks than Whites (p. 42). Putnam names an unusual "culprit" in this decline: television. He identifies a correlation between the increase of percentage of homes with televisions, the increase in average hours per day watching television, and the decrease in social relations, resulting in a decrease in social

engagement. In a longitudinal study of trust in government during the period 1964-1970, Miller (1974) discovered an interesting phenomenon: "Blacks demonstrated more trust in government than whites prior to 1968, with a sharp divergence and reversal occurring between the races after 1968" (p. 954). Miller places his findings in the context of political events at the time, pointing out the landmark passage of the Civil Rights Act of 1964 as an event that stirred the trust of Blacks in government, and, in the obverse, may have created resentment among Whites for what they viewed as favoritism toward a minority. Certainly, it could be argued that the assasinations of two champions of civil rights, Martin Luther King and Robert F. Kennedy, within two months of each other in 1968 had a chilling effect on the hopes of Blacks that the government would continue to move forward in protecting and expanding their civil rights. Miller notes that the election of Richard Nixon in 1968, returning the White House to Republican control for the first time in eight years, also had a dampening effect on the trust of Blacks in government. In a study similar to that of Miller, conducted on data collected in 1996 (during the Clinton presidency), Hetherington (1998) found that after controlling for the preference of Blacks for a Democratic administration, Blacks showed significantly less trust in government than did Whites. This decrease in trust is understandable when viewed in the context of national presidential political campaigns beginning with Nixon in 1968, when Blacks were routinely demonized in Republican advertising as rioters (Nixon), welfare cheats (Reagan) and criminals (George H.W. Bush). During the 30-year period from 1968 to 1998, when Hetherington did his study, there were 20 years of Republican presidents (Nixon, Ford, Reagan, George H.W. Bush) and 12 years of Democrats (Carter and

Clinton). The gains of the Civil Rights era under Lyndon Baines Johnson had receded from the collective memory by the end of the 20th Century.

In their study of energy emergencies, the National Research Council (NRC, 1984) found what they termed a "dilemma" when it comes to trust in messages from the government, one that appears to be particularly relevant to the natural disaster scenarios such as that of Hurricane Katrina: "The more trust in government is needed, the less likely it is to exist. Trust is most important when people are least prepared for an emergency, but people's confidence in government may well be shaken if they are not adequately prepared" (p. 149).

Where local government is preferred, messages from state and national government are viewed as less "true" (Fessenden-Raden et al., 1987, p. 96). The communal influence on message reception can develop into a "collective interpretation" of risk, which may "override individual experiences" (p. 97). This collective interpretation of risk is often extended to science, where risk messages embedded in scientific narratives compete for acceptance with local narratives of scientific activities (Earle and Cvetkovich, 1995, p. 141). Earle and Cvetkovich argue that the narrative norms of science are being continually – and "locally" – reconstructed within the scientific community within contexts peculiar to the scientific community, which may, in fact, may them increasingly more remote, less relevant, and even in conflict with the local narratives of scientific activities in the communities where those narratives are received (pp. 140-141).

Greenberg & Williams (1999) found that personal feelings of threat in the community, e.g., fear of personal attacks at night, are transferred to distrust of local officials. Following Perry and Mushkatel (1984), Guion, Scammon, and Borders (2007) argue that in risk communication, Blacks have the highest degree of confidence when the messages are received directly from local authorities, while Whites trusted the mass media, and Mexican Americans had the greatest trust in risk messages that came from their family and friends. Cole and Fellows (2008) note that public officials for the most part ignored interpersonal networks for distribution of risk and evacuation messages, relying instead on official government spokespersons to deliver the messages.

In their book, "Participation in America," Verba and Nie (1972) took a comprehensive look at community structure and its influence on concurrence between citizens and leaders, using variables including race and levels of participation. They did not find a linear correlation between level of participation (activism) and concurrence between officials and the citizenry. Where they found a high level of citizen participation, leaders were responsive to the citizens; where participation was low, leaders tended to respond more to the active participants than to the "quiescent" citizens (p. 314). These findings are consistent with those of Putnam's longitudinal study of trust, noted above. The high level of citizen participation noted by Verba and Nie is indicative of a high level of social capital, which is generated through participation. In the obverse, where social participation is low, so is trust and social capital, so public officials must seek out community leaders and opinion makers in order to effectuate their policies.

Most of the significant research in the field of trust has occurred 1985, when

Burns W. Roper conducted a survey-based study for the Television Information Office entitled, "Public Attitudes Toward Television and Other Media in a Time of Change" (Roper, 1985). Out of that seminal study emerged the "Roper Question," which became a staple in surveys on media credibility. The Roper Question asks, "If you got conflicting or different reports of the same news story from radio, television, the magazines and the newspapers, which of the four versions would you be most inclined to believe – the one on radio or television or magazines or newspapers?" Studies following Roper looked for valid and reliable methods to measure source credibility. Following Roper (1985) and Gaziano and McGrath (1986), Meyer (1988) sought to develop an effective measurement index of source credibility for newspapers. Meyer found that a five-item index distilled from the Gaziano and McGrath data was both reliable and valid. He presents an elegantly simple index, measuring five aspects of source credibility on a semantic differential scale:

1) fair/unfair

2) unbiased/biased

3) tells the whole story/doesn't tell the whole story

4) accurate/inaccurate

5) can be trusted/can't be trusted

Following Roper (1985), Gaziano and McGrath (1986), and Meyer (1988), McComas and Trumbo (2001) conducted research designed to test "the usefulness of Meyer's credibility index in the context of risk communication" (ibid., p. 476). They sought "to determine whether the indices perform consistently across several

environmental risk communication contexts" (ibid., p. 471). In order to do so, they adopted Meyer's five-item believability index to measure the credibility of the institutions that they were studying. Their findings supported those of Meyer some 13 years earlier:

> The results of the reliability analysis demonstrated that the source credibility indices produced good internal consistency, showing an average Cronbach's alpha of 0.84. Moreover, the index's reliability was evident across the three sources, as well as across the five cases (p. 476).

In a subsequent study of the function of credibility in the processing of risk messages concerning cancer clusters, Trumbo and McComas (2003) used a five-point semantic differential (Likert) scale for the answers, with low values indicating lower levels of credibility, and high values indicating higher levels. They found that "source credibility indices all present fairly strong direct paths to risk perception" (ibid., p. 349). In a finding particularly relevant to this study, they discovered that "perceiving greater credibility for the state health departments and industries suppresses risk perceptions, whereas perceiving greater credibility for the citizens' groups associates with perceptions of greater risk" (ibid, p. 349). However, they note that, "the credibility indices perform less robustly in their prediction of information processing" (ibid., p. 349), which can be viewed as an indication of the difficulty in attempting to quantify value-laden concepts, e.g., credibility and trust, as expressed in attitudes or beliefs, to the psychological processes that underlie them. McComas and Trumbo also found significant

variation in the mean values of the index depending on the source and context, serving to highlight differences in source credibility across the cases studied (ibid., p. 476).

In his study of suspected environmental cancer clusters in the U.S., Trumbo (2008) explored the ways in which institutional trust affects risk messages processing. He argues that "individuals base their trust of an institution on an assessment of the degree to which the institution shares the individual's values" (p. 3). Using a term coined by Earle and Cvetkovich (1995), he calls this a Salient Value Similarity, which he argues is "predictive of single-item measurements of trust" (p. 3), i.e., that the correlation between the values of the institution and those of the individual can be statistically measured. Trumbo conducted his study on risk perception of individuals who lived in communities where there was a public perception that an environmental hazard existed that was leading to an increase in the local cancer rate. The results confirmed the existence of a Salient Value Similarity: "[Individuals] reporting greater trust for the state health departments suppresses risk perceptions, while [individuals] reporting greater trust for the civic groups associates with perceptions of greater risk" (p. 13). The results show that when processing of risk messages takes the more complex pathway of systematic processing, the individual's assessment of the level of potential harm from that risk is reduced. But when the processing of risk messages takes the faster and more simplistic pathway of heuristic processing, the individual's assessment of the level of potential harm from that risk is increased. Cvetkovich and Lofstedt (1999) argue that while "social trust reduces demands on the individual by reducing the cognitive complexity of decisions," there can also be "ugly" results that arise "from group members trusting those

who are insensitive to the requirements of the environment in which the group operates" (p. 156). They cite the occurrence of "group think," in which "trust in a leader may put into play psychological and social processes that isolate the group. Assured of its specialness and correctness, the group may be led to take ultimately disastrous actions" (p. 156).

Trumbo and McComas (2008) applied Meyer's credibility index within the HSM model of Eagly and Chaiken to assess the credibility of sources such as the New York State Department of Health and citizens' groups for risk information on cancer clusters, using the following question: "Considering what you know, please circle the number between the pair of words that best describes your feelings about information from the New York State Department of Health" (ibid., p. 67). Answers to Meyer's five-point index (noted above) were selected from a five-point Likert scale, numbered 1-5 on a continuum bounded by the polar opposite answers, e.g., can be trusted/can't be trusted. Their findings were consistent with those of their 2003 study noted above:

> The trust measures for the state health departments and the civic groups both present significant direct paths to risk perception and reflect the opposing valences characteristics of the information processing modes: reporting greater trust for the state health departments suppresses risk perceptions, while reporting greater trust for the civic groups associates with perceptions of greater risk (p. 70).

A research study on community-wide education on cardiovascular disease

conducted by Stanford University scientists, known as the "Stanford Five-City Project" (Farquhar, 1990) has implications for this study of the communication of risk messages to ethnically diverse populations such as that of New Orleans. The results of their study showed the benefits of a communications campaign that recognizes the individuality and complexities of the target communities: "This health education program used social learning theory, a communication-behavior change model, community organization principles, and social marketing methods" to achieve its desired results (p. 365).

Although the subject of the risk messaging campaign in the Stanford Five-City Project was health, as compared to personal safety in the case of Hurricane Katrina, both the foundation of the campaign and the choice of method of message dissemination are relevant. Recognizing that personal behavior patterns are often ingrained and entrenched, the message pattern was distributed over some 30 – 64 months in the target markets. The Stanford scientists utilized a variety of media, including television, radio, newspapers, other mass-distributed print media, and direct education (including face-to-face and mediated education in classes, contests, and correspondence courses), to spread their message of the benefits of heart-healthy behavior
(p. 360). The project also recognized the importance of messages designed for a diverse audience, and utilized Spanish-language outlets and materials to reach that population. The project developed specific messages geared to school-age children, and coordinated distribution of those messages with teachers and administrators in the community school districts. It was a comprehensive communication strategy that employed a wide variety of methods and media over an extended period of time in an attempt to reach a diverse

audience. The campaign achieved significant results in its target areas: net decreases in cholesterol and blood pressure in the target audiences (p. 363). The lessons of the Stanford Project can be beneficial in informing the design of safety messaging campaigns such as those relating to hurricane preparedness and response. Considered together with the literature reviewed above, it would seem that a risk communication program for future natural disasters similar to Hurricane Katrina should incorporate in its formation the recognition of these factors influencing audience reception.

Risk Communication Models

The origins of modern risk communication models can be traced back to two health communication models that were developed in the early 1950s: the Fear Appeal Model and the Health Belief Model. The Fear Appeal Model was developed by researchers who studied health campaigns in the early 1950s, such as Janis and Feshbach (1953), who studied the effectiveness of a fear-based dental hygiene program for high school students. Out of these studies the fear-as-acquired drive model emerged, based in learning theory and behavioral psychology. It postulated that fear was a powerful negative drive, and that if risk messages created fear in the message recipient, he/she would be motivated to rid him/herself of the fear, and would likely be receptive to the prescriptive behavior advocated in the message, which would then become learned behavior that would be activated whenever the individual was faced with a similar threat (Witte, Meyer, & Martell, 2001). The model presents a curvilinear relationship between

fear and behavior change, one in which there exists an optimal (and moderate) amount of fear that produces the greatest behavior change. Too little fear produces insufficient motivation for behavior change, and too much fear leads to rejection of the fear appeal message (p. 13) – something of a Goldilocks and the porridge view of fear messaging.

Witte et al. (2001) use the example of a flu vaccination campaign that starts with fear-based messages on the negative effects of flu, and then offers a prescriptive solution - a $5 flu shot. The message recipient is made fearful, and then seeks the prescribed remedy, not just one time, but each time in the future when he/she seeks to rid him/herself of the fear of the flu (p. 12). The authors report that the fear-as-acquired-drive model fell out of favor in the 1960s, as further studies showed that attitude or behavior change were positively correlated with increased levels of fear (p. 13), results which contradicted the arguments of Janis et al that too much fear caused the message to be rejected. As Witte et al. (2001) state, "You could have high levels of fear *and* high levels of attitude and behavior change" (p. 13).

Like the Fear Appeal Model, the Health Belief Model also emerged in the 1950s, developed by social psychologists at the U.S. Public Health Service to try to understand public resistance to disease prevention measures such as early screenings (Rosenstock, 1974). The model depends upon two main variables (Janz & Becker, 1984): "1) the value placed by an individual on a particular goal, and 2) the individual's estimate of the likelihood that a given action will achieve that goal" (p. 2). The model is built on four different perceptions by the message receiver: 1) susceptibility – a subjective perception of risk; 2) severity – including personal and social consequences; 3) benefits – the

recommended action must be perceived as "feasible and efficacious"; and 4) barriers – the individual must perceive the barriers to performing the recommended action as not being insurmountable (Janz & Becker, 1984).

Leventhal et al (1983) report that the development of the Dual Process Model (commonly called the Parallel Process Model) rose out of a desire to integrate "the directive and intensive models such as the Health Belief Model and the Fear Drive Model" (p. 9). They argue that the Dual/Parallel Process Model is focused on the risk message receiver, while the Health Belief Model is focused on the message creator. They postulate two pathways for message processing: objective cognitive and subjective emotional. The two pathways are seen as sometimes functioning independently, while at other times "they interact in ways that are either mutually interfering or mutually facilitating" (p. 10).

Two significant risk communication theories with similar origins were developed during this same period – the Theory of Reasoned Action (Ajzen & Fishbein, 1980) and the Theory of Planned Behavior (Ajzen, 1985). It is worthwhile to read Ajzen's description of these theories:

> The Theory of Planned Behavior stipulates that when confronted with the need to decide on a course of action, people consider the likely consequences of available alternatives; they weigh the normative expectations of important reference individuals or groups; and they consider required resources and potential impediments or obstacles. These considerations or beliefs result, respectively, in the formation of attitudes toward the behavior of interest, subjective norms

> with respect to the behavior, and perceived behavioral control. Expectancy-value formulations are used to describe the ways in which salient beliefs combine to produce the more general constructs. It is assumed that people form behavioral intentions based on their attitudes, subjective norms, and perceptions of behavioral control, and that these intentions, together with behavioral control, are the immediate determinants of behavior. The theory of reasoned action can be viewed as a special case of the theory of planned behavior, applicable to situations in which behavioral control is high and can thus be disregarded (p. 387).

Ajzen (1991) defines "subjective norms" as "the perceived social pressure to perform or not to perform the behavior" (p. 188). By its structure, Ajzen's model implies that attitudes can be changed through exposure to messages that effectively change underlying beliefs (Eagly and Chaiken, 1993). Azjen (1991) draws a distinction between subjective norms and normative beliefs, which, he argues, "are concerned with the likelihood that important referent individuals or groups approve or disapprove of performing a given behavior" (p. 195). In their examination of Ajzen's Theory of Reasoned Action, Eagly and Chaiken (1993) blur that distinction, arguing that, "In this model, subjective norm is itself a function of *normative beliefs*, which represent perceptions of significant others' preferences about whether one should engage in a behavior"
(p. 171). An important feature of Azjen's model is that it allows for the quantification of attitudes and norms, which can then be manipulated in probability formulas. Eagly and

Chaiken (1993) acknowledge this distinction in their analysis of Fishbein and Ajzen's (1975) Theory of Reasoned Action, stating:

> They divided the determinants of behavior into two classes – attitude toward the behavior and subjective norm. Attitude toward the behavior, because it reflects the information one possesses about the consequences of one's behavior, can be seen as an informational determinant of action, whereas subjective norm, because it reflects others' wishes about one should do, can be seen as a normative determinant of action (p. 632).

Azjen's argument is supported and expanded in subsequent risk communication research, such as that of Griffin, Neuwirth, Dunwoody, and Giese (2004) in social norms. The authors explore "informational subjective norms," which they define as "one's perceptions of normative pressures to perform communication behaviors (e.g., to seek and process risk-related information to keep abreast of how to cope with the risk)" (p. 30). Their study found that race plays a significant role in the processing of risk information: "Being a member of a minority group does seem to set in motion both the informational subjective norm and worry responses that as a byproduct lead to a greater sense of information insufficiency among minorities" (p. 50).

The last two decades of the 20th Century saw the development of two theoretical models with relevance to Risk Communication Theory: The Elaboration Likelihood Model ("ELM") advanced by Petty and Cacioppo (1986), and the Heuristic-Systematic Model ("HSM") advanced by Eagly and Chaiken (1993). Like the ELM which preceded

it, the HSM was developed with its primary focus as the individual's efforts to judge a situation accurately. **S**oon after its creation, Trumbo (1999) noted that, "initial research has suggested that this model [the HSM] may have promise for describing how people use information to make a judgment about risk"
(p. 391). His perspective was borne out in subsequent risk communication research conducted using the HSM model, some of which is discussed later in this literature review.

In the ELM, Petty & Cacioppo (1986) identify two processing routes, or pathways, to attitude change: central and peripheral. They define elaboration as "the extent to which a person scrutinizes the issue-relevant arguments contained in the persuasive communication" (p. 7), a process that occurs along a continuum "going from 'no thought' about the issue-relevant information presented, to complete elaboration of every argument, and complete integration of these elaborations into the person's attitude schema" (p. 8). Geiger and Newhagen (1993) use different terms, "controlled" and "automatic," to describe the processes that Petty & Cacioppo term "central" and "peripheral": "Controlled attention is synonymous with mental effort and is dictated by the goals of the individual processor. Automatic attention does not require the use of limited resources, and is determined by attributes of the information" (p. 44).

The ELM theory is based upon seven postulates, the first of which is duplicated in the HSM model: "people are motivated to hold correct attitudes" (p. 5). The others are: 2) the amount and type of processing varies between individuals and situations; 3) attitude change is subject to variables; 4) variables affecting motivation and/or ability to

process a message can enhance or reduce argument scrutiny; 5) variables with a relatively biased effect can affect processing either positively or negatively; 6) as motivation/ability to process decreases, the importance of peripheral cues increases, and the reverse is true; and 7) attitude changes from processing have greater "temporal persistence" than those resulting from peripheral cues (p. 5).

In the ELM, when elaboration likelihood is low, the acceptance or rejection of the message does not come as a result of a systematic cognitive process in which the key elements of the message are evaluated for validity that results in attitude change, but as a result of association of the message with positive or negative peripheral cues. The authors argue that central processing is semantic in nature, while peripheral processing can be either semantic or non-semantic. In their view, peripheral cues are powerful, having the ability to produce attitude change without the occurrence of any cognitive processing of the message arguments.

The authors note that the message recipient is motivated to reject "counter-attitudinal messages, yet the reception of these messages has the effect of enhancing the recipient's ability to refute the counterargument" (p. 144). This observation is supported by the research of McGuire and Papageorgis (1962), who found that hearing a "refutational defense" was effective in the construction of counterarguments. They used a memorable analogy to describe this process, that of medical inoculation, in which a weakened form of a virus is injected into the recipient to "stimulate, without overcoming, his defenses" (p. 25). The results of their research became known as "inoculation theory," and their findings have been supported by other research (Eagly & Chaiken, 1993). Petty

and Cacioppo claim that several other theories can be reasonably housed within the framework of their ELM by placement on an elaboration likelihood continuum, including the inoculation theory of McGuire and Papageorgis (1962), and the Theories of Reasoned Action and Planned Behavior developed by Ajzen (1996).

Working within the ELM Model, Renn and Levine (1991) found that people with more education expressed confidence in "the system" but a lack of confidence in the leaders of that system, while the obverse was true for less educated people – they tended to distrust the system but had more trust in its leaders (p. 202). Utilizing a psychometric model, Slovic (1992) argues that risk is inherently subjective and cultural, that there is no such thing as "real risk" or "objective risk." He argues that risk is a concept invented by people to "help them understand and cope with the dangers and uncertainties of life," and that risk does not exist "independent of our minds and cultures" (p. 119).

The Heuristic-Systematic Model (Eagly & Chaiken, 1993; Chaiken, Liberman, & Eagly,1989), as the title implies, focuses on two methods of information processing used by message recipients, "heuristic" and "systematic," in what they term a "dual-process model" (Eagly and Chaiken, 1993, p.305). Chaiken et al. (1989) describe systematic processing as "a comprehensive, analytic orientation in which perceivers access and scrutinize all informational input for its relevance and importance to their judgment task, and integrate all useful information in forming their judgments" (p. 212). In contrast, heuristic processing is "a more limited processing mode that demands much less cognitive effort and capacity than systematic processing" and in which the individual accesses "that subset of available information that enables them to use simple inferential

rules, schemata, or cognitive heuristics to formulate their judgments and decisions" (p. 213). Eagly and Chaiken (1993) note that the two processes often occur simultaneously, are interrelated, and are not mutually exclusive. In their view, heuristic processing requires less cognitive effort and resources than does systematic, and relies on simple "decision rules, schemata, or heuristics" in order to judge message validity (p. 327).

The HSM theory is based on the concept of attitude, which Eagly and Chaiken define as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (p. 1). There is a behavioral element to this construct, as the authors view attitude as an "acquired behavioral disposition," acknowledging a temporal component of attitude development (p. 2). The model divides attitudinal responses into three categories of "evaluative responses": cognitive, affective, and behavioral, all emanating from an original stimulus or stimuli that generate an attitude, which can, through observation, be inferred from the response. Using the expectancy value model, the attitudes can be viewed as a function of beliefs that are "represented as the sum of the expected values of the attributes ascribed to the attitude object" (p. 106). These attitudes can also be viewed as a type of schema, a "broader classification of cognitive structures" (p. 18).

The HSM theory includes a key assumption that the individual holds "the desire to form or to hold valid, accurate attitudes" (Chaiken et al.,1989, p. 214), an assumption which, as noted above, it shares with the ELM theory of Petty and Cacioppo. Chaiken et al also note that both heuristic and systematic processing are employed to achieve this goal. The authors characterize this type of processing as "open-minded" (p. 235), in

contrast to what they term “defense motivation,” in which the message recipients seek only to verify an expert position that agrees with theirs, or refute a position which doesn’t. The authors describe defense motivation as “closed-minded” (p. 236). They acknowledge the importance of cognitive availability for heuristic information processing, and differences in individual “needs for cognition” (“NFC”), a concept also utilized, as the authors note, by Petty and Cacioppo in their ELM model. Not surprisingly, the authors note that systematic processing is “more effortful than heuristic processing,” and that “systematic processing both demands and consumes cognitive capacity, whereas heuristic processing makes relatively few capacity demands” (p. 218).

A key concept in the HSM is the principle of sufficiency, which postulates that message recipients “must strike a balance between minimizing their processing efforts and maximizing their judgmental confidence” (p. 221). The authors offer a definition of the sufficiency principle:

> In general…people will exert whatever level of effort is required to attain a sufficient degree of confidence that they have satisfactorily accomplished their processing goals. In validity seeking persuasion settings, the principle asserts that recipients will invest whatever amount of effort is required to attain a sufficiently confident assessment of validity of a message’s advocated position (p. 221).

It is important to note that Eagly and Chaiken site their model in the field of persuasion: “The heuristic-systematic model was developed for application to validity-seeking persuasion settings in which people’s primary motivational concern is to attain

accurate attitudes that square with relevant facts" (Eagly & Chaiken, 1993, p. 326). Trumbo (1999) notes that like the ELM before it, the HSM "resides in a collection of persuasion-based models that examine information processing as an antecedent to attitude formation" (p. 391). He notes that "recent work has examined defense- and impression-motivation (respectively, the desire to hold attitudes congruent with material or personal interests and the desire to hold attitudes that will smooth social relations)," and that the model has attempted to expand its scope through examination of factors including source credibility, argument ambiguity and task importance, but that "the model's application to risk judgment and risk communication is still grounded in the original and more basic form of the model that has as its primary focus the individual's efforts to judge a situation accurately" (p. 392). He notes that "recent experimental work has sought to expand the model's application to domains beyond persuasion by further developing understanding of the function of motivation" (p. 397).

Trumbo asks rhetorically, "How does heuristic and systematic processing relate to risk judgment?" (p. 398). He argues that "intuition, and some weight of the literature," would lead one to expect that the systematic processing route, which involves the examination of facts, would lead to a judgment of lesser risk that that of the less effortful heuristic path. But in his study of cancer risks (Trumbo, 1999), he found just the opposite: Heuristic processing was associated with judgment of lower risk, and systematic processing was associated with judgment of higher risk (p. 398). Trumbo argues that these results run contrary to the notion that getting people to think more rationally about risks will decrease overreactions to threats. In a later study of cancer

risks, Trumbo (2008) again found that "systematic processing has a positive relationship with risk perception while heuristic processing has an inverse relationship" (p. 15). But is this really counter-intuitive? Since messages of risk are often based upon scientific information, it would seem logical that they would require more systematic processing in order to be effective. And, if they are effective, it stands to reason that they would produce a heightened appreciation (or sense) of risk. But possession of a heightened sense of risk of does not rule out the possession of a similarly heightened sense of preparedness. The biblical story of Noah comes to mind as an example. As a result of risk messages from God, Noah had a heightened sense of risk from the impending flood. But the messages were not only effective in increasing his sense of risk, but also in motivating him to act upon that heightened sense of risk to build an ark. So Noah possessed heightened senses of both risk and preparedness.

Trumbo (2002) has attempted to expand the reach of the HSM by adapting it to evaluated survey data in assessing information processing of and reactions to risk messages. In this study, Trumbo argues that, "No basis exists within the HSM or risk perception for the prediction of how motivation, ability, or sufficiency should directly predict perception of risk" (p. 371). He proposes a model in which the processing modes (heuristic and systematic) are uncorrelated, and instead "act as intervening variables between the antecedents [motivation, ability, sufficiency] and risk perception" (p. 372). Trumbo's study supported his previous argument (1999) noted above, that "systematic processing consistently predicted the perception of greater levels of risk, and heuristic processing consistently predicted lesser risk perceptions" (Trumbo, 2002, pp. 379-380).

In a study of the function of credibility on risk communication, Trumbo and McComas (2003) constructed an HSM model, illustrated through path analysis, that followed Trumbo's (2002) suggestion of treating the two HSM processing pathways, systematic and heuristic, as "intervening variables between credibility and risk perception" (p. 350). They found that "information credibility does have an influence over risk perception, and that a relatively small but significant amount of this influence is transmitted about equally through both forms of information processing" (p. 350). But risk communication occurs in a social context, one in which, as Kasperson (1992) notes, "the experience of risk is therefore both an experience of physical harm and the result of culture and social processes by which individuals or groups acquire or create interpretations of hazards" (p. 159). Earle and Cvetkovich ((1999) note that risk communication in a social context leads to the development of "shared meaning among individuals, institutions, and communities establishing relationships of trust" (p. 85).

Drawing on the availability heuristic concept that would later be explored by researchers in the HSM model, Tversky and Kahneman (1974) found that "people rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations. In general, these heuristics are quite useful, but sometimes they lead to severe and systematic errors" (p. 1124). Among the devices they identified were the use of "causal schemas" by which people organized events into cause-effect relations (Tversky & Kahneman, 1982). Fischoff , Slovic, and Lichtenstein (1985) found that people use a form of cost/benefit analysis to determine acceptable levels of risk. Brashers (2001) notes that uncertainty is a

two-edged sword: In some circumstances people find it threatening and wish to reduce it, while in others, e.g., someone with a chronic illness, it is employed to help maintain hope (p. 491).

Working within the HSM model, Trumbo and McComas (2008) found a correlation between the level of trust for civic groups or trust for industry and state and the method of processing of risk messages and the perception of risk. Those who had higher trust for industry and state and lower trust for civic groups tended toward heuristic processing and lower risk perceptions. Those who had higher trust for civic groups and lower trust for industry and state tended toward systematic processing and higher risk perceptions (p. 61). Earle and Cvetkovich (1995), however, argue that the obverse of social trust, social distrust, is a "fundamental component of American individualism," an integral part of the dominant culture, and functions as "problem-solving strategy for the reduction of cognitive complexity" (p. 47). This would appear to contradict the position of Trumbo and McComas that distrust of institutions leads to greater reliance on systematic processing. The challenge, it would appear, is to construct risk communication research utilizing the HSM model in such a way as to account for the influence of the socio-cultural contexts in which it occurs, with particular attention to the levels of social trust and where it resides.

If the processing dynamics reported by Trumbo and McComas were operative during Hurricane Katrina, it could be expected that people who had higher trust for civic groups, and relied on the systematic processing path, would have had a higher expectation of risk and personal harm, while those who had higher trust for the state, and

followed the heuristic route, should have had lower expectations of risk and personal harm. This is one of the areas this study is designed to explore. It may also help to illuminate the influence of race and socioeconomic status on the processing of risk messages by the heuristic or systematic pathways.

Trumbo (1999) offers a caution and suggested modifications to increase the effectiveness of the HSM in risk communication settings: "The HSM can go only so far in describing the experience people have with risk. Other individual factors – and social-structural factors – should be included in models to describe people's experiences more comprehensively" (p. 398). Trumbo and other researchers have used the HSM model effectively to explore risk communication in subsequent studies. In their discussion of the use of the HSM model for risk communication research, Griffin, Dunwoody, and Neuwirth (1999) argue for what they term a "bottoms-up approach" to risk communication design, one which "calls for a focus on understanding the evaluative behaviors of the information user" (p. S231). They see the bifurcated pathways of heuristic and systematic processing to be highly applicable to risk communication processing:

> We suggest that the heuristic-systematic distinction may be at work in one's assessment of risks and one's own related behaviors. Some individuals, under some conditions, will gather a lot of information about a risk and will make an effort to evaluate that information systematically before reaching a decision about what to do about the risk. Others [will] take the heuristic route, utilizing various superficial cues to reach decisions (e.g., "I hate EPA, so anything that EPA says

is wrong") (p. S237).

In a longitudinal study of the health risks of Great Lakes fish consumption, Kahlor, Dunwoody, Griffin, Neuwirth, and Giese (2003) found the HSM model useful in determining the audience's needs in order to craft more effective risk communication messages. In particular, they found the model helpful in identifying the difference between the audience's perception of what it needs to know and the intended "real" information that the message creators wish to communicate. They argue that the HSM model can be used to craft more effective risk messages that recognize and address the social contexts in which they are to be received (p. 366). Trumbo and McComas (2003) utilized the HSM model in an analysis of survey data on health-based risk message campaigns on different issues of local interest in a number of American cities in the late 1990s. They found that "information credibility does have an influence over risk perception, and that a small but significant amount of this influence is transmitted about equally through both forms [heuristic and systematic] of information processing" (p. 350).

Eagly and Chaiken (1993) present an extensive comparison of ELM and HSM, which they term "process theories of attitude formation" (p. 305). The HSM developed as an alternative to the ELM, one which its authors hoped would produce more quantitative data, in contrast to the ELM, which they viewed as more descriptive than explanatory (p. 321). They identify the key weakness of the ELM as the lack of detail expressed in the peripheral route, i.e., the model concentrates its power and focus on the central

processing route, and assigns what does not fit in that pathway to the peripheral route. The authors argue that the model functions best when elaboration likelihood is high, and information is processed through the central pathway, and does not function nearly as well when elaboration likelihood is low, and goes through the peripheral route, where the processing is neither defined nor explored (p. 345). They argue that this bifurcation detracts from the usefulness of the model as an "integrative theoretical framework" (p. 323).

This discussion of risk communication theory and research has, for the most part, concentrated on message processing. The ELM, HSM, and the other models discussed are primarily concerned with the mechanics of that process within the individual message recipient. But what about the sources of those of messages, and the relationship between the individual message recipient and those sources? This review of the literature will next explore Media System Dependency Theory, which addresses the relationship between the message recipient and a primary source of messages of risk: the mass media.

Media System Dependency Theory

In outlining the structure of their model for their media dependency theory (also known as Media System Dependency, or "MSD"), Ball-Rokeach and DeFleur argue that mass communication is a dynamic process that occurs in a complex environment made up of three elements, which they describe as a "tripartite audience-media-society relationship" (Ball-Rokeach & DeFleur, 1976, p. 5). They argue that in order to understand mass communication effects, it is necessary to identify a set of variables that

affect the communication process in each of the three areas (audience, media, and society), and then, through the research process, to determine how these variables are related "individually, interactively, and systemically" (p. 5). Although this model was first presented more than 30 years ago, it offers a valuable theoretical perspective that can serve to inform risk communication research, as it sites the message processing of the individual in a larger social context.

Ball-Rokeach and DeFleur offer a list of "cognitive effects" that occur in the media-dependent urban-industrial environment that they describe, including the creation and resolution of ambiguity, attitude formation, agenda setting, expansion of people's belief systems, and an impact on values (pp. 9-13). Following Katz and Lazarsfeld (1955), they note the role of "community opinion leaders" in selectively channeling audience attention to a mass media message and influencing the content or intensity of attitude formation (p. 11). They argue that the more that mass media systems serve unique and central information functions in a society, the greater the dependency of that society on the mass media for that information. They also argue that the higher the degree of structural instability in a society due to conflict and change, the greater the potential for mass media dependency (Ball-Rokeach & DeFleur, 1976, p. 7). In a study of food risk conducted in the MSD model, Whaley and Tucker (2004) found that, "Trust in sources was the best predictor of media system dependency," and "those with higher levels of trust in government and expert sources were more likely to express higher levels of media dependency" (p. 23).

Working within an expanded MSD model, Matei and Ball-Rokeach (2003) sought

to understand how the emergence of the Internet affected the communication process in minority ethnic communities in Los Angeles. The authors sought "to go beyond it [MSD] to more inclusive consideration of the interplay between interpersonal and mediated storytelling systems and their contexts" (p. 645). For the purposes of their study, they grouped communication into three categories: 1) macroagents - institutions, newspapers, national television networks, cable systems, public relations agencies – with target populations a city, region, or nation;

2) mesoagents – local publications, communications departments of community organizations – with target populations a certain part of a city and/or certain residents; and 3) microagents – "individuals or grassroots informal residential networks and the communications processes they foster" – these individuals/networks "carry the most concrete burden of 'storytelling' in their neighborhoods (p. 646). The authors then measured micro-, meso-, and macro-storytelling at the individual level. Their research showed that the Internet functions as a meso-linkage in the community and indirectly contributes to a sense of belonging in the community. They found that "Internet connectedness is positively associated with community organization membership; people who connect to the Internet are 1.4 times more likely to be members of community organizations" (p. 652). They argue that "the Internet is a weak and peripheral, but present, component of the communication structure that contributes to belonging" (p. 652). In a related observation, they found that "mainstream media connectors are 1.8 times more likely to be low 'belongers' and 1.7 times [more likely to be] nonmembers of community organizations," and that "mainstream media is not one of the components of

the communication infrastructure that contribute to belonging" (p. 652). They note that "the role of the Internet … was independent of that of old mainstream media, and it was associated with connections to community organizations" (p. 655). This trend has continued and expanded with the rise in use and popularity of social networking sites such as Facebook, which claims some 500 million active users (facebook.com). Community organizations use social networking sites such as Facebook as a low-cost method of communication with their members.

In their discussion of the agenda setting function in their media dependency model, Ball-Rokeach and DeFleur are careful to note that it occurs as an "interactional process" (p. 12). They argue that media messages, "filtered" through "media information-gathering and –processing systems," are then processed by the public "as a function of both their societal strata and categories" (p. 12). They argue that mass media are the primary "signaling source" for emergencies, that media dependency results in changes in the beliefs (values), feelings (affect), and behavior (actions) of the audience, and that the degree of dependency is positively correlated with the degree of change and conflict in the society. Although postulated within media dependency theory, the model proposed by Ball-Rokeach and DeFleur describes a communication process in which a dynamic interaction of variables is at work between and among all points in the communication continuum. Ball-Rokeach (1998) notes the central role that this interaction plays in MSD theory. She cites the existence of "cross-level effects hypotheses," which she explains as follows: "MSD theory forces consideration of effects in ecological terms, where effects on individuals mix with effects on interpersonal networks that in turn mix with

organizational effects, which in turn mix with system effects" (p. 23). Although these cross-level effects hypotheses acknowledge that information exchange and influence is bi-directional between its components (individuals-interpersonal networks-organizational effects-system effects), Ball-Rokeach is careful in pointing out that the effects are more powerful when moving down the chain from the macro (system) level to the micro (individual) level than they are in moving up, where the effects are diminished at each step of the process.

Working from the MSD model, Loges (1994) conducted a random telephone survey of residents of San Bernardino, California and Austin, Texas, on issues of environmental threat, in order to test "the fundamental proposition that increases in threat are associated with increases in the intensity of dependency relations" (p. 9). Loges found that, "higher perceptions of threat in the environment are associated with more intense MSD relations," which he notes "lend support to one of the fundamental propositions underlying MSD theory" (p. 17).

In a longitudinal study based in the media dependency model relevant to this project, Beaudoin (2008) conducted a panel telephone survey of Black adults in New Orleans post-Katrina, to determine the effectiveness of a media campaign to promote safe behavior "in regards to household chemicals, breathing masks, and other protective gear" in the recovery phase that occurred in the aftermath of the storm (p. 13). Beaudoin notes the heightened impact that natural disasters have on poor communities: "Because disasters exacerbate preexisting social inequalities, the negative effects of Hurricane

Katrina would be expected to be especially great on a poor and underserved population, such as African Americans in New Orleans" (p. 8).

The media campaign Beaudoin studied targeted African Americans in the New Orleans metro area, and was conducted by means of a radio advertising campaign utilizing "African American personalities, straight-forward wording, and jazz- and hip hop-influenced background music" (p. 8). The messages ran from June 12 to August 25, 2006 (one year after the storm). Beaudoin sought to understand how "[media] dependency relates to the manner by which a person's satisfaction of needs and attainment of goals are contingent on media information resources" (p. 2). His findings are consistent with the MSD model, in that in an atmosphere where perceived threat is heightened mass media use increases, and, in this case, positive behavior change occurred, i.e., an increase in safety-oriented behavior. As Beaudoin states:

> The effect of news and the media campaign, as well as high levels of related use, are generally consistent with the theoretical contention that, in times of societal change and conflict, media dependency and the effects of such dependency are intensified, with such effects culminating in behavior change (p. 13).

However, Beaudoin found that although the media campaign designed to increase safety behavior in the wake of Hurricane Katrina was effective in doing so, it was unsuccessful in 56

56changing the underlying safety beliefs. This finding is particularly relevant to this study. Beaudoin was studying the effectiveness of a campaign targeted to post-disaster behavior, what he calls the "recovery phase of a catastrophe" (p. 13). This campaign was designed to promote specific safety behaviors (e.g., use of breathing masks and protective gear) against specific threats in the immediate environment (e.g., household chemicals) in the wake of the storm. In that context, it could be argued that changing underlying beliefs is not nearly as important as changing behavior. The designers of the campaign sought to encourage specific behaviors against specific threats, and were successful in doing so.

But what about media campaigns designed to influence behaviors *before* a natural disaster such as Hurricane Katrina, one in which the threat is neither specific nor immediate until it arrives, at which point it is often too late to react? If such a media campaign is unable to influence the underlying attitudes and beliefs that fuel behaviors, will it be successful in producing behaviors that require radical and immediate changes in daily life, such as the abandonment of a home and personal possessions in the face of an oncoming storm? And if not, how can such a campaign be constructed?

Uses and Gratifications Theory

Since this inquiry seeks to understand how individuals approach and process messages of risk, it can be further illuminated by the findings of research in Uses and Gratifications Theory ("U&G"). Sandra Ball-Rokeach (1998) offers a bridge between the MSD and U&G models. While noting that both models postulate an active audience, she draws a key distinction between them. She argues that U&G theorists are primarily

concerned with “the individual’s molding of media content to gratify needs,” while MSD theorists view “the audience member’s behavior vis-à-vis the media as more constrained and determined by social forces” (p. 26). She draws a further distinction based on audience behavior, arguing that the MSD researcher is concerned with “cross-level consequences for individuals and their interpersonal networks - the dynamics of their inner worlds and how they live in their social worlds,” while the U&G researcher is focused on “the individual’s attraction to media texts and the interaction between text and reader to better understand the contributions of reader characteristics to text processing” (p. 31).

Researchers in the U&G perspective seek to understand the attitudes and behavior of audiences in their use of the mass media. Rubin (2002) outlines five assumptions of the U&G theory, summarized as follows:

1) Communication behavior, including media selection and use, is goal-directed, purposive, and motivated.

2) People are active communicators, not passive consumers of media. They select and use media to satisfy felt needs and desires.

3) Communication messages are filtered through the receiver’s personality, social category and relationships, interpersonal interaction, and availability of communication channels.

4) Media compete with alternative forms of communication, including interpersonal interaction, for selection and use.

5) People are often more influential than the media in this process (pp. 527-528).

Although Rubin's observations are made from within the framework of Uses and Gratifications Theory, they are consistent with those that emerge in the risk communication research discussed in this section. For example, Kasperson (1992) describes recipients of risk communication messages as purposive, goal-directed consumers of risk messages, who operate in a social environment in which messages are selected (amplified) or deselected (attenuated) according to the socio-cultural context in which the communication takes place. Renn (1991) notes the importance of psychological, social, and cultural processes in risk communication. Earle and Cvetkovich (1999) note the development of collective interpretations of risk in a community that can override individual perceptions, and Fessenden-Raden et al. (1987) note that social context shapes the message reception process.

Rubin (2002) argues that "a) by themselves, mass media typically are not necessary or sufficient causes of audience effects, and (b) a medium or message is only a single source of influence in the social and psychological environment, although it is an important and crucial one" (p. 525). In a finding particularly relevant to this study, he states:

> Our predispositions, the environment in which we live, and our interpersonal interactions shape our expectations about the media and media content. Communication behavior responds to media and their messages as they are filtered through our personalities, social categories, and relationships, potential for interpersonal interaction, and communication channel availability (p. 528).

Rubin (2009) views the Uses and Gratifications perspective as a dynamic communication environment where "individual, background differences play an important role in media uses and effects because lifestyle and life position, including social and psychological dispositions, affect communication motivation, the availability of communication alternatives, and media reliance or dependency. People can only choose from among the channels that are available to them" (p. 153). McQuail (1977) identifies other mediating variables, including "internalization," which he defines as describing "influence guided by the receiver's own pre-existing motives, needs, and values" (p. 75). This is an important observation, since it acknowledges the power of the media channels that convey the messages while recognizing the influences at work within the individual message recipient that affect the processing of those messages. Eagly and Chaiken (1993) position the concept of internalization within the HSM model, arguing that "the message is evaluated in terms of the abstract knowledge structures (i.e., beliefs, attitudes, and values) that are relevant to the issue of the persuasive message," and that "internalization occurs when a recipient adopts the position recommended by the communicator because the position is congruent with … one's overall values" (p. 639). The authors connect the concept of internalization with that of identification, in which "a [message] recipient adopts the position recommended by the communicator because this change helps establish or maintain a positive self-defining relationship with the communicator" (p. 639).

The recognition of the selective use of media as described by Rubin can be traced

to the opinion research on voting of Katz and Lazarsfeld in the 1950s and 1960s, which contributed to the development of the limited effects paradigm, including the two-step theory of message communication that acknowledged the role of opinion makers in the process (Petty, Priester, & Brinol, 2002). In his introduction to the second edition of *Personal Influence: The Part Played by People in the Flow of Mass Communication*, the work he co-authored with Paul Lazarsfeld in 1955, Katz identifies two elements that are common to both the limited effects paradigm and U&G theory: "selectivity" and "interpersonal relations" (Katz and Lazarsfeld, 2006). Although his perspective is limited in scope, Katz sees audience selectivity driven by forces of defensiveness, interests, and role obligations (ibid, p. xviii), and notes the influence that small groups and opinion leaders wield on opinion formation (p. xx). Citing Klapper (1960), Baran and Davis (2006) note the importance of "selective processes" that act as mediating influences on message processing." Also citing Klapper (1960), Rubin (2002) identifies mediating variables that "intercede between a message and one's response…[including] individual predispositions and selective perception processes, group norms, message dissemination via interpersonal channels, opinion leadership, and the free-enterprise nature of the media in some societies"
(p. 525).

Summary

MSD & U&G

When viewed as generalized theories, MSD and U&G would appear to be contradictory, or even perhaps mutually exclusive. Its very title, "Media System Dependency," seems to imply a passive consumer of media messages. In contrast, by its title, "Uses and Gratifications" implies an active consumer of media messages. But a closer examination of the research conducted in each of these areas reveals that they are neither contradictory nor mutually exclusive. Instead, they share a rather broad middle ground to which each perspective contributes. MSD researchers note the influence of interpersonal, organizational and system effects on the communication process of the individual (Ball-Rokeach & DeFleur, 1976; Matei & Ball-Rokeach, 2003); Ball-Rokeach, 1998), taking particular note of the influence of social strata and categories on message reception (Ball-Rokeach & DeFleur, 1976), areas of research more widely studied in the U&G model. U&G researchers acknowledge the influence of media dependency (Rubin, 2009), while arguing that its influence is modified by other mediating variables within the individual message recipient (McQuail, 1977), and argue that when these variables reflect structures and beliefs that are congruent with those of the message communicator, internalization of the message occurs (Eagly & Chaiken, 1993). Both perspectives, then, serve to contribute to understanding of the message communication and reception process, particularly in the area of risk communication, which often takes place in the active, if not supercharged, socio-political-cultural atmosphere that exists in communities threatened by disasters.

Race, Class, Poverty, and Communication

"I'm from New Orleans, Louisiana and I was caught into the storm. I never thought New Orleans would have done us the way they done us. I didn't realize what was going on until maybe the third day after I was trying to get out of that place – they would not let us out. I was on top of the Interstate, the Interstate in front to the Superdome and some guys came along in an Ozone Water truck and picked up a lot of people and we got near as far as getting out. They turned us around with guns. The army turned us around with guns. Policemen. And I realized then they really was keeping us in there. And you want me to tell you the truth, my version of it? They tried to kill us. When you keep somebody on top of the Interstate for five days, with no food and water, that's killing people. And there ain't no ands, ifs, or buts about it, that was the NOPD [New Orleans Police Department] killing people. Four people died around me. Four. Diabetes. I am a diabetic and I survived it, by the grace of God, but I survived it. But they had people who were worse off than me, and they didn't make it. Old people. One young woman couldn't survive it because of the dehydration. So I mean, this is what you call NOPD murder. Murder. That's what I call it. What else would you call it?"
-Survivor, Hurricane Katrina (Stein & Press, 2008, pp. 225-226).

"I saw people where their family was separated – men from women, children from the old and the sick from the well. And with no communication. They didn't know where others had gone, and they just began to panic in desperation, 'Where's my wife? Where's my mother? Where's my child? Where's my daddy? What happened to our house?' They were, like, disoriented. It looked like the hull of a slave ship experience."
-Rev. Jesse Jackson (Dyson, 2006, p. 81).

"*You simply get chills every time you see these poor individuals … so many of these people … are so poor and they are so black."*
— Wolf Blitzer, CNN, September 1, 2005 (Stivers, 2007, p. 48)

As noted in the research cited above, communication cannot be separated from the social-economic-political-cultural-temporal context in which it occurs. And as this study focuses on the communication of risk messages in post-Katrina New Orleans, it is important to note the particular context that defined this truly unique American city when Katrina struck it on August 29, 2005. One of the social factors that makes New Orleans unique is the tightly knit family and extended family units living in close proximity to each other, creating bonds and pathways of communication reinforced with blood and

ancestry (Troutt, 2006).

The use of the past tense in describing pre-Katrina New Orleans is important, because time is an important element of context, and the New Orleans of today is very different from the New Orleans of August 2005. In fact, the New Orleans of September 2005 was radically different than that of August 2005. Katrina transformed New Orleans, remaking it in ways with an outcome that is yet to be determined. Most apparent in that transformation is the effect on the city's black population and racial makeup. It could be argued that Katrina was a Holocaust by hurricane.

Hurricane Katrina effected a social reconfiguration of New Orleans. U.S. Census data estimates taken in 2004, one year before the storm, revealed a total population for the city of 444, 515, of which 124,591 (28.03%) were white and 302,041 (67.5%) were black. In 2006, one year after the hurricane, the total population had been cut in half to 223,388 (50.25%). The white population had been reduced by 42,484 (-34.1%), while the black population had been reduced by 170,600 (-56.48%). These demographic changes resulted in a very different racial mix for New Orleans pre-storm and post-storm. The pre-Katrina racial mix was 68% black, 28% white; immediately post-Katrina it was 59% black, 37% white (U.S. Census, 2004, 2006). By the time of the 2010 Census, five years after Katrina, the population of New Orleans had risen to 343,829, or 77% of the 2004 level, with 206,871 black (60%), and 113,428 white (32%) (U.S. Census, 2010).

Race and poverty are inextricable intertwined, and Hurricane Katrina had major impacts on both in New Orleans. In 2004, the median household income in New Orleans was $33,036; by 2009, it had risen to $40,000, a 21.08% increase (U.S. Census 2004;

U.S. Census 2009). The federal poverty threshold in the United States is $21,200 for a family of four (U.S. Department of Health & Human Services, 2008). In 2004, 18% of the households in New Orleans were below that threshold; in 2009, that figure had risen slightly to 21%. From these data, it would appear that there is something of a hard number poverty base in New Orleans, one that is resistant to even the power of a hurricane. But a closer look at the racial makeup of these figures reveals a city that was transformed by this natural disaster.

In 2004, there were 498,200 occupied housing units in New Orleans. By 2009, that figure had fallen to 436,000, a 12.48% decrease. The number of White households decreased by

10.65 % from 2004 to 2009, while the number of Black households decreased by 21.83%.

In 2004, There were 35,700 White households living below the poverty line (39.8% of all households in poverty), which increased to 41,300 by 2009 (44.4%). There were 50,700 Black households living below the poverty line in 2004 (56.5% of all households in poverty), which decreased to 43,400 households by 2009 (46.67%). These figures are consistent with the overall change in population noted above, which saw the White population reduced by 42,282 and the Black population reduced by 170,600.

But the impact of Hurricane Katrina on the economic life of the city can most dramatically be seen in the U.S. Census data on median household income. In 2004, the median household income in New Orleans was $33,036. By 2009 it had risen to $40,000, an increase of 21.08%. But the increase in median income was not even across races. Hispanics, a small percentage of New Orleans households (0.06% in 2004, and 0.89% in

2009) saw their median income rise from 36,305 to $40,000, a 10.18% increase. In the same period, Blacks saw their median income rise from $24,456 to $26,268, just 7.4%. A rising tide (or rising flood waters) does not lift all boats. Hurricane Katrina left New Orleans a whiter, richer city, with about the same percentage of people living below the poverty line (about 1 in 5), albeit of a slightly different racial mix.

Hurricane Katrina killed 1,836 people, placing it third in hurricane fatalities in U.S. history (hurricanekatrinarelief.com). The vulnerability of New Orleans to hurricanes and floods is a matter of record: 20% of claims in the U.S. for repeat losses under the National Flood Insurance Program in the last 25 years have come from Orleans and Jefferson parishes (Troutt, 2006). As Douglas Brinkley (2006) puts it, "In geographical terms, New Orleans was no more stable than a delicate saucer floating in a bowl of water. Any turbulence in the surrounding water is bound to flood the saucer" (p. 13).

In the Great Mississippi River Flood of 1927, officials dynamited a portion of the levee in St. Bernard Parish, flooding predominantly black neighborhoods in an effort to save the rest of the city (Brinkley, 2006; Ducre, 2008). Ducre reports that Blacks were forced at gunpoint to repair the levees, and some 13,000 Blacks were forced to actually live on the damaged levees (Ducre, 2008, p. 69), a story eerily similar to the account of the Katrina survivor quoted above, who was forced to live on an Interstate overpass for five days. Ever since the 1927 flood, Blacks in Louisiana have distrusted the levee boards, fearing that if they had blown the levees up once, exposing them to flood waters to protect the Whites, they would do it again (Brinkley, 2006). When Hurricane Betsy struck in 1965, it flooded the virtually all-black Ninth Ward of New Orleans with several

feet of water, creating a scene that President Lyndon Johnson described on a personal visit to a shelter there as a "mass of human suffering" (Graham, 2008). The topography of New Orleans favors a racial divide: the lower, more dangerous ground has long been inhabited by the poor and mostly black, while the safer, higher ground has been occupied by whites (Dyson, 2006).

From a historical perspective, the devastation of Hurricane Katrina was unprecedented. Although, as Elliot and Pais (2006) report, other disasters have killed more people (the Galveston Hurricane of 1900 killed 10,000), and the San Francisco Earthquake of 1906 displaced 200,000, FEMA reports that 1.36 million people filed for federal assistance as a direct result of Hurricane Katrina, while the Red Cross reported operating 707 temporary shelters for Katrina evacuees in 24 states and Washington, D.C. (p. 302). In their analysis of a Red Cross database of more than 460,000 Katrina survivors, Elliott and Pais found a small subgroup population (5%) of New Orleans that reported never leaving the area – and they were almost exclusively Black. Yet beyond that small group, it was income, not race, which was the most significant factor in the choice between staying and evacuating: "New Orleanians with household incomes in the $40,000-$50,000 range were nearly twice as likely as those in the $10,000-$20,000 range to evacuate before, as opposed to after, the storm," they write. "This class difference climbs to nearly threefold when predicting odds of not evacuating the city at all" (p. 308). In an important observation, the most common reason given for not evacuating prior to the storm (49%) was that people thought the storm would not be as bad as predicted. That was more than double the 21% who said they were too poor or lacked the necessary

transportation to leave. Blacks were more likely than Whites to believe the storm was going to be less devastating than predicted (p. 317).

Researchers have noted that ethnicity is a socially constructed concept. Following Van den Berghe (1967), Perry and Mushkatel (1984) argue that, "Ethnicity reflects the extent to which an individual feels, or is made to feel, a member of some ethnic group" (p. 33). In the context of risk communication, they argue that ethnicity affects three variables in warning response models: perceived personal risk, kin relationships, and community involvement. In an observation that connects race, class, and disaster response, the authors note that in studies of Texas towns faced with tornado warnings, Black families did not react as strongly to the warning messages as did White families, a response that was attributed in part to different economic realities for each, as the Black families "were very poor and immersed in the constant problems of economic survival" (p. 33). The authors argue that the extended families in minority groups make disaster response more difficult, as there are more members of the family "to be accounted for in connection with undertaking protective actions in response to disaster warnings" (p. 34). They note that although minorities have been found to be less involved in traditional community organizations than Whites, Blacks have been found to be "more involved in religious organizations than other Americans" (p. 35).

The beginning of the risk communication process for Katrina can be traced back to July of 2004, one year before Katrina made landfall, with the funding by the Federal Emergency Management Agency ("FEMA") of a hurricane simulation exercise in Baton Rouge, Louisiana, "Hurricane Pam," to study the potential impact of a Category 3 or

greater hurricane striking the Gulf Coast area (FEMA, 2004). FEMA also commissioned Integrated Emergency Management, Inc. ("IEM"), a Baton Rouge firm that specializes in "catastrophic planning and preparedness" (Committee on Homeland Security, 2006) to prepare a "Southeast Louisiana Catastrophic Hurricane Functional Plan" based on the findings of the Hurricane Pam exercise. A draft of the report was released on August 6, 2004, more than a year prior to Katrina (IEM, 2004). FEMA issued a press release at the conclusion of the exercise on July 23, 2004 that said, ""Hurricane Pam brought sustained winds of 120 mph, up to 20 inches of rain in parts of southeast Louisiana and storm surge that topped levees in the New Orleans area. More than one million residents evacuated and Hurricane Pam destroyed 500,000-600,000 buildings" (FEMA, 2004).

In a study of community vulnerability in Hurricane Andrew, which struck South Florida in 1992, Morrow (2000) argues that poorer households do not have the financial resources to purchase supplies before a natural disaster or for buying necessary services and materials afterwards, which results in higher mortality rates and greater housing damage. In a finding with great relevance to New Orleans and Katrina, Morrow notes that, "The dwellings of the poor are often located in vulnerable locations, such as floodplains." She writes, "In addition to threatening their lives, a flood or storm virtually erases whatever possessions they may have accumulated, and is likely to result in their loss of 'place'" (p. 3). Morrow also found that "minorities [were] more likely to rely on kin and social networks for [risk] information" (p. 8). Researchers have noted that differences in socioeconomic status can result in differences in availability of information, a phenomenon that Tichenor, Donohue, and Olien (1970) termed the

"knowledge gap":

> As the infusion of mass media information into a social system increases, segments of the population with higher socioeconomic status tend to acquire this information at a faster rate than the lower status segments, so that the gap in knowledge between these segments tends to increase (p. 159).

The knowledge gap argument seems particularly applicable to New Orleans, which, as noted above, appears to have built-in poverty base of some 20% of the population. The increase in the "infusion of mass media" to which Tichenor et al refer is to a large extent technology dependent, as media messages are increasingly conveyed by electronics rather than print. Computer access is required to access much of that information, and in the rapidly changing world of online communication, that access must be regular and frequent in order to be effective. The ability to enjoy that kind of access is likely limited in the 20 percent of New Orleans households that are trying to survive on less than $20,000 a year. The inability and/or failure to take advantage of the increased amount of information available puts the poorest segment of the population at a distinct competitive disadvantage in the communication marketplace, as they are forced to make decisions based on incomplete and sometimes insufficient information.

Morrow (2000) argues that the elderly are more likely to suffer in natural disasters than younger people, as they are "more likely to lack the physical and economic resources necessary for effective response, are more likely to suffer health-related consequences and be slower to recover" (p. 4). Gullette (2006) reports that 78% of the

fatalities from Katrina were people over the age of 51, while 39% were over 75, 25% were between 61 and 75 (p. 104). This was also true in Hurricane Audrey, which struck Louisiana in 1957. Deaths of those 60-69 and 70 and over were more than twice those of any other 10-year age segment of the population. Losses (missing or identified dead) by race were even more greatly disproportionate: 322 "Negro" losses per 1,000 population, as compared to 38 for the "White" population (Bates, Fogelman, Parenton, Pittman, & Tracy, 1958). In her study of the data from Hurricane Andrew, Morrow (2000) found that in a disaster context women sustained more harm than men, due to their traditional roles as care-givers for the family, which are housing-dependent, as well as their lower work status in jobs in the "informal economy," jobs which "are subject to fluctuation in the best of times and likely to disappear completely after an event, unnoticed by authorities" (p.9).

The disproportionally higher impact of natural disasters on minorities that appears in the research is exacerbated by media framing. When media place poverty in a social frame, audiences are more likely to attribute it to societal causes, but when the media frame poverty individually, audiences are more likely to blame the individual depicted for his/her own plight (Iyengar, 1997). The framing of Black poverty in the media "increases the degree to which viewers hold individuals responsible for racial inequality" (Iyengar, 1991, p. 67). Television viewers are given only implicit information about the relationship among poverty, race and crime, leaving them unable to put that information into context (Entman, 1997). The framing of social and economic risk also breaks down along racial lines (Gandy, 1997). "Race" as we know it is a constructed social category

(Downing & Husband, 2005), and agenda setting and framing play a large role in that construction.

The racial framing of Hurricane Katrina was exemplified in two photos and captions by the Associated Press from the disaster (Dyson, 2006). The first photo shows a young black man wading through waist-deep water carrying food items floating beside him. The caption reads: "A young man walks though chest deep flood waters after looting a grocery store in New Orleans on Tuesday, Aug., 20, 2005." The second photo shows a young white couple in an almost identical shot, towing food in the flood waters. The caption reads: "Two residents wade through chest-deep water after finding bread and soda from a local grocery store after Hurricane Katrina came through the area in New Orleans, Louisiana." Two photographs of people performing virtually identical actions – and two very different frames. The black man is framed as an outsider, an interloper, a criminal, and a thief. The white couple belongs there ("residents") and show agency ("finding bread and soda") and survival skills. The equations are as simple as the contrast:

Black = outsider, criminal, other; White = resident, survivor, us. With this framing, it is easy to perceive the Whites as victims, and the Blacks as cold aggressors – "us" and "them."

Blumler and Gurevitch (2000) approach this social and cultural fragmentation from the perspective of message communication. In an analysis of political communication, they argue that in order to be effective, future mass media messaging "may increasingly address the particular identities and concerns of culturally distinct

subgroups" (p. 161). Other researchers have explored the relationship between race and class, and some have argued that class has become more significant than race. Wilson (1978) explores what he terms the "intersection of class with race," arguing that "the economic class position of individual minorities is heavily determined by race" (pp. ix-x). He notes, "As the influence of race on minority class-stratification decreases, then, of course, class takes on greater importance in determining the life chances of minority individuals" (p. x). Elliott and Pais (2006) note that one effect of the changing social strata that has enabled Blacks to rise into the middle class has been the creation of a black underclass, "which has become socially and culturally isolated from mainstream society as jobs, taxes, and upwardly mobile blacks have left historically black ghettos" (p. 298). Reed (as cited in Elliott & Pais, 2006) illustrates Wilson's point in his observations on Hurricane Katrina:

> Class – as income, wealth, and access to material resources, including a safety net of social connections – was certainly a better predictor than race of who evacuated [New Orleans] before the hurricane, who was able to survive the storm itself, who was warehoused in the Superdome or convention center or stuck without food and water on the parched overpasses, who is marooned in Houston or elsewhere, and whose interests will be factored into the reconstruction of the city, who will be able to return (p. 299).

These arguments seem to be borne out by the census data discussed above. One thing that survived Hurricane Katrina virtually untouched in size, and only slightly in

composition, was the hardcore underclass – that 20 percent of New Orleans that lives below the $20,000 per year household poverty threshold. Reed's point is well taken: white or black, young or old, those hit hardest by the storm were those least able to withstand it: the poorest members of the community.

The Congressional Research Service ("CRS") bears out this view. It reports that about one-fifth of the population directly affected by Hurricane Katrina was poor, 30% of the most impacted population had incomes below one-and-a-half times the federal poverty line, and 40% had incomes below twice the poverty line (CRS, 2005). Stivers (2007) notes the disproportionate toll the storm took on those least capable of withstanding it: five of the six areas hardest hit by the storm were predominantly black "project neighborhoods," with poverty rates in the 60% - 80% range, unemployment over 20%, and where 80% of the population were renters. Citing "structural racism," Cigler (2007) notes that evacuation plans ignored those who did not own automobiles, and/or did not have the funds for an airline ticket or even bus fare. She points out that the poorest residents could not afford to "ride out" the storm in a hotel, or the funds to survive without work after the storm. In short, she argues, "Poor minorities had decreased ability to cope during the disaster, and after, they had less access to government services that could speed recovery" (p. 67).

If there is one word to describe the risk communication environment in New Orleans, it is "complexity." It is a diverse community, rich with ethnic history, yet plagued with persistent poverty at the base of its social structure. As discussed in this literature review, research conducted within the theoretical frameworks of Media System

Dependency (MSD) and Uses and Gratifications (U&G) seems particularly well-suited to explore risk communication in this environment, for both of these perspectives recognize the role that personal, interpersonal, organizational, social, and cultural variables play in the communication process.

In a city where Blacks constitute the ethnic majority, and count their history in the community not in years or decades, but in generations and centuries, a study that seeks to provide meaningful and useful insights into risk communication must take into account the structures and relationships in the Black community. As noted in this review of the literature, trust is a vital component in the risk communication process. Trustworthiness in a source of risk communication messages, experienced over time, becomes confidence (Renn & Levine, 1991). That confidence can serve as a motivating factor when individuals seek out reliable sources for risk communication messages when disaster looms, as was the case when Hurricane Katrina was bearing down on New Orleans. As noted, research conducted in the MSD perspective has shown that the level of trust in sources is a reliable predictor of media system dependency, and people who have higher levels of trust in government are more likely to depend on media sources for risk messages (Ball-Rokeach & DeFleur, 1976). How do these relationships play out in New Orleans, sitting, as it does, below sea level at the mouth of the Mississippi, where storms hit hard and floods rise high? Over many decades, as hurricanes and floods approached, officials have directed, even ordered, Blacks in this region to act in ways that put their lives and property in harm's way. They have been forced to shore up levees as a storm approached, and then made to live on top of those levees while the storm raged [Ducre,

2008]. The levees that protected their communities have been intentionally breached, so that the flood waters would inundate their neighborhoods and spare their White neighbors [Brinkley, 2006; Ducre, 2008]. When they sought food as their neighborhoods were flooded by Katrina, they were branded as looters, while their White neighbors doing the same thing were lauded as survivors [Dyson, 2005]. When they tried to escape the Katrina floods on foot, they were stopped on the Danziger Bridge that led out of the Black community to a White one, where they were held at gunpoint for days without food, water or shelter. Some of them died of natural causes (Stein & Press, 2008), while police shot and killed others, who were unarmed, and then tried to cover it up (Huffington Post, September 22, 2010). With such a history, filled with repeated betrayals of trust by officials over a long period of time, it would seem unlikely that the Black community would have developed sufficient confidence in officials to trust their messages when natural disasters loom. To whom do people in the Black community of New Orleans turn for risk messages? Whom do they trust, and whom do they not trust? This study seeks answers to those questions.

But despite its importance, race alone cannot provide the key to the puzzle that is risk communication in New Orleans. Class must also be considered. There is a persistent underclass in New Orleans, with some 20 percent of the population living below the federal poverty level. Although the racial makeup of that underclass has shifted somewhat with events such as Katrina, its size remains relatively constant. As Elliot and Pais (2006) note, people in this underclass were nearly three times more likely to want to remain in their homes and ride out the storm than those in any other socioeconomic class,

a finding which, from a message-processing viewpoint, is consistent with that of Trumbo (2008), who found heuristic processing (associated with trust of local sources and distrust of official sources) associated with judgment of lower risk. Because of their economic situation, they have fewer options and resources available to help them contend with natural disasters (Tichenor, Donohue, and Olien, 1970; Beaudoin, 2008), and as a result they bear a disproportionate level of the suffering that comes from those events (CRS, 2005). As noted, many people in this underclass decided to remain in their homes and "ride out" Katrina. Many of them paid for that decision with their lives. Again, this study asks, to whom do people in the underclass of New Orleans turn for risk messages? Whom do they trust, and whom do they not trust? This study seeks answers to those questions.

The perspectives of U&G and MSD can be helpful in providing a theoretical framework to understand this communication environment. As discussed above, Ball-Rokeach (1998) noted that while both theories postulate active audiences, they view them from different perspectives, with MSD seeing them as constrained by social forces, while U&G focuses more on individual processing of messages. The bridge between them is formed over the river of variables that influence the processing of risk messages, variables that reflect, as Kasperson (1992) notes, the "psychological, social, institutional, and cultural processes" that influence how people process those messages. The Heuristic-Systematic Model (HSM) offers an effective vehicle for quantifying those variables and charting the flow of risk communication.

As noted above, Katz (Katz & Lazarsfeld, 2006) viewed his development of the limited effects paradigm with Lazarsfeld as a bridge between the direct effects paradigm,

which focuses on the message creator, and U&G theory, which focuses on what the message recipient does with the message. Leventhal et al (1983) sought to integrate the Health Belief Model and the Fear Drive Model in forming the Parallel Process Model, in order to place the research focus more clearly on the receiver. In like manner, this study seeks to integrate MSD, which views audiences as more constrained and socially determined, with U&G, which is more concerned with the individual's use of media messages to meet personal needs (Ball-Rokeach, 1998), and to express that new perspective within the HSM. It seeks to analyze the complex risk communication environment in New Orleans, and to suggest ways of constructing effective risk message campaigns there, and in similarly diverse communities in other regions.

Structure of the Study

New Orleans is a unique and diverse community, one in which race, class and poverty have played significant roles throughout its history. Although it is one of the most vibrant cities in the United States, New Orleans is also one of the most environmentally fragile, perched at the mouth of the Mississippi River on the Gulf of Mexico, a position Douglas Brinkley likened to "a delicate saucer floating in a bowl of water" (Brinkley, 2006). It has been battered by storms and floods for generations, and now the impact of those "natural disasters" appears to be amplified by the effects of an overheated planet.

This is a study of risk communication in Post-Katrina New Orleans. Post-Katrina

New Orleans is something akin to post-September 11 New York City – the events are over, but neither city will ever be the same. Some 3,000 people died in 2001 in the horror of 9/11, most of them instantaneously. More than 1,800 people died during Hurricane Katrina and the resultant flooding in 2005, but most likely few of those deaths were instantaneous. That raises the possibility that at least some of them were preventable. That possibility is the inspiration for this study – to make a meaningful contribution to the development of more effective risk management campaigns in communities exposed to natural disasters.

The main focus of the study is on risk communication about dangerous environmental events in post-Katrina New Orleans, and the influence that race and class have on that process. This study seeks to determine the assessment of New Orleans residents of the various possible sources of risk information that are available to them, and how race and socioeconomic class affect their level of trust in those sources. The importance of race in the risk communication process of a city that was more than 67% Black in 2005 is readily apparent (Brinkley, 2006; Troutt, 2006; Beaudoin, 2008; U.S. Census, 2010). Connections between and among race, class, poverty and the ability to respond to natural disasters have been established in previous studies (Tichenor, Donohue, & Olien, 1970; Perry & Mushkatel, 1984; Morrow, 2000; Congressional Research Service, 2005; Elliot & Pais, 2006; Cigler, 2007; Stivers, 2007). Hence, this study broadly asks:

RQ1: Do Black and White audiences assess risk messages differently?

RQ2: Do people of different socioeconomic classes assess risk messages differently?

The two research questions look at the influence of race (Hypotheses #1-#4) and socioeconomic class (Hypotheses #4-#8) on the assessment of risk messages from four sources: mass media outlets, national leaders and spokespersons, local community leaders and spokespersons, and interpersonal communication. Previous research has found that Whites ranked mass media first among their choices for risk messages, while Blacks preferred local officials (Perry & Mushkatel, 1984), a finding supported by Guion, Scammon & Borders (2007). Morrow (2000) found that minorities relied more on "kin and social networks" for risk message information. Therefore, Hypothesis #1 states:

H1: Black residents trust mass media outlets less as a source for risk messages than White residents do.

In a national study of trust in sources, Louisiana had the third-lowest index of generalized trust, ahead only of two other Gulf Coast states, Mississippi and Alabama. This low trust index was found to be connected to lower levels of trust in government by Blacks (Uslaner, 2004). Both Miller (1974) and Hetherington (1998) found that Blacks showed significantly less trust in national government than did Whites. Therefore, Hypothesis #2 states,

H2: Black residents trust national leaders and spokespersons less as a source for risk messages than White residents do.

In previous studies, Blacks have consistently expressed higher levels of trust in local authorities as sources of risk messages (Perry & Mushkatel, 1984; Fessenden-Raden et al., 1987; Guion, Scammon & Borders, 2007). The NRC (1984) notes the need to utilize local community leaders as transmitters and sources of risk information where

"widespread mistrust of public sources of information exists," a mistrust that has been identified as present to a high degree in New Orleans, due to its long and sorry history of inadequate and often harmful official responses to hurricanes and floods (Brinkley, 2006; Dyson, 2006; Ducre, 2008). Therefore, Hypothesis #3 states,

H3: Black residents trust local community leaders and spokespersons more as a source for risk messages than White residents do.

As the NRC (1984) notes, where mistrust of official sources exists, people look for "different information channels." Research has shown that source credibility is twice as important for Blacks than Whites in their assessment of risk messages (Perry & Mushkatel, 1984). Morrow (2000) found that minorities were more likely to rely on relatives and social networks as sources for risk information. The influence of social trust on communication has been established (Fessenden-Raden, Fitchen & Heath; 1987; Earle & Cvetkovich, 1999), and in a community such as New Orleans, where interpersonal relationships extend to many generations, it is reasonable to expect that social trust plays a significant role in risk communication. Therefore, Hypothesis #4 states,

H4: Black residents trust interpersonal communication more as a source for risk messages than White residents do.

Katrina had its greatest impact on the poor (Congressional Research Service, 2005; Elliot & Pais, 2006; Cigler, 2007; Stivers, 2007), who are the least able to take protective action in the face of an oncoming environmental threat, due to lack of resources (Perry & Mushkatel, 1984). The 5% of the population of New Orleans that "rode out the storm" and took the brunt of its fury was almost exclusively Black (Elliot &

Pais, 2006). About 20% of New Orleans residents have incomes below the federal poverty threshold (U.S. Census, 2004, 2009). In addition, researchers have found the existence of a "knowledge gap" between people of different socioeconomic classes, one in which people of higher socioeconomic status acquire information from the mass media at a much faster rate than those of lower socioeconomic status (Tichenor, Donohue & Olien, 1970). Therefore, Hypothesis #5 states,

H5: The lower the socioeconomic class, the lower the trust in mass media outlets as a source for risk messages.

In a national study, Uslaner (2004) found that the level of generalized trust, independent of race, was positively correlated with higher levels of trust in government. As noted, Louisiana ranked 48th out of the 50 states in generalized trust. With what appears to be a hardcore poverty base of some 20% of the New Orleans population (U.S. Census, 2004, 2009), it is reasonable to expect that the generalized level of trust in national leaders within that community would be low. Therefore, Hypothesis #6 states,

H6: The lower the socioeconomic class, the lower the trust in national leaders and spokespersons as a source for risk messages.

A higher level of trust in community leaders could be expected in a city such as New Orleans, which is bound together in social trust that is both pluralistic and cosmopolitan (Earl & Cvetkovich, 1999). Blacks made up more than two-thirds of the population of New Orleans when Katrina struck (U.S. Census, 2004). One-fifth of the population most impacted by Katrina was poor (Congressional Research Service, 2005), and five of the six hardest-hit areas were predominantly Black housing projects, with

poverty rates in the 60%-80% range (Stivers, 2007). It is reasonable to expect that since the lower socioeconomic class that makes up such a large part of the population is predominately Black, that it would reflect a similar preference for local community leaders and spokespersons as might be found in the Black population. But while race and class in New Orleans seem to be intertwined, they are not inextricable. Computer analysis of the survey data in SPSS allows for control for race and class, by isolating each, so their effects the risk communication process can be measured independently. Therefore, Hypothesis #7 and Hypothesis #8 state,

H7: The lower the socioeconomic class, the higher the trust in local community leaders and spokespersons as a source for risk messages.

H8: The lower the socioeconomic class, the higher the trust in interpersonal communication as a source for risk messages.

In the design of the telephone survey to gather the data (explained in greater detail in the Methods chapter that follows), eight possible sources of risk information were identified, and respondents were asked about their level of trust in each. In an effort to increase the richness of the data obtained, questions were also asked about Internet sources. For purposes of analysis and discussion, the eight sources were divided by type into three groups, as follows: mass media (newspapers, local radio news, local TV news); Internet sources (non-news websites, social media sites), and people (national leaders and spokespersons, community leaders and spokespersons, and interpersonal communication).

Since this study is concerned with how people assess risk information from a variety of sources, including media, it was informed by previous research in Media System Dependency ("MSD") and Uses and Gratifications ("U&G"). MSD researchers have established the connection between times of stress and change and reliance on media (Ball-Rokeach & DeFleur, 1976; Loges,1994; Beaudoin, 2008) and official sources of information (Whaley and Tucker, 2004). U&G research has focused more on the relationship of the individual to the message (Ball-Rokeach, 1998), and particularly emphasized the dynamic nature of the communication process, where the message recipient is an active communicator, not a passive recipient of the message (Rubin, 2002). Both of these theoretical perspectives informed this study, and influenced the design and construction of the research questions, hypotheses, and the survey instrument used to gather the data.

The study of the phenomenon of trust is relatively new, particularly that of trust in media. The concepts of trust and credibility are intertwined, as evidenced in the definition of the terms themselves. For someone or something to be credible, it must be "believable" or "reliable," while trust is defined as a "firm belief or confidence in the honesty, integrity, reliability" (Agnes, 2002). Renn and Levine (1991) echo that definition in describing trust in communication as an expectation in the message recipient that the information is "true and reliable" (ibid., p. 179). Hovland and Weiss (1951) focused on two elements of source credibility: perceived expertness and trustworthiness, and found that "trustworthiness of the source" and opinion change in the message recipient are significantly related (ibid., p. 647). The National Research Council (1989)

sees "credibility" as used in communication research as an attribute of a communication source that is a combination of perception of source expertise and degree of trust in that source by the message recipient (ibid., p. 24). Researchers have identified trust as the individual expression of source reliability (Kasperson, Golding, & Tuler, 1992; Siegrist, Cvetkovich, & Roth, 2000).

As noted above, researchers have sited risk communication in the social context in which it occurs (Fessenden-Raden, Ritchen, & Heath, 1987; Renn & Levine, 1991; Renn, 1992; Kasperson, Golding, & Tuler, 1992; Earle & Cvetkovich, 1999; Siegrist, Cvetkovich, & Roth, 2000), and identified the important role that "relationships of trust" play in the risk communication process (Rayner, 1992). Following Laswell and Katz (1955), Kasperson (1992) notes the role of individuals functioning as "amplification stations" in a risk communication process that occurs in a socio-cultural context (ibid., p. 159). For more than a half-century researchers have explored the influence of source credibility on communication, and found trust to be an essential component (Hovland & Weiss, 1951; McComas & Trumbo, 2001).

The path of research into trust in information sources, beginning with Roper in 1985, has yielded a progressive improvement in the obtaining of quantifiable data regarding levels of trust in various sources. Risk communication researchers have looked to research in psychology for models that can analyze and express that quantifiable data with validity, and allow for further testing to ensure its reliability. Message communication models have grown from their beginnings in the Fear Appeal Model (Janis & Feshbach, 1953; White, Meyer, & Martell, 2001; Witte et al., 2001), to the more

positive perspective of the Health Belief Model (Rosenstock, 1974; Janz & Becker, 1984), and into efforts toward quantifying data, including the Parallel Processing Models (Ajzen & Fishbein, 1980; Leventhal, 1983; Ajzen, 1985), which provided mapping of message processing pathways. Observing what they perceived as an inequity in the two processing pathways postulated in the parallel models, Eagly and Chaiken (1993) developed the Heuristic-Systematic Model ("HSM"), which for the first time offered researchers a fully quantifiable model in which to explore the issues of message processing and assessment.

This study follows Trumbo and McComas (2008), who cite Earle and Cvetkovich (1999) in arguing that "we allow for the expression of trust as a native concept amenable to measurement by a single item" (Trumbo and McComas, 2008, p. 63). It seeks to follow previous research by utilizing a Likert-based semantic differential scale to measure four components of trust: accuracy, fairness, completeness, and impartiality, following Roper (1985), Gaziano and McGrath (1986), Meyer, (1988), and Trumbo and McComas (2003, 2008).

Interviewers can ask respondents demographic questions about race, income, education and other aspects of their lives that help create a picture of the individual. Those questions have been asked by interviewers for the U.S. Census for decades. They can also ask questions about trust in various sources of media, as Roper and others have done. But the challenge for risk communication researchers is to take the demographic data and answers to questions of trust and to quantify and analyze them in a meaningful way.

The volume of risk communication literature is growing exponentially, but much of it is focused on health communication. The body of work in trust in media is also growing, while the Internet expands exponentially, reaching more than one-third of the world's population, a growth of more than 566% in just twelve years (internetworldstats.com, 2012). This study extends the exploration of sources of risk communication to those found on the Internet. It was constructed in an effort to synthesize the latest research in risk communication and trust in a study of post-Katrina New Orleans that can inform the development of future risk communication campaigns through implementation of quantifiable models such as HSM.

CHAPTER 3

Methods

As noted above, this study follows a path established by previous researchers, particularly those who explored the concept of trust in media sources (Roper, 1985; Gaziano and McGrath, 1986; Meyer, 1988; Trumbo and McComas, 2003, 2008). The survey instrument for this study was constructed on the foundations laid by these researchers, which started with the "Roper Question," and was adapted to risk communication in a study of cancer clusters by Trumbo and McComas (2008). I eliminated the fifth question asked by Trumbo and McComas about each risk communication source (trust/don't trust), to avoid conflation, a decision that was consistent with the approach taken by Trumbo (C. Trumbo, personal communication, October 24, 2012).

Although this study has a different focus in risk communication (race and class), the Likert Scale question construction lends itself particularly well to the development of indices of trust and socioeconomic class. The compact structure of the survey format, refined and tested over time, was particularly well-suited to telephone survey methodology, which has the additional benefit of time and cost efficiency (Patten, 2001). I chose the Public Policy Research Lab at Louisiana State University to conduct the survey because of their experience in conducting similar surveys for a wide range of clients, and in particular, conducting telephone surveys in the New Orleans area.

Telephone Survey

The concentrated focus of this study on the influence of race and class on the trustworthiness of sources for risk messages allows for the necessary data to be collected in a telephone survey instrument in which respondents evaluate eight (8) possible sources of risk information by rating each on a semantic differential scale for accuracy, fairness, completeness, and impartiality (See Appendix 1 –Telephone Survey Questions). The eight sources are grouped as follows:

I. Mass Media

1) Local newspapers

2) Radio news

3) Local television news

II. Internet-based communications

4) Computer websites other than news sites

5) Social media sites

III. People

6) National leaders and spokespersons

7) local community leaders and spokespersons

8) Family and friends

The survey questions relate directly to the two research questions and eight hypotheses, four for each research question. As noted above, the question form follows Roper (1985), Gaziano and McGrath (1986), Meyer, (1988), and Trumbo and McComas (2003, 2008). I asked four questions on each possible source of risk information:
1) accurate/inaccurate; 2) fair/unfair; 3) tells the whole story/doesn't tell the whole story; and
4) biased/unbiased.

Answers to each question were entered on a five-point Likert scale, numbered 1-5 on a continuum bounded by the polar opposite answers, e.g., "How would you rate local newspapers, where 1 means 'inaccurate' and 5 means 'accurate'?" – with the additional choices of "don't know (8)" and "refused" (9) for each question. The data from these responses were used to create indices of trustworthiness for each of the potential sources of risk information.

After the respondents rated the eight sources, they were asked five demographic questions: 1) Age; 2) Gender; 3) Household Income; 4) Education; and 5) Race. The age categories (18-24; 25-34; 35-44; 45-64; 65 and over) were developed by modifying the U.S. Census categories as reported in the U.S. American Factifinder (U.S. Census, 2009). These modifications were done in accordance with survey guidelines presented by Patten (2001). A minimum age of 18 was selected for respondents. The 5-year increments used in the census were paired to create 10-year increments for this study. The top ranges of the census were combined in one age range, "65 and over," to create a category

beginning with the typical retirement age in the U.S. The gender questions (male; female) follows Fowler (1995).

The household income categories (Less, than $10,000; $10,000-$21,199; $22,000-$34,999; $35,000-$49,999; $50,000- $74,999; $75,000-$99,999; $100,000 or more) were developed by modifying the U.S. Census income categories in accordance with the guidelines of Patten (2001) to meet the parameters of this study. Category "b" was given an upper limit of $21,199, as $21,200 is the established federal poverty threshold for a family of four, as noted above.

The wording of the education question ("What is the highest grade or year of school you have completed?") is taken from Fowler's "Improving Survey Questions (1995). The categories (elementary, 0-8 years; some high school, 1-3 years; high school graduate, 4 years; some college, 1-3 years; college graduate, 4 or more years) are taken from Patten's Questionnaire Research (2001), which is based on the U.S. Census Bureau's categories.

Fowler (1995) identifies three indicators of socioeconomic status: income, educational attainment, and occupation (p. 171). He notes that each has its "limitations, often very severe limitations, for capturing what researchers are truly after" (p.171). He notes that, "Educational attainment is probably the most generally useful and interpretable measure of the three" (p. 171). He notes that although income "would seem likely to be the best, most direct measure of resources or financial well-being" (p.172), it is tempered by three elements: 1) personal income as a part of household income; 2) availability of assets; and 3) financial obligations. He finds occupation the most

"complicated" and a "probably less useful way" to measure socioeconomic status (p. 172). He also notes that seeking useful data on occupation requires the asking of at least three questions, after which a complex coding process must occur. Since the focus of this study is on trust, and the resources of time and finance are relatively limited, it was decided to use the first two of Fowler's socioeconomic indicators, i.e., income and educational attainment, for this study. It should further be noted that Fowler does not argue for the use of all three indicators together. Rather, he says that "indicators of socioeconomic status include" [emphasis mine] these three measures.

The categories for race (Asian; Black or African American; White/Caucasian; Hispanic; Native American; some other race alone; two or more races; Other) represent a hybrid of the U.S. Census categories and the guidelines recommended by Patten (2001),

The nature of the questionnaire developed to acquire this data is well-suited to the telephone survey format (Frey, 1983). An individual survey questionnaire can be completed in less than 15 minutes, is significantly more cost-effective than an in-person survey, and requires less processing time than either an in-person or mail survey. As such, it fits within the budgetary and time constraints of this study. As noted above, the survey questionnaire follows the risk communication survey instrument development work of Roper (1985), Gaziano and McGrath (1986), Meyer, (1988), and Trumbo and McComas (2003, 2008).

A survey of telephone numbers in Orleans Parish was conducted for this study by the Public Policy Research Lab of Louisiana State University, using the random digit dialing method (Frey, 1983). The survey was conducted from June 18, 2012 through July

24, 2012, and included both landlines and cell phones. Interviewers asked a screening question to ensure that they were speaking to the head of the household. The final data set of completed interviews (n = 414) includes 278 respondents were contacted on landlines, and 136 who were contacted on cell phones.

A complete description of the survey methodology employed by The Public Policy Lab is included in this study (see Appendix 2). As noted therein, data were weighted to match 2010 U.S. Census population estimates for Orleans Parish. Missing values for income, resulting from respondents' reluctance to disclose personal financial information, were inputted based on the education, age, race and gender of the respondent. In the un-weighted data on the respondents, there were 125 males and 268 females. In the question on race, 219 self-identified as Black, 134 as White, and 29 as Other (respondents indicating other than Black or White). The average respondent was a high-school graduate (M = 3.81, SD = 1.08), with an average income in the $35,000 - $49,999 range ($M$ = 4.32, SD = 1.82). The complete demographic percentages are presented in Table II below.

Table II:

Un-weighted, Weighted and Census Estimates for Selected Demographics

	Un-weighted	Weighted	Census
Gender			
Male	31.9%	48.5%	48.6%
Female	68.1%	51.5%	51.4%
Race			
White/Caucasian	34.7%	36.7%	33.0%
Black/African-American	57.1%	54.6%	60.2%
Other	8.2%	8.7%	6.8%
Education			
Less than High School	6.9%	14.7%	16.6%
High School	19.3%	24.2%	26.9%
Some College	28.9%	26.3%	24.9%
College	45.0%	34.9%	31.6%
Age			
18-24	2.7%	12.8%	16.0%
25-34	11.9%	20.0%	19.0%
35-44	12.6%	17.6%	16.7%
45-64	41.0%	34.5%	34.0%
65 and over	31.9%	15.2%	14.3%
Income			
Less than $10,000	12.6%	9.8%	13.9%
$10,000 - $34,999	33.8%	36.4%	33.6%
$35,000 - $49,999	15.2%	14.8%	13.5%
$50,000 - $74,999	18.1%	13.8%	15.3%
$75,000 - $99,999	7.5%	9.0%	8.5%
$100,000 or more	12.8%	16.3%	15.2%

The overall margin of error for the survey is +/- 4.8 % at a 95% confidence interval. This is consistent with accepted practice in statistical social science research, as Patten notes

that approximately 400 surveys would need to be completed in order to achieve a +/- 5% margin of error at the 95% confidence level (Patten, 2001; Creative Research Systems, 2010). In addition, Triola (1992) notes that among the common choices for the degree of confidence (90%, 95% and 99%), the 95% confidence level is "most common," because "it seems to represent a good balance between precision (as reflected in the width of the confidence interval) and reliability (as expressed by the degree of confidence)" (p. 284). Another consideration is cost: nearly twice the number of completed surveys is required to obtain a 99% confidence level as compared to the 95% level.

The question of landline vs. cell phone polling has grown in importance with the increased use of cell phones. The Pew Research Center reports that as of June 2010 some 24.9% of all adults in the U.S. use only cell phones, and among Blacks it is 28.9% (Pew, methodology/collecting-survey-data/cell-phone-surveys, 2012). The U.S. National Health Interview Survey of the Centers for Disease Control puts the figure for cell-phone only households at 34% (Blumberg & Luke, 2012).

Sampling cell phone users presents a unique set of problems, which are magnified when sampling a small geographic area, such as Orleans Parish. Among those problems identified by the Pew Research Center are the portability of numbers, the association of the number with the originally issuing provider (and the provider's location) rather than the user, mixed or shared cell and landline numbers, difficulty of identifying the caller, and call forwarding (Pew, methodology/sampling/cell-phones, 2012). Also, adding cell phones to a survey results in higher costs as compared to a landline-only survey, with some estimates ranging as high as one and a half to two times greater, due in part to 95

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59higher data processing and weighting costs (Pew, methodology/collecting-survey-data/cell-phone-surveys, 2012). Additional factors such as caller ID on cell phones, the variable influence of the environment where the call is received on freedom to talk, dropped calls, charges for minutes used, and the possibility of needing to offer cash payments for participation must be considered when considering the inclusion of cell phones in a telephone survey.

However, when nearly one-third of a key demographic component of a target population uses only cell phones, such as in this study, every effort must be expended to ensure that the subject population is properly represented in the sample. Fortunately, because of their familiarity with this market, having conducted many telephone research studies in New Orleans, the LSU Public Policy Research Lab was able to produce a survey that includes both landlines and cell phone users at a cost within the budgetary limitations of this study.

Data Analysis

SPSS software was utilized to analyze the data. Missing variables resulting from "don't know (-8)" or "refused (-9)" responses were accounted for in SPSS for all variables, and missing values were excluded pairwise in calculations. I performed an Analysis of Covariance ("ANCOVA") on the data to test the four hypotheses of the first research question, which explores the influence of race (a nominal independent variable)

on the trustworthiness (a continuous dependent variable) of eight sources of risk messages in three groups: mass media outlets, Internet sources, and people, while controlling for socioeconomic status ("SES"), and selecting for Blacks and Whites only. In order to measure trust, I created an additive index variable for each media source by aggregating the mean scores of the total responses to the questions on each of the four elements of trust on each source, consistent with previous research (Trumbo and McComas, 2003, 2008; C. Trumbo, personal communication, October 24, 2012).

I ran Cronbach's alpha test on all eight trust indices combined ($\alpha = 0.77$), and individually, as follows: trust newspapers ($\alpha = .74$); trust local radio news ($\alpha = .75$), trust local television news ($\alpha=.71$), trust non-news websites ($\alpha = .76$), trust social media ($\alpha = .76$), trust national leaders ($\alpha = .74$), trust community leaders ($\alpha = .75$), and trust interpersonal communication ($\alpha = .74$).

The second research question explores the influence of socioeconomic class on the assessment of risk messages. I aggregated the scores of the responses to the questions on income and education in order to create a index variable ("SEI") for socioeconomic status ("SES") (Fowler, 1995), in a procedure utilized by Trumbo (2012) and noted by Blishen, Carroll & Moore (1987):

> The investigator may collect or have access to data on status attributes such as (*a*) education, in number of years of school completed, (*b*) gross family income, (*c)* occupation of main earner, and (*d)* ethnic group. The first three of these, *or the first and either of the second two* [emphasis mine], may be given scores on comparable (standardized) scales and then combined to form a

composite score of socioeconomic status (p. 816).

There were seven categories of income in the questionnaire, and the five categories of education were reduced to four by combining "elementary (0-8)" and "some high school (1-3)" into a single category, "less than high school" (see Appendix 1, "Telephone Survey Questions"), yielding eleven categories in the resultant SEI variable (M = 6.92, SD = 2.66). I ran Pearson's Product Moment Correlation Coefficient tests on the SEI variable and the eight sources of risk messages, once again filtering for Blacks and Whites only.

In order to explore the relationships between frequency of use and trust in sources, I ran Pearson's Product Moment Correlation Coefficient tests on the variables for frequency of use of each of the eight sources with the trust indices for each of them, filtering for the responses of Blacks and Whites only. I performed a Cronbach's alpha test on the reliability of the SEI index variable (α = .77), together with the eight trust indices noted above (α = .71).

Chapter 4
Results

To test the four hypotheses of the first research question - "Do Black and White audiences assess risk messages differently?" - Analysis of Covariance ("ANCOVA") tests were run on the trust indices for the eight sources of risk messages, divided into three categories:

I. Mass media outlets:

1) newspapers

2) radio news

3) local TV news

II. Internet sites:

4) "websites other than news sites" (to differentiate non-news websites from those maintained

by mass media outlets such as newspapers, radio and TV)

5) "social media sites, such as Facebook and Twitter"

III. People

6) national leaders and spokespersons

7) community leaders and spokespersons

8) interpersonal communication

The Independent Variable (IV) was Race, filtered for Blacks and Whites only,

and the Dependent Variable in each test was the trust index for the specific source, while controlling for socioeconomic status ("SES") with the "SEI" variable, an index variable created with the aggregate score of Income and Education, as detailed in the Methods section above. Results for the eight sources are reported in Table III below:

Table III:
ANCOVA Results*: *Differences by race in risk message assessment, controlling for socioeconomic status

	Blacks		Whites					
Trust	M	SD	M	SD	*F*	*df*	ηp^2	*p*
Newspapers	3.58	0.92	3.75	0.87	4.56	1,327	.01	.033*
Radio news	3.59	0.95	3.73	0.89	8.87	1,303	.03	.003**
Local TV news	3.71	0.95	3.79	0.80	3.89	1,357	.01	.049*
Non-news Websites	3.64	0.95	3.39	1.20	0.11	1,280	. 00	.743
Social Media	2.79	1.06	2.19	0.92	2.14	1,233	.01	.145
National Leaders	2.97	1.06	2.71	0.96	2.30	1,352	.01	.130
Community Leaders	2.86	1.09	3.23	0.91	19.26	1,342	.05	.000***
Interpersonal	3.02	1.06	3.44	0.95	20.40	1,355	.05	.000***

*$p < .05$; **$p < .01$, ***$p < .001$.

Note: M = Mean. SD = Standard Deviation. Trust in each outlet is an index variable created by aggregating the means of answers on a Likert Scale (1-5) to four questions, where "1" is the least and "5" is the most: accurate/accurate; fair/unfair; doesn't tell the whole story/tells the whole story; biased/unbiased (See Appendix 1 – Telephone Survey Questions).

Hypothesis #1, "*Black residents trust mass media outlets less as a source for risk messages than White residents do,"* is supported, with the ANCOVA showing that after

controlling for SES, Blacks had significantly less trust than Whites in the three mass media sources: newspapers $F(1,327) = 4.56$, $p = .033$, $\eta p^2 = .01$; radio news $F(1,303) = 8.87$, $p = .003$, $\eta p^2 = .03$, and Local TV news $F(1.357) = 3.89$, $p = .049$, $\eta p^2 = .01$. In the use of Internet sites, there was no statistically significant difference between Blacks and Whites in their trust of non-news websites and social media sites as sources of risk messages.

In the three hypotheses testing trust in people as sources, Hypotheses #2, "*Black residents trust national leaders and spokespersons less as a source for risk messages than White residents do,"* was not supported, as there was no statistically significant difference found between Blacks and Whites. But Hypothesis #3, "*Black residents trust local community leaders and spokespersons more as a source for risk messages than White residents do,"* was not only not supported, but the existence of an obverse relationship was indicated, with Blacks showing significantly *less* trust in local community leaders and spokespersons than Whites did after controlling for SES: $F(1, 342) = 19.26$, $p < .001$, $\eta p^2 = .05$. In similar fashion, Hypothesis #4, "*Black residents trust interpersonal communication more as a source for risk messages than White residents do*," was not supported, and the existence of an obverse relationship was indicated, as Whites showed *more* trust in interpersonal communication than Blacks did, after controlling for SES: $F(1, 355) = 20.40$, $p < .001$, $\eta p^2 = .05$.

Research Question #2 asks, "Do people of different socioeconomic classes assess risk messages differently?" Pearson Product Moment Correlation Coefficient tests were

performed between the SES index variable and the trust indices for the eight sources of risk messages, filtered for Blacks and Whites only. Results are listed in Table IV below:

Table IV:
Pearson's Correlation Coefficient for SES and Indices of Trust – Blacks and Whites

	Trust							
	Newspaper	Radio	TV	Non-news websites	Social Media	Nat'l. Lead.	Com. Lead.	Interpersonal Com.
SES	-.002	-.097	-.103*	-.181**	-.368***	-.085	-.030	.008

*$p < .05$, **$p < .01$, ***$p < .001$

None of Hypotheses #5-#8 is supported. But once again, several obverse relationships are indicated. The test of Hypothesis #5, "*The lower the socioeconomic class, the lower the trust in mass media outlets as a source for risk messages,"* reveals that of the three mass media outlets (newspapers, radio and TV) tested, socioeconomic class had a significant relationship with one, trust in Local TV news, Pearson's $r(364) = -.103$, $p = .049$. The correlation was negative, indicating that as SES increases, trust in Local TV news decreases. No significant correlations were found between SES and trust in local leaders and spokespersons, national leaders and spokesperson, or interpersonal communication. Therefore, Hypotheses #6, #7 and #8 are not supported.

In the second group of sources, Internet sites, significant negative correlations were observed between SES and trust in non-news websites, Pearson's $r(282) = -.181$, $p = .002$, and social media sites, Pearson's $r(236) = -.37$, $p < .001$, once again indicating that as SES increases, trust in Internet sources of risk messages decreases.

In a search for further clarity, I next explored the relationship between media use

and trust in media by running Pearson Product Moment Correlation Coefficient tests on frequency of use of a particular medium and trust in that medium, once again filtering for Blacks and Whites only. As might be expected, the frequency of use of a mass medium was positively correlated with trust as a source for risk messages for newspapers, Pearson's $r(335) = .248$, $p < .001$, local radio news, Pearson's $r(307) = .130$, $p = .022$, and local TV news, Pearson's $r(366) = .367$, $p < .001$. These positive correlations were also observed in use of Internet sites, with frequency of use and trust indices positively correlated for non-news websites, Pearson's $r(282) = .237$, $p < .001$, and social media sites, such as Facebook and Twitter, Pearson's $r(235) = .403$, $p < .001$.

Further exploration of the relationship between frequency of use of a particular medium and trust in the third risk message category, people, revealed that frequency of newspaper use was positively correlated with trust in interpersonal communication, Pearson's $r(364) = .234$, $p < .001$. Frequency of listening to local radio news was positively correlated to trust in national leaders, Pearson's $r(359) = .204$, $p < .001$, and also to trust in interpersonal communication Pearson's $r(362) = .196$, $p < .001$. In a particularly interesting finding, frequency of viewing local television news was positively correlated to all three source elements in the "people" category, national leaders Pearson's $r(361) = .224$, $p < .001$, local community leaders Pearson's $r(352) = .146$, $p = .006$, and interpersonal communication Pearson's $r(365) = .144$, $p = .006$.

Exploration of the use of Internet-based sources of risk messages revealed a

significant *negative* relationship between the frequency of use of non-news websites and trust in national leaders, Pearson's $r(358) = -.146$, $p = .006$. However, there was a significant positive relationship between frequency of use of social media sites and trust in community leaders, Pearson's $r(343) = .130$, $p = .016$, while there was a significant *negative* relationship between social media sites and trust in interpersonal communication Pearson's $r(355) = -.177$, $p = .001$.

Finally, I explored the differences between Blacks and Whites in their frequency of media use. An independent samples -test indicated that the frequency of use of newspapers as a source of risk messages was significantly higher for Whites ($M = 3.94$, $SD = 1.34$) than for Blacks ($M = 3.38$, $SD = 1.65$), $t(368) = 3.46$, $p < .001$. The frequency of use of non-news websites as a source of risk messages was significantly higher for Whites ($M = 3.04$, $SD = 1.55$) than for Blacks ($M = 3.00$, $SD = 1.71$), $t(365) = .215$, $p = .002$. But the frequency of use of social media sites such as Facebook and Twitter was significantly higher for Blacks ($M = 2.45$, $SD = 1.69$) than for Whites ($M = 2.01$, $SD = 1.39$), $t(359) = -2.55$, $p < .001$.

Chapter 5

Discussion

The first research question, "Do Black and White audiences assess risk messages differently," was constructed based upon well-established theory of differences between races in the risk communication process (Miller, 1974; NRC, 1984; Perry and Mushkatel, 1984; Putnam, 1996; Hetherington, 1998; Morrow, 1999; Blumler and Gurevich, 2000; Morrow, 2000; Guion, Scammon, and Borders, 2007; Beaudoin, 2008). Based on my review of the literature, I expected the data to support the hypotheses of racial difference in the assessment of risk messages throughout the range of sources tested. But after using ANCOVA to test those racial differences of trust in each of the eight sources, after controlling for SES (see Table III), I found statistically significant differences present in five (newspapers, radio news, local TV news, community leaders, and interpersonal communication), and not in three (non-news websites, social media, and national leaders).

At first I was surprised by the variety of the results, and their apparent inconsistency from one source to the next. But as my analysis progressed, I began to realize that these results are consistent with and reflective of the population studied, i.e., the people of New Orleans Parish, as unique and diverse a population as there is to be found anywhere in America. The perceptions of risk communication shared by the respondents are complex and nuanced, just as their community is, and just as difficult to

categorize, particularly in “Black and White” terms. But the data do reveal many relationships of interest, worthy of discussion and suggestive of further study.

When considered as three distinct groups of risk message sources (mass media, Internet sites, and people), the clearest racial difference in assessment came in mass media, where Blacks showed significantly less trust than Whites in all three sources - newspapers, local radio news, local TV news - a finding consistent with previous research (Perry & Mushkatel, 1984; Guion, Scammon, and Borders, 2007). But taken as a group, mass media was more trusted by both Blacks and Whites than the other two, Internet sites and people (See Table III). This finding is consistent with those of a Pew Research Center report (Pew, 2011), which found that, “…news organizations are more trusted sources of information than are many other institutions, including government and business” (p. 1).

As reported in the Results section, there was no statistically significant difference between Blacks and Whites in trust in the second group of sources, Internet sites (non-news websites and social media). When testing the third group of sources, people (national leaders and spokespersons, community leaders, and interpersonal communication), no statistically significant difference was found between Blacks and Whites in their trust in national leaders and spokespersons, a finding that runs counter to previous research (Miller, 1974; Heatherington, 1998). And Whites showed more trust than Blacks did in community leaders and spokespersons, and also in interpersonal communication. These findings would appear to run contrary to some previous studies, particularly those with a focus on social trust (NRC, 1984; Fessenden-Raden, Fitchen and

Heath, 1987; Earle and Cvetkovich, 1999).

Considering the history of race relations in Louisiana, particularly in regard to hurricane response, it is understandable that researchers would seek to identify racial differences in the communication of risk messages in an attempt to improve the effectiveness of future risk messaging campaigns. Certainly, this study shares that same goal. However, if race is not playing as significant a role in the risk communication process as it has in the past, has class taken its place? I explored that premise in the second research question of this study, "Do people of different socioeconomic classes assess risk messages differently?"

Once again, the data suggest a risk communication process that is complex and nuanced. Although none of the four hypotheses is supported, interesting relationships emerge from the data (see Table IV). A negative correlation was found between SES and trust in both Internet sources of risk communication (non-news websites and social media). The relationship between SES and trust in non-news websites was in the weak negative range ($r < -.30$), and that between SES and social media was in the moderate negative range ($-.30 < r < -.039$). These findings suggest that as the SES of an individual increases (improves), his/her trust in the Internet as a source of risk messages decreases. That makes sense, given that the SES index used in this study and others represents an aggregate score of education and income. Since one of the primary goals of education is to foster critical and independent thinking, it stands to reason that the more education a person has, and the higher the income that he/she receives (at least in part, if not largely) as a result, the more skeptical he/she would be of any source of information, risk or

otherwise. With the increase in Internet reach and use, this finding should be of concern to risk communication practitioners, as they seek to design risk messaging campaigns that utilize sources.

The finding in this study of a negative correlation between SES and trust in TV news is consistent with recent reports on trust in mass media. Gallup (2010) reported survey results that showed that, "For the fourth straight year, the majority of Americans say they have little or no trust in the mass media to report the news fully, accurately, and fairly. The 57% who now say this is a record high by one percentage point" (Gallup, 2010). A Pew Research Center survey on press accuracy found that, "The public's assessment of the accuracy of news stories is now at its lowest level in more than two decades of Pew Research surveys," and that, "Just 29% of Americans say that news organizations generally get the facts straight, while 63% say that news stories are often inaccurate" (Pew, 2009). Yet, as noted in the discussion above, there is encouraging news for traditional media in this study, since they were they more trusted as a group as a source of risk messages than were the other two groups, Internet sources and people.

The analyses of the relationship between frequency of use of a particular source and trust in that and other sources yielded information that further illuminates the risk communication process. As noted above, the positive correlation between frequency of use of a medium and trust in that medium in both traditional media and Internet sources was to be expected. But some of the other relationships revealed were not. Of particular note, frequency of newspaper use and frequency of use of radio news were both positively correlated with trust in interpersonal communication, and frequency of use of

radio news was also positively correlated with trust in national leaders. Frequency of television use was shown to be positively correlated with trust in all three sources in the "people" category: national leaders, community leaders, and interpersonal communication. Whites used newspapers and non-news websites more frequently than Blacks as a risk communication source, while Blacks used social media sites more frequently.

What conclusions can be drawn from this study? First, I believe the data indicate that race is not as dominating a factor in the risk communication process as it once was, or at least was thought to be, and that consideration of socioeconomic status must be taken into consideration in the creation of effective risk messaging models. This study does not stand alone in that perspective. Modern studies are progressively revealing the increased role that SES plays in the risk communication process (Reed, 1998; Elliot and Pais, 2006; Beaudoin, 2008; Morrow, 2000). This recognition is not confined to risk communication, but extends to the political sphere as well. In his analysis of the voting patterns of Hispanics in the 2012 presidential election, Steven Malanga of the Manhattan Institute argues that, "the media's emphasis on race and ethnicity are wrong," and that, "What's more likely than race to account for Hispanic voting trends is income" (Malanga, 2012).

Second, I would argue that future risk communication message campaigns should be area-specific, and rely more on socioeconomic data than on the racial composition of the target population to construct the specific communication model. Deemphasizing the role of race may, in fact, simplify the development of more effective campaigns, because

it allows a clearer picture of the risk communication process to emerge. It suggests that the allocation of resources for future risk messaging campaigns can be structured according to quantifiable principles, consistent with the goal of risk communication researchers for the last several decades. It would also allow for more effective utilization of proven communication models such as the Heuristic Systematic Model ("HSM"), since it allows for the direct application of quantifiable communication elements.

Third, I would emphasize that of the three primary groups of sources of risk communication messages researched (mass media, Internet-based communications, and people), the respondents expressed the greatest amount of trust in mass media. This is good news for the creators of risk message campaigns, for mass media outlets are likely the most easily manageable of the available communication options.

I believe this study suggests a new perspective on the role of race in risk communication, one in which race is considered as one of many identifying demographic characteristics of a population, rather than as a determinant of its action. Regardless of race, we will all be subject to the increasing vagaries of an overheated planet. It is our responsibility as risk communication scholars to contribute to the development of theoretical models that may serve to lessen, if not prevent, at least some of the damage that is sure to occur from the increasing intensity of natural disasters.

The limitations of this study are likely apparent to the reader, as are the possible suggestions for further research. First, as is said by residents and visitors alike, New Orleans is a city like no other. This study is representative of the opinions of the population of Orleans Parish on their sources of "information on dangerous

environmental events, such as a hurricane or flood, which could threaten you or your community" (see Appendix 1, "Telephone Survey Questions)." The answers would likely have been different had they been about other types of risk messages, e.g., health risks. It was conducted in the summer of 2012, almost seven years after Hurricane Katrina made landfall. I believe it accurately represents the opinions of the residents of Orleans Parish at that time about risk communication regarding natural disasters, a belief that is supported by the results, which fall within a 95% confidence interval, with a margin of error of 4.8%. But due to the unique nature of the city and its history, both social and environmental, I make no claim to generalizability, and in fact would advise against it. However, I do believe the survey method employed in this study, following closely the work of previous researchers over the last twenty years or so, can be readily adapted to fit the particular requirements of other communities to be studied.

Second, the topics of the two research questions – race and class – are intentionally broad, and therefore the findings are similarly broad in scope. In like fashion, the sources of risk communication were explored as categories, e.g., newspapers, radio news, local TV news, social media sites, and therefore lack specificity. It is reasonable to expect that if the survey questions were made more specific to the local region, e.g., The Times-Picayune newspaper, Mayor Mitch Landrieu, and President Obama, the answers would likely be different. The results yielded information valuable in the broad scope, but perhaps difficult to apply to a certain medium or source. And in similar fashion, if the questions were directed to an area of risk communication different than natural disaster, e.g., health risks, the answers would likely be different. And

although this study suggests that the Heuristic Systematic Model is the preferred vehicle for the development of future risk messaging campaigns, the broad scope of the research questions and the resultant findings, taken with the limitations of budget and time, does not lend itself to the development of a site-specific communications model.

Also, with the reach and penetration of social media expanding exponentially throughout the world, the use of sites such as Facebook and Twitter as media for the communication of risk messages certainly deserves further exploration. The role that social media sites played in the real-time transmission of information about Hurricane Sandy serves as an example of their effectiveness as an effective vehicle for risk communication.

I believe this study represents an important contribution to the risk communication field, as it sheds new light on the role of race of race and class on the risk messaging process, regardless of the platform the message creators choose to utilize to transport those messages. It is my sincere hope that this study will help persuade future researchers to look beyond the limits of race in their search for answers to future risk communication challenges.

Appendix 1

Telephone Survey Questions

```
C: General Perception Survey 2011

OPNENTER ON
COL 31
NOTE CTRLN
REVIEW PGUP
RETURN PGDN
QUITBTN ON
SQN ON
CATI OFF
BEEP ON
TIMSCAL .01 .1

MACRO DKNA
IF (ANS < 1)
 IF (ANS > -8)
 BEEP
 REASK
 ENDIF
ENDIF
ENDMACRO


Q: Hello
T: 2 5
Hello, my name is _____________ and I'm calling from Louisiana State
University' Public Policy Research Lab.
We are conducting a research study for Syracuse University.

        PRESS 1 TO CONTINUE
I:
KEY 1
QAL THANKYOU

Q: Hello1
T: 5 5
We are interested in the sources that you can use to get information
on dangerous environmental events, such as a hurricane or flood,
which could threaten you or your community. The purpose of the study
is to find out what sources people use to get what is
called "risk information."
Our goal is to help develop better warning messages for future
environmental disasters.
```

This is not a sales call. We are only interested in learning about sources
of risk information. Results of the study will be published by Syracuse University.

The questions will take approximately 15 minutes.

Would you be willing to answer some questions about risk information?

1.Yes
2.No

I:
NUM 1 2
IF (ANS = 2) SKP THANKS

Q: AGE
T: 5 5
Are you 18 years of age or older?

1.Yes
2.No

I:
NUM 1 2
IF (ANS = 2) SKP THANKS

Q: LIVE
T: 5 5
Do you live in Orleans Parish?

1.Yes
2.No

I:
NUM 1 2
IF (ANS = 2) SKP THANKS

Q: HHLD
T: 5 5
Are you the head of the household?

1.Yes
2.No (Refuse)

I:
NUM 1 2
IF (ANS = 2) SKP THANKS

Q: CNSNT
T: 5 5
Involvement in this study is voluntary, and you may refuse to take part
in the research or withdraw at any time without penalty by simply ending the call. Please feel free to ask questions about the research
if you have any. I will be happy to explain or repeat anything
I have said. You will be asked to rate 13 potential sources of risk information, which will take approximately 15 minutes of your time.
All information will be kept anonymous.
If you have any questions, concerns, complaints about the research, I will be happy to give you
the names and phone numbers of the people at Syracuse University and Louisiana
State University who are responsible for this study. Just tell me at any time during this phone
call that you want that information and I will give it to you. Are you willing to take the survey?

1.Yes 2.No
I:
NUM 1 2
IF (ANS = 2) SKP THANKS

Q: INTRO
T: 5 5
There are a variety of sources that you can use to get information on dangerous environmental events, such as a hurricane or flood, which could threaten you or your community. I'm going to name eight possible sources of such information, and ask you to rate each of them on four qualities,
using a scale of one to five, with one being the least and five being the most. Are you ready to begin?

1.Yes
2.No

I:
NUM 1 2
IF (ANS = 2) SKP THANKS

Q: Q1
T: 5 5
You can get information on dangerous environmental events from news organizations.
Considering what you know, please tell me..

I. Local Newspapers - print or online

How would you rate local newspapers, either print or online, where 1 means ‘inaccurate’ and 5 means ‘accurate’?

1. Inaccurate
2.
3.
4.
5. Accurate

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q2
T: 5 5
Where 1 means ‘unfair’ and 5 means ‘fair’?

1. Unfair
2.
3.
4.
5. Fair

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q3
T: 5 5
Where 1 means ‘Don’t tell the whole story’ and 5 means ’Tell the whole story’?

1. Don’t tell the whole story
2.
3.
4.
5. Tell the whole story

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q4
T: 5 5
Where 1 means ‘are biased’ and 5 means ‘are unbiased’?

1. Are biased
2.
3.
4.
5. Are unbiased

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q5
T: 5 5
Now I’d like to ask you the same questions, but this time for radio news.

II. Radio news

How would you rate radio news, where 1 means ‘inaccurate’
and 5 means ‘accurate’?

1. Inaccurate
2.
3.
4.
5. Accurate

-8. Don't Know

-9. Refused

I:
NUM -9 5
DKNA

Q: Q6
T: 5 5
Where 1 means ‘unfair’ and 5 means ‘fair’?

1. Unfair
2.
3.
4.
5. Fair

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q7
T: 5 5
Where 1 means ‘Doesn’t tell the whole story’ and
5 means ‘Tells the whole story’?

1. Doesn’t tell the whole story
2.
3.
4.
5. Tells the whole story

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q8
T: 5 5
Where 1 means ‘is biased’ and 5 means ’is unbiased’?

1. Is biased
2.
3.
4.

5. Is unbiased

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q9
T: 5 5
III. Local television news

You can get information on dangerous environmental events from local television news. Considering what you know, please tell me

How would you rate local television news, where 1 means ‘inaccurate’ and 5 means ‘accurate’?

1. Inaccurate
2.
3.
4.
5. Accurate

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q10
T: 5 5
Where 1 means ‘unfair’ and 5 means ‘fair’?

1. Unfair
2.
3.
4.
5. Fair

-8. Don't Know
-9. Refused

I:
NUM -9 5

DKNA

Q: Q11
T: 5 5
Where 1 means ‘Don’t tell the whole story’ and 5 means
’Tell the whole story’?

1. Doesn’t tell the whole story
2.
3.
4.
5. Tells the whole story

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q12
T: 5 5
Where 1 means ‘is biased’ and 5 means ‘is unbiased’?

1. Is biased
2.
3.
4.
5. Is unbiased

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q13
T: 5 5
In today’s world, there are new ways to get information on
dangerous environmental events, including visiting websites other
than news sites, or by accessing social media sites
such as Facebook and Twitter. I’m going to ask you to rate each
of those sources on four qualities, using a scale of one to five,
with one being the least and five being the most.
IV. Web sites other than news sites

Considering what you know, please tell me
How would you rate web sites other than news sites,

where 1 means ‘inaccurate’ and 5 means ‘accurate’?

1. Inaccurate
2.
3.
4.
5. Accurate

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q14
T: 5 5
Where 1 means ‘unfair’ and 5 means ‘fair’?

1. Unfair
2.
3.
4.
5. Fair

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q15
T: 5 5
Where 1 means ‘Don’t tell the whole story’ and 5 means
’Tell the whole story’?

1. Don’t tell the whole story
2.
3.
4.
5. Tell the whole story

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q16
T: 5 5
Where 1 means ‘are biased’ and 5 means ‘are unbiased’?

1. Are biased
2.
3.
4.
5. Are unbiased

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q17
T: 5 5

V. Social media sites, such as Facebook and Twitter]

Now I’d like to ask you the same questions, but this time for social media sites, such as Facebook or Twitter.
Considering what you know, please tell me

How would you rate social media sites,
where 1 means ‘inaccurate’ and 5 means ‘accurate’?

1. Inaccurate
2.
3.
4.
5. Accurate

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q18
T: 5 5
Where 1 means ‘unfair’ and 5 means ‘fair’?

1. Unfair

2.
3.
4.
5. Fair

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q19
T: 5 5
Where 1 means ‘Don’t tell the whole story’ and 5 means ’Tell the whole story’?

1. Don’t tell the whole story
2.
3.
4.
5. Tell the whole story

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q20
T: 5 5
How would you rate social media sites,
Where 1 means ‘are biased’ and 5 means ‘are unbiased’?

1. Are biased
2.
3.
4.
5. Are unbiased

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q21
T: 5 5
People are also a source of information on dangerous environmental events. I'm going to name three possible groups of people, and ask you to rate each of them on four qualities, using a scale of one to five, with one being the least and five being the most. Considering what you know, please tell me.

VI. National leaders and spokespersons

How would you rate national leaders and spokespersons, where 1 means 'inaccurate' and 5 means 'accurate'?

1. Inaccurate
2.
3.
4.
5. Accurate

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q22
T: 5 5
Where 1 means 'unfair' and 5 means 'fair'?

1. Unfair
2.
3.
4.
5. Fair

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q23
T: 5 5
Where 1 means 'Don't tell the whole story' and 5 means 'Tell the whole story'?

1. Don’t tell the whole story
2.
3.
4.
5. Tell the whole story

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q24
T: 5 5
Where 1 means ‘are biased’ and 5 means ‘are unbiased’?

1. Are biased
2.
3.
4.
5. Are unbiased

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q25
T: 5 5

VII. Local community leaders and spokesperson

Now I’d like to ask you the same questions, but this time for local community leaders and spokespersons.

How would you rate local community leaders and spokespersons, where 1 means ‘inaccurate’ and 5 means ‘accurate’?

1. Inaccurate
2.
3.
4.
5. Accurate

-8. Don't Know

-9. Refused

I:
NUM -9 5
DKNA

Q: Q26
T: 5 5
Where 1 means ‘unfair’ and 5 means ‘fair’?

1. Unfair
2.
3.
4.
5. Fair

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q27
T: 5 5
Where 1 means ‘Don’t tell the whole story’ and 5 means
’Tell the whole story’?

1. Don’t tell the whole story
2.
3.
4.
5. Tell the whole story

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q28
T: 5 5
Where 1 means ‘are biased’ and 5 means ‘are unbiased’?

1. Are biased
2.
3.
4.

5. Are unbiased

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q29
T: 5 5

VIII. Family and Friends

Now I'd like to ask you the same questions, but this time for family and friends.

How would you rate family and friends,
where 1 means 'inaccurate' and 5 means 'accurate'?

1. Inaccurate
2.
3.
4.
5. Accurate

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q30
T: 5 5
Where 1 means 'unfair' and 5 means 'fair'?

1. Unfair
2.
3.
4.
5. Fair

-8. Don't Know
-9. Refused

I:

NUM -9 5
DKNA

Q: Q31
T: 5 5
Where 1 means ‘don’t tell the whole story’ and 5 means tell the whole story’?

1. Don’t tell the whole story
2.
3.
4.
5. Tell the whole story

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q32
T: 5 5
Where 1 means ‘are biased’ and 5 means ‘are unbiased’?

1. Are biased
2.
3.
4.
5. Are unbiased

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q33
T: 5 5
How often do you use the following as sources of information, where 1 means ‘not at all’ and 5 means ‘a lot’?

Newspapers, either print or online

1. Not at all
2.
3.
4.

5. A lot

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q34
T: 5 5
Radio news

1. Not at all
2.
3.
4.
5. A lot

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q35
T: 5 5
Local television news

1. Not at all
2.
3.
4.
5. A lot

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q36
T: 5 5
Web sites other than news sites

1. Not at all

2.
3.
4.
5. A lot

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: Q37
T: 5 5
Social media sites, such as Facebook and Twitter

1. Not at all
2.
3.
4.
5. A lot

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: QF1
T: 5 5
In conclusion, I have five short questions about you and your family. Any and all information you provide is completely anonymous.

What is your age?

1. 18 - 24 years
2. 25- 34 years
3. 35 - 44 years
4. 45 - 64 years
5. 65 and over

-8. Don't Know
-9. Refused

I:
NUM -9 5
DKNA

Q: QF2
T: 5 5
Gender
[INTERVIEWER: please record gender]

1.Male
2.Female

I:
NUM 1 2

Q: QF3
T: 5 5
Household Income

What is your approximate household income before taxes?

1. Less than $10,000
2. $10,000 - $21,999
3. $22,000 - $34,999
4. $35,000 - $49,999
5. $50,000 - $74,999
6. $75,000 - $99,999
7. $100,000 or more

-8. Don't Know
-9. Refused

I:
NUM -9 7
DKNA

Q: QF4
T: 5 5
Education
What is the highest grade or year of school you have completed?

1. Elementary (0-8)
2. Some high school (1 to 3 years)
3. High school graduate (4 years)
4. Some college (1 to 3 years)
5. College graduate (4 or more years)

-8. Don't Know
-9. Refused

I:

NUM -9 5
DKNA

Q: QF5
T: 5 5
Race

Which of the following best describes your racial or ethnic background?

1. Asian
2. Black or African American
3. White/Caucasian
4. Hispanic
5. Native American
6. Some other race alone
7. Two or more races
8. Other

-8. Don't Know
-9. Not Sure/ Refused

I:
NUM -9 8
DISPOS = 20
CPL

Q: THANKYOU
T: 5 5
That is the end of the survey. On behalf of Syracuse University, I'd like to thank you for participating.

PRESS G TO END THE SURVEY

I:
KEY G

```
ENDQUEST

Q: THANKS
T: 5 5
Thank you for your time.  Have a good day.

PRESS ANY KEY TO CONTINUE

I:
KEY
ENDQUEST
```

Appendix 2
Description of Survey Methodology
New Orleans Media Survey

Data Collection: Data were conducted, via telephone interviews, from June 18 through July 24 by trained interviewers in the facilities of the Public Policy Research Lab. Calls were conducted from noon until 9:00 p.m. Monday through Friday, 10:00 a.m. to 6:00 p.m. on Saturday and noon to 8:00 p.m. on Sunday. Telephone numbers were selected using random digit dialing. Numbers where callers received no answer were called 10 times before being removed from the pool of eligible numbers. When possible, a message was left briefly describing the survey along with a toll free number for the Public Policy Research Lab. Three attempts at refusal conversion were made no sooner than 72 hours after the initial refusal.

The survey includes a traditional landline telephone survey combined with a survey of Louisiana cell phone users. Current estimates place the percent of cell phone only households at approximately 34 percent at the national level.[1] Reliable local estimates are harder to find but we do know that cell only households are more common in urban areas, among ethnic and racial minorities, and among younger adults. In addition to the cell only population there is a cell mostly population comprised of individuals who still have a landline telephone but rely almost exclusively on their cell phones for calls. Current estimates place the wireless mostly population at 16 percent of all households (and 29 percent of households with both a cell phone and a landline phone.

[1] The National Health Interview Survey, a national in-person health survey, provides the most reliable and up-to-date estimates of cell only households. Wireless substitution reports can be found here: http://www.cdc.gov/nchs/nhis.htm

All respondents included in the final results – cell phone and landline - are randomly selected. The final data set includes 414 respondents including 136 respondents interviewed on their cell phones and 278 respondents interviewed on landline telephones. The overall margin of error for the survey is +/- 4.8 percentage points at a 95% confidence interval, meaning that if we replicated this survey 20 times only once would the results differ by more than 4.8 points relative to the answers given in this report. Other types of errors can also affect survey results, including question wording, question order, and errors in the interviewing process.

The response rate for the landline telephone survey is 21 percent, meaning that 21 percent of calls to eligible households resulted in a completed interview. The response rate for the cell phone survey is 7.1 percent. Response rates are computed using formula # 3 from the American Association of Public Opinion Research (AAPOR). The cooperation rate for the landline telephone survey is 27 percent, meaning that 27 percent of calls in which a potential respondent was contacted yielded a completed interview. The cooperation rate for the cell phone survey is 14 percent. Differences in response rates among different segments of the population may result in biased estimates of public opinion. To account for these differences, data were often weighted by demographic characteristics where sample estimates do not closely mirror census-based population estimates.

Weighting: Data are weighted using a raking procedure in STATA to match 2010 census population estimates for age, education, income, race, and gender for Orleans Parish. Because respondents are often reluctant to provide information related to personal income, missing values for the income variable were imputed based on respondent education, age, race, and gender. This imputed income variable was used to create the data weights and is

available in the data set for analysis. Table V presents the unweighted, weighted, and census estimates for selected demographic variables.

Table V: Unweighted, Weighted and Census Estimates for Selected Demographics.

	Unweighted	Weighted	Census
Gender			
Male	31.9%	48.5%	48.6%
Female	68.1%	51.5%	51.4%
Race			
White/Caucasian	34.7%	36.7%	33.0%
Black/African-American	57.1%	54.6%	60.2%
Other	8.2%	8.7%	6.8%
Education			
Less than High School	6.9%	14.7%	16.6%
High School	19.3%	24.2%	26.9%
Some College	28.9%	26.3%	24.9%
College	45.0%	34.9%	31.6%
Age			
18-24	2.7%	12.8%	16.0%
25-34	11.9%	20.0%	19.0%
35-44	12.6%	17.6%	16.7%
45-64	41.0%	34.5%	34.0%
65 and over	31.9%	15.2%	14.3%
Income			
Less than $10,000	12.6%	9.8%	13.9%
$10,000 - $34,999	33.8%	36.4%	33.6%
$35,000 - $49,999	15.2%	14.8%	13.5%
$50,000 - $74,999	18.1%	13.8%	15.3%
$75,000 - $99,999	7.5%	9.0%	8.5%
$100,000 or more	12.8%	16.3%	15.2%

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VITA

NAME OF AUTHOR: Bruno F. Battistoli

PLACE OF BIRTH: Pittsburgh, Pennsylvania

DEGREES AWARDED:

Bachelor of Arts in Journalism, State University of New York at New Paltz, 2003

Master of Arts in Media Studies, Syracuse University, 2007

AWARDS AND HONORS:

Outstanding Graduate, Department of Communication and Media, State University of New York at New Paltz, 2003

Chancellor's Leadership Award, Syracuse University, 2009

TEACHING:

Adjunct Professor of Journalism, SUNY New Paltz, 2004-05

Adjunct Professor of Journalism, Syracuse University, 2008-2011

Assistant Professor of Journalism, Lyndon State College, Vermont, 2012-2013