UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

VESTED INTEREST AND DISASTER PREPAREDNESS

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

Degree of

DOCTOR OF PHILOSOPHY

By

BRADLEY ADAME
Norman, Oklahoma
2012

Downloaded from SHAREOK. Persistent Handle URL: https://hdl.handle.net/11244/318497

VESTED INTEREST AND DISASTER PREPAREDNESS

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF COMMUNICATION

BY

Dr. Claude Miller, Chair

Dr. Norah Dunbar

Dr. Glenn Hansen

Dr. John Banas

Dr. Mathew Jensen

© Copyright by BRADLEY ADAME 2012
All Rights Reserved.

ACKNOWLEDGEMENTS

There is a proverb, which argues, “It takes a village to raise a child.” The same could be said for this Ph.D., as its completion could not have been accomplished without patience, guidance and support from my committee, my family and my friends.

Dr. Claude Miller has been a thoughtful and supportive advisor. He helped me to develop the rigor of both my research and my writing. I am proud to say that his insight, advice, and direction, especially regarding the completion of this project, have shaped me as a scholar.

Likewise, the counsel provided by the other members of my committee, Dr. Glenn Hansen, Dr. John Banas, Dr. Matt Jensen and especially, Dr. Norah Dunbar, has certainly contributed to my abilities as a communication scholar. I am particularly grateful for the opportunities to learn and work with Dr. Dunbar and Dr. Jensen at CASR.

I would like to thank Dr. Scott Moore for his support as a friend as well as his patience and advice as a mentor. No matter the question I had or the situation I was in, Scott always pointed me in the right direction, usually by telling me to shut my mouth and keep working. Thank you.

I would also like to thank Dr. Dan O’Hair for encouraging my appreciation for applied research and for the opportunities to learn and work at the CRCM.

To my parents, Richard and Diane, I could not have done this without your love and support. Thank you for believing in me, no matter what and for teaching me to never, ever give up.

To my friends, Daniel (Uncle Danny) Bernard and Dr. Nici (Rocket) Ploeger, thank you for making graduate school an amazing experience, for keeping the wagons circled, especially when things got real, and for (almost) enough laughter and thoughtful discussion to fill a lifetime. To my friends back home in Fresno, thank you for incessantly asking when I am coming home, and endless encouragement. To Tim, you continue to be an inspiration. Thank you for never ceasing to break my chops.

Finally, to my partner Elissa, thank you for tolerating me during the most difficult parts of the dissertation process, for listening to me complain about yet another revision, and for making sure that I was always fed, happy and comfortable. I appreciate your thoughtfulness, your perspective and especially your laughter. I love you.

TABLE OF CONTENTS

Introduction	p. 1
Disasters and Preparedness	p. 3
Communication Campaigns	p. 8
Vested Interest	p. 13
The Extended Parallel Process Model	p. 24
Method	p. 45
Results	p. 54
Discussion	p. 81
Conclusion	p. 98
References	p. 101
Appendix A – Experimental Materials	p. 112
Appendix B – Scales	p. 115
Appendix C – Additional Table	p. 128

LIST OF TABLES

Table 1	Means for Attitudes Behavioral Intentions	p. 59
Table 2	Means for Attitude Toward Preparedness	p. 64
Table 3	Means for Attitudes Toward the Message	P. 65
Table 4	Means for Perceptions of Credibility	p. 68
Table 5	Main Condition Means for Perceived Vested Interest	p. 73
Table 6	Main Condition Means for Behavioral Intentions	p. 76
Table 7	Means for Attitude Toward Preparedness	p. 77
Table 8	Main Condition Means for Perceptions of Credibility	P. 78
Table 9	Main Condition Means for Perceptions of Credibility	p. 78
Table 10	Regression for perceptions of Susceptibility	p. 80
Table 11	Correlations Among Subscales for VI by Susceptibility	p. 128

LIST OF FIGURES

Figure 1	Main Effect for Self-Efficacy on Perceived Self-Efficacy	p. 56
Figure 2	Main Effect for Response-Efficacy on Perceived Self-Efficacy	p. 57
Figure 3	Interaction Effect for Immediacy and Certainty on Perceived Certainty	p. 58
Figure 4	Interaction Effect for Immediacy and Response-Efficacy on Intention to Volunteer in the Event of A Disaster	p. 60
Figure 5	Interaction Effect for Immediacy and Response-Efficacy on Intention to Visit the RDR Website	p. 61
Figure 6	Interaction Effect for Immediacy and Self-Efficacy Condition on Intention to Make a Disaster Plan	p. 62
Figure 7	Three-way Interaction for Immediacy, Certainty and Response-Efficacy on Intention to Make a Disaster Plan	p. 63
Figure 8	Three-way Interaction for Immediacy, Self-Efficacy and Response-Efficacy on Perceived Message Attitude- Attention	p. 66
Figure 9	Three-way Interaction for Immediacy, Self-Efficacy and Response-Efficacy on Perceived Message Attitude- Attention	p. 67
Figure 10	Main effect for Response-Efficacy on Perceived Credibility – Authority	p. 69
Figure 11	Effect for Main Vested Conditions on Perceived Immediacy	p. 71
Figure 12	Effect for Main Vested Conditions on Perceived Self-Efficacy	p. 71
Figure 13	Effect for Main Vested Conditions on Perceived Certainty	p. 72

Figure 14	Effect for Main Vested Conditions on Intention to Build an Emergency Kit	p. 74
Figure 15	Effect for Main Vested Conditions on Intention to Make a Disaster Plan	p. 74
Figure 16	Effect for Main Vested Conditions on Intention to Volunteer in the Event of a Disaster	p. 75
Figure 17	Effect for Main Vested Conditions on Attitude Toward Preparedness	p. 77

ABSTRACT

In recent years the United States has recognized an increasing need for individual-level disaster preparedness, with federal, state and local government agencies finding only limited success in their efforts to institute campaign-based disaster preparedness programs. Despite these efforts, extant research indicates citizens remain poorly informed at best, and woefully unprepared at worst. This dissertation presents vested interest theory (VI;Crano, 1997; Sivacek & Crano, 1982), as a useful framework for designing and testing effective campaign messages. This research applies VI to redesign and test a PSA video produced by the Oklahoma Office of Homeland Security's *Red Dirt Ready* Campaign for disaster preparedness, using the components of VI to optimize the original PSA's efficacy as measured by a number of important outcomes associated with preparedness, including behavioral intentions, message acceptance, and preparedness related attitudes. The assessment of these variables is comprised of direct self-report measures. Results indicate television-based manipulations with subtle message variations can be effective. The primary vested condition performed significantly better than the control for both behavioral intentions and perceptions of self-efficacy, two critically important outcome variables associated with disaster preparedness. Concerning the critical importance of message design, the results of this research suggest future preparedness campaigns should take a closer look at VI theory.

Introduction

On April 19, 1995, Timothy McVeigh parked a rented moving van in front of the Alfred P. Murrah Federal Building in Oklahoma City. Shortly after leaving the van, it exploded, destroying the building, killing 168 people, and injuring more than 680. The bombing was, at one point, the most disastrous act of terrorism on American soil. On September 11, 2001, 19 members of the Al-Qaeda organization hijacked four American airliners, crashing them, in a suicide mission into the World Trade Center Towers in New York City, the Pentagon in Washington DC and a field in Pennsylvania, killing upwards of 3000 people. During the 2005 hurricane season, Hurricane Katrina formed over the Bahamas, and after first making landfall in Florida, made landfall again in southern Louisiana on August 29, becoming the costliest and deadliest storm in US history, killing over 1800 people, and causing 81 billion dollars in property damage. Each year there are an average of 33 disaster declarations, with a high of 81 in 2010 and a low of seven in the years 1958 and 1959 respectively (FEMA, 2011).

These and other catastrophes, both natural and man-made, have made salient the need for increased disaster preparedness. Since 2007, the Federal Emergency Management Agency (FEMA) has designated 16 billion dollars for state and local government agencies to plan and prepare for disasters and acts of terrorism. Further, the creation of the National Incident Management System (NIMS) standardizes governmental agencies, volunteer groups and relief organizations' responses to disasters, thereby increasing response efficiency and

consequence mitigation, regardless of the cause, type, size and/or location of the disaster (FEMA, 2007, 2011).

The governmental move toward preparedness has been monumental in terms of funding and organizing federal, state and local agencies. Throughout the government-level responses however, individual American citizens have been largely ignored. And although portions of the FEMA budget are allocated to funding preparedness campaigns, the negligible amount of research that's been done to date indicates these campaigns have been only minimally effective (Decker, 2009; Miller, Adame, & Moore, in press; Paek, Hilyard, Freimuth, Barge, & Mindlin, 2010; Redlener, Grant, Berman, Johnson, & Arbramson, 2006). Moreover, the majority of disaster research has been focused on crisis response rather than preparedness behaviors, and this shortcoming has been further exacerbated by a dearth of evaluation research concerning preparedness campaigns and behaviors (cf. McEntire & Myers, 2004; Mileti, 1999; Miller, et al., in press; Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008; Paek, et al., 2010).

The sparse research indicates Americans recognize the need to be prepared but are drastically underprepared for potential disasters (Decker, 2009; Redlener, et al., 2006). In other words, there appears to be a disconnect between attitudes concerning preparedness, and the behaviors associated with them. Nonetheless, research has demonstrated campaigns can be effective in motivating beneficial behaviors through the manipulation of relevant attitudes (Pfau & Parrott, 1993; Salmon & Murray-Johnson, 2001; Snyder, 2001). Both the federal government and

individual citizens recognize the need for an increase in individual preparedness behaviors. Clearly there is a need for more theory-driven research to examine the effectiveness of communication campaigns designed to inform and motivate citizens to prepare for the inevitability of future disasters. The primary objectives of this project are to use communication theory to develop and test campaign messages designed to persuade citizens to prepare themselves for possible disasters. Informed by vested interest theory (VI) (Crano, 1983; Crano & Prislin, 1995; Sivacek & Crano, 1982) a series of campaign messages were designed and experimentally tested in a randomized factorial design, devised to simulate basic television viewing patterns. Vested interest theory specifies a finite series of attitudinal moderators, which constitute a predictive framework for targeting relevant attitudes and their consonant behaviors. Here, the principles of VI inform the development of the campaign messages and experimental design used to test their relative effectiveness at influencing the attitudes of an audience in a disaster prone area to prepare themselves for natural and man-made disasters. The low levels of American public preparedness are a cause of major concern for various federal and state agencies and could potentially cost billions dollars and numerous lives as new and more frequent disasters are anticipated to occur (Decker, 2009).

Disasters and Preparedness

The possibility of a disaster, by its very nature, constitutes a threat, whether perceived or not (Witte, 1992, 1994) and both natural and manmade disasters represent hazards with the potential to cause extreme harm. As defined by U. S.

Law, a disaster is a natural or manmade catastrophe, including floods, tornados, hurricanes, thunderstorms and lightning, extreme cold and heat, earthquakes, volcanoes, landslides, tsunamis, fires, wildfires, technological hazards, hazardous material spills, nuclear accidents, terrorism, and biological threats causing enough damage to warrant federal assistance, as determined by the President ("Federal Emergency Management Agency, Department of Homeland Security," 1984). As of 2011, there were 99 Presidential disaster declarations, and six months into 2012, there have been 19 disaster declarations nationwide. Although the US Government has paid close attention to the consequences of disasters for quite some time, numerous calamitous events of the last decade have heightened the salience of disasters and their impact for government agencies and citizens alike (FEMA, 2011; Kapucu, 2008; Paek, et al., 2010).

The Four-Stage Process of Disasters Development. Disasters, regardless of their type or cause, can be thought of as developing chronologically following a four-stage process, which, by its nature, is subject to limited prediction and control (Mileti, 1999). The four stages of Mileti's (1999) disaster model include a) mitigation, b) preparedness, c) response, and d) recovery, which together, provide a broad, common framework capable of guiding people from various agencies, levels of involvement, and geographic regions to communicate and interact effectively when disasters strike.

Dramatic post-disaster images of rescue workers saving lives, rescue dogs, and the turmoil immediately following a disaster often frame the response phase as

the most significant and compelling phase of the disaster paradigm; however, response is the shortest phase of the model, whereas, recovery, on the other hand, is the final and perhaps most costly stage of a disaster—beginning as soon as the assessment is made that no more survivors will be found, and often continuing for decades after the initial catastrophic event (Mileti, 1999). The attention garnered by the response phase of a disaster can often also function to de-emphasize the pre-disaster stages of an event, which may arguably be the most important phases to consider with regard to mitigating catastrophic outcomes.

Mitigation begins far in advance of a catastrophic event, and is defined by the efforts of government and social agencies to assess potential risks and provide structure for a healthy and resilient social environment. Additionally, while many will not recognize the presence of a pre-disaster state, both the media and the public play important roles in shaping important attitudes concerning disaster policy. Preparedness, the second phase of Mileti's model, requires both private citizens and government agencies to be aware of and actively plan for risks and crises likely to occur in their particular location (Guion, Scammon, & Borders, 2007). During the preparedness phase, government agencies and businesses should all be involved in conducting formal risk assessments and creating formalized plans of action. Private citizens however, are not subject to the same forms of regulation. Although numerous government agencies—at all levels of government—provide assistance in preparing for disasters, preparedness ultimately depends on individuals taking on personal responsibility for their own readiness to cope with catastrophic events.

Preparedness. Governmental plans include risk assessments, mitigation strategies, and plans for inter-jurisdictional communication and sharing of responsibility. Plans are reviewed at various levels of government for thoroughness, feasibility and contain strategies for monitoring, evaluating, and updating the plan (Cary, 2004). Despite the development of these plans, public confidence in government remains low. According to a recent survey of public opinion, only 51% of people believe their community has an adequate natural disaster response plan, and only 31% believe their community has an adequate terror response plan (Redlener, et al., 2006).

Government officials continue to address the notion of personal responsibility in disaster preparedness. Organizations such as the Department of Homeland Security (DHS), The Red Cross, and FEMA, among others, continue to stress the role of personal responsibility in disaster preparedness, and make available copious amounts of information, resources and even financial assistance for private citizens to prepare for crises adequately (FEMA, 2011).

Surveys of the American public indicate most Americans recognize the importance of preparedness, but have done little to actually prepare for disasters. Research indicates only 31% of Americans have a basic emergency preparedness kit which includes a two day supply of food and water for each family member, a portable radio, batteries, phone numbers and a meeting place (Decker, 2009; FEMA, 2004; Redlener, et al., 2006). Correspondingly, Redlener, et al. (2006) assert that 66% of Americans feel they are personally unprepared for a disaster.

When asked why they are not prepared, 26% report they have not had enough time to prepare, and claim they 22% do not know how to achieve a state of basic preparedness (Redlener, et al., 2006).

Research also indicates demographic variables have a significant influence on preparedness. People who live with small children and/or individuals with disabilities are more likely to report a higher level of preparedness. Variables such as income, education, and interestingly, the perception of vulnerability, also predict preparedness (Eisenman et al., 2006).

Although government agencies at all levels are required to study and prepare for disasters (to be eligible for federal funds), and the public recognizes the need for both governmental and personal preparation, there is nevertheless a disconnect between the perceptions of citizens regarding confidence in government, and their own level of emergency preparedness. In other words, attitudes do not appear to correspond very closely with behaviors.

To aid citizens in their preparedness efforts, the Department of Homeland Security (DHS) has instituted the Ready.gov Campaign (Ready.gov), a web-based campaign including various informational resources with lists for items to gather into an emergency kit, as well as information for formulating a family plan, and recommended responses specific to various disasters. Additionally, this DHS campaign is supplemented by the declaration of the Month of September as National Preparedness Month, with various state-sponsored campaigns meant to enhance federal efforts by targeting messages to locally salient disasters and

catastrophes. Despite these laudable federal and state efforts, the DHS preparedness campaign has largely failed to motivate a significant number of Americans to prepare adequately for likely and potential disasters (Eisenman, et al., 2006; Redlener, et al., 2006).

This failure is not one of policy however; as the next section will demonstrate, public communication campaigns can work as long as they are theoretically driven, properly researched and evaluated, with the involvement of a range of government and private entities. Such efforts can be powerful tools for informing, motivating and changing a critical array of beliefs, opinions, attitudes, and behaviors.

Communication Campaigns

Communication campaigns are systematic endeavors to inform, reform, reinforce and/or influence individuals' behaviors regarding a variety of social, commercial and political issues (Atkin & Freimuth, 2001a; Capella, Fishbein, Hornick, Ahern, & Sayeed, 2001; Pfau & Parrott, 1993). Effective campaigns are necessarily persuasive, and can be defined in terms of their objectives as well as their methods; campaigns centered on efforts to influence the attitudes and/or behaviors of target groups are considered objective-based, whereas campaigns defined by their methods are oftentimes characterized by their controversial or unusual approaches (Paisley, 2001).

Public communication campaigns are an essential feature of American culture. A tradition of contempt for governmental influence in daily life coupled

with a tendency to organize social groups has laid a foundation for a rich history of campaigns addressing social issues ranging from equal rights for women and ethnic minorities, temperance, education, environmental concerns, workers rights, and other social matters (Paisley, 2001).

Early American campaigns typically began as the mission of a single, determined individual, or small group of individuals who reached their audience either through church gatherings or through the publication of small pamphlets. One of the first successful public campaigns was Reverend Cotton Mather's effort to promote inoculation against smallpox in 1722. Another successful campaign that changed the course of history on the American continent was Thomas Paine's *Common Sense*, which advocated American independence and sold 100,000 pamphlet copies in 1776 (Paisley, 2001).

As America grew, so too did literacy rates, coupled with technological developments as newspaper and magazine circulation increased in the 19th century. With this expansion in readership came the rise of publications taking over the role of social reformer. The muckrakers, journalists who publicized social ills and reported on issues with a clear agenda, were the essential catalyst to a number of landmark societal reformations, including the creation of the US Food and Drug Administration. More recent developments have included the involvement of social scientists, and a more systematic examination of campaign techniques and outcomes (Paisley, 2001).

Meta-analytic research has shown that communication campaigns can be effective in influencing lasting behavioral change (Carpenter, 2010; Dutta-Bergman, 2005; Feeley & Moon, 2009; Witte & Allen, 2000). Although the nature of the issue, issue literacy, the episodic nature of popular issues, and general public distrust, may all present significant barriers to a campaign's success, they, along with others hurdles, can be overcome (Paisley, 2001).

Regardless of the nature of the issue or the degree and/or type of change (behavioral/attitudinal), a successful campaign should begin with two elements: theory and formative research (Atkin, 2001; Pfau & Parrott, 1993; Rice & Foote, 2001; Salmon & Murray-Johnson, 2001; Snyder, 2001). Theory presents a frame through which researchers can articulate and understand variable relationships, as well as predict and control outcomes. Furthermore, formative research may provide theory-driven information concerning audience needs, perceptions of relevant attitude-objects, and information about channel preferences, message consumption, and other variables of interest (Dutta-Bergman, 2005; Feeley & Moon, 2009; Pfau & Parrott, 1993).

Researchers have identified several steps useful in developing successful communication campaigns; the principal of which is the need for systematic formative research. Using several methods and metrics, campaign developers are advised to assess the characteristics of the situations and requisite behaviors they wish to influence, modify, reinforce, or change. Next, working backward from the behaviors, campaigners should create models that will allow them to develop

messages targeting values, beliefs, knowledge and behaviors relevant to key avenues of persuasion. These specific pathways will vary based on the context and topic of the campaign as well as the target populations (Atkin, 2001; Atkin & Freimuth, 2001b).

Next, campaigners should evaluate their models from a communication perspective (Atkin, 2001, p. 51). The application of communication theory will allow campaigners to segment the audience, guide decisions concerning resource allocation, and direct further research to discover audience needs that can be satisfied by a campaign (Dutta-Bergman, 2005; Feeley & Moon, 2009).

Evidence clearly indicates both governmental agencies and citizens recognize the importance of disaster preparedness. Through federal mandate, governmental agencies at all levels have formulated plans and acted in ways to mitigate potential disasters; individual citizens, however, are failing to adequately prepare. Further, communication campaigns intended to inform and motivate preparedness behaviors appear to have failed at encouraging preparedness as well. Nevertheless, campaign research has shown theoretically driven campaigns built upon formative research can be successful (Atkin, 2001; Atkin & Freimuth, 2001b; Capella, et al., 2001; Pfau & Parrott, 1993).

A number of well-researched theories have been used to frame the development of various communication campaigns. Selecting the best theory for a particular campaign is important because, just as an artisan selects the proper tool for a particular task, certain theories are better suited to particular campaign

contexts. Disasters involve unpredictable conditions and consequences, and while their occurrence is ultimately inevitable, the timeline on which they might occur can vary greatly. Further, there is an inordinate amount of variance involved in addressing the potential behaviors and actions that may ensue during the mitigation, preparedness, and response and recovery phases of a disaster. This project offers VI (Crano, 1983; Crano & Prislin, 1995; Sivacek & Crano, 1982) as a valuable theoretical framework for assessing disaster related attitudes, and the effectiveness of preparedness campaign messages designed to influence those attitudes.

The essence of VI is its' specification of particular attitudinal moderators, that when considered together, comprise a predictive framework addressing the relationship between relevant attitudes and related behavior(s). Where attitudes are typically seen as a powerful antecedent to behavior, the link of the two can sometimes be ephemeral and thus non-predictive. Vested interest theory argues five particular moderators – stake, salience, certainty, immediacy, and self-efficacy – when perceived at high levels, can be effective at predicting behavior from relevant attitudes.

Attitudes. The attitude represents a heuristically valuable construct in the fields of communication and psychology. A fundamental assumption of modern social science is that attitudes are linked in a measurable fashion to behavior (Glasman & Albarracan, 2006). Since Allport's (1935) identification of the attitude as a cognitive element, it has served as an avenue for researchers to gain insight

into the mind, and as a tool for explaining, predicting and influencing behavior. The nature of the attitude construct, however, remains somewhat elusive; and the seven decades of research attempting to link attitudes with consistent behaviors has produced mixed results, with a recent meta-analysis indicating (perhaps generously) the overall correlation of attitudes and behaviors across 128 conditions and 4,598 participants to be roughly .52 (Glasman & Albarracan, 2006, p. 806). Typically, studies attempting to influence behaviors by manipulating attitudes have employed one or a combination of variables either specifying conditions under which an attitude will predict behavior, or moderating the influence of an attitude on potential behaviors. Examples of commonly tested variables include: attitude importance (Boninger, Krosnick, & Berent, 1995), accessibility (Laroche, Cleveland, & Maravelakis, 2002), duration (Krishnan & Smith, 1998), attitude confidence (Berger, 1992), conviction (Abelson, 1988), emotion (Breckler, 1993) and hedonic relevance (Miller & Averbeck, in press). The attitude-behavior link is likely best described as multidimensional and thus more than one variable influences the degree to which attitudes affect relevant behaviors.

Vested Interest

A potential moderator that has shown promise as a reliable predictor of attitude-behavior consistency is vested interest (VI; Crano, 1997; Sivacek & Crano, 1982). Vested interest concerns the hedonic relevance of an attitude object, where hedonic relevance is the perception of a particular attitude-object to either grant pleasure or cause pain. When the consequences associated with an attitude object

are perceived to be hedonically relevant, attitude-behavior consistency, according to VI tends to be maximized. Vested interest theory posits that for an attitude-object to be judged hedonically relevant, and thus reliably predict behavior, five attitudinal dimensions—stake, salience, certainty, immediacy, and self-efficacy—must all be perceived at high levels. When all five of these dimensions are elevated relative to a specific attitude-behavior relationship, the theory predicts high and reliable attitude-behavior consistency (Sivacek & Crano, 1982).

Stake

Stake refers to the perceived personal consequences of an attitude-object in terms of potential gain-loss judgments (Crano & Prislin, 1995; Sivacek & Crano, 1982). Past research has characterized stake as a global proxy for vested interest and demonstrated that elements of self-interest are variable in relation to the attitude-object (cf.Petty & Cacioppo, 1986). More recently, (Miller, et al., in press) have operationalized stake as a demographic variable, arguing participants residing in particular geographic areas should have a unique stake in the consequences of localized natural disasters and weather events, such as earthquakes in California and tornados in Oklahoma. As hypothesized, residents in California had high levels of perceived stake in the consequences associated with earthquakes; correspondingly, residents in Oklahoma indicated similarly high levels of perceived stake relevant to the consequences associated with tornados ((Miller, et al., in press). Other research has found that when perceived stake is high, messages are processed more systematically, generate more issue-relevant thoughts, and require

increased cognitive load, compared to low perceived stake (Petty & Cacioppo, 1984; Petty, Cacioppo, & Goldman, 1981).

Salience

A significant body of research has shown that salience also moderates attitude-behavior consistency (Mirels & Dean, 2006; Shaffer, 1975; Shavitt & Fazio, 1991; van der Pligt, Eiser, & Spears, 1986). For an attitude to be salient, it must be perceived as personally relevant and directly accessible. Both dimensions are necessary for high salience since attitude-objects considered merely important may be less cognitively accessible than attitudes that are salient (Crano, 1997; Sivacek & Crano, 1982). We can argue with relative certainty that residents of tornado-prone areas of the United States consider the consequences of tornados to be personally important. However, as tornados are typically seasonal events, we can also assume attitudes about tornados should move from being merely objectively important, to being highly salient during tornado season. Further, Sivacek and Crano (1982) argue that salience is typically a function of personal experience. In the disaster preparedness context, individuals who have survived severe inclement weather or other disasters should theoretically perceive these events as more salient than those who have not had the same direct experience.

Research examining nuclear energy expansion has found residents hold mixed attitudes toward nuclear energy but shift to significantly higher anti-nuclear attitudes when a nuclear power plant was proposed to be built in their neighborhood (van der Pligt, et al., 1986). Additional research on nuclear activism

found that when individuals perceive the consequences of nuclear accidents to be salient, they are more likely to be anti-nuclear activists (Fiske, Pratto, & Pavelchak, 1983; Sivacek & Crano, 1982). Attitudes that are not salient are less likely to exhibit attitude-behavior consistency (Crano, 1983; Crano & Prislin, 1995).

Immediacy

Immediacy refers to the temporal interval between an attitude-relevant behavior and its implied consequences. In the case of preparedness, immediacy corresponds to the amount of time between the present and when one perceives s/he will be affected by a potential disaster (Crano & Prislin, 1995; Miller, et al., in press). When the consequences of action or inaction are perceived to be more immediate, the attitude will tend to be more predictive of the relevant behavior. Likewise, consequences perceived to be temporally far away reduce perceptions of vestedness, thus attenuating the attitude-behavior link (Crano, 1983, 1997; Crano & Prislin, 1995).

Residents of Brisbane, Australia recently provided a stark example of the effects of immediacy on preparedness behavior. With record torrential rain falling and the Brisbane River rising, residents of nearby cities were set for what was predicted to be the worst natural disaster in the region's history. In addition to securing valuables and planning evacuation, news reports indicate residents were purchasing large amounts of flashlights, batteries and other emergency supplies in preparation for the impending flood – in direct response to the flood warnings (Whiteman, 1/12/2011). With water rising into their neighborhoods, Brisbane

residents had no choice but to confront the immediacy of the disaster behaving in an attitudinally consistent fashion – assuming that they, like most individuals, shared a generally positive attitude toward self-preservation by securing resources and acting to preserve their lives.

Research has also demonstrated the effect of immediacy on the attitude-behavior relationship. Siegel, Alvaro, Lac, Crano and Dominick (2008) found individuals considering living organ donation perceived a significantly greater impact on themselves and their community relative to attitudes about non-living organ donation. In this case, the consequences of living organ donation would be immediate, as the donor would be undergoing an operation, whereas a non-living donor would not have his or her organs harvested until after death (Siegel, et al., 2008). Additionally, Soman (2001) found similar dynamics for purchasing behaviors. When consumers were asked to write down the amount they would be spending, and use a payment method that would immediately reduce their wealth, their purchase intentions were strongly diminished.

Certainty

Certainty addresses perceptions of the probability of consequences related to attitude-behavior consistency. When the consequences associated with performing (or not performing) an attitude-relevant behavior are not certain, the probability that individual will engage in that behavior is significantly diminished (Crano & Prislin, 1995). Disaster preparation, while not overly complex, does nonetheless require active engagement. Individuals must purchase or collect certain

objects, formulate a plan and seek information about evacuation routes along with other instrumental resources. Individuals may be aware disasters are likely to occur, but if the perceived certainty of suffering consequences from those events is low, they will likely not engage in preparedness behaviors. In other words, if the consequences are uncertain, there should be less perceived need to mitigate them.

Support for the function of certainty in attitude-behavior consistency is abundant (Clarkson, Tormala, & Rucker, 2008). Tormala, DeSensi, Clarkson and Rucker (2009) found increasing attitude certainty generates an increase in attitude-behavior consistency, with a notable exception: when two strong and competing attitudes are present. Strong positive and strong negative associations about a particular attitude-object can reduce attitude-behavior intention when attitudes are made certain for one group of associations over another. While this finding has important implications for health and related domains where behaviors such as smoking and diet can inspire simultaneous positive and negative attitudes, attitudes concerning preparedness are not likely to inspire negative associations because the act of preparing increases the probability of numerous positive outcomes.

Moreover, certainty, along with evaluative-cognitive consistency and latitude of rejection were found to be significant moderators of the attitude-behavior relationship. Interestingly, the same research found importance was not a moderator of this relationship (Franc, 1999). As noted previously, VI theory asserts objective importance is neither a necessary nor sufficient condition for salience, which is a necessary condition for high vestedness. Some research has indicated

attitude variables other than those proposed by VI (Tormala, et al., 2009) for example, clarity and correctness (Petrocelli, Tormala, & Rucker, 2007); however, the VI model has been shown to be a more consistent and comprehensive model for predicting how attitudes affect attitude-consistent behavior. A high degree of attitudinal certainty contributes to higher probabilities of attitude-behavior consistency (Crano, 1997; Crano & Prislin, 1995; Miller, et al., in press).

Self-Efficacy

The last element articulated by the VI model is self-efficacy, which follows Bandura's (1977, 1982, 1997) original conception, and is defined as one's perception of his/her ability to affect change. Self-efficacy occurs as both a trait and a state variable where individuals typically have a trait-based criterion level of self-efficacy that influences their interactions on a global level, and state-based criterion levels of self-efficacy that vary from context to context (Beck & Lund, 1981).

Self-efficacy is conceived of as influencing individuals in four ways: cognitively, affectively, motivationally and when lacking, can lead to depression. Cognitively, individuals with high self-efficacy are able to perceive long-term goals and consequences and remain committed to goals and overcoming challenges. For affective processes, self-efficacy influences how individuals perceive their ability to cope with negative outcomes and stressful environments. High self-efficacy promotes higher levels of stress management through proactive management and through the seeking of social support. Self-efficacy is one's perceived ability to affect change, and thus has a direct relationship with motivation. Higher levels of

self-efficacy promote goal setting and achievement and mediate levels of effort, perseverance, and resilience in the face of adversity (Bandura, 1997).

Research using VI has also demonstrated self-efficacy is an important moderator of the attitude-behavior relationship (Crano & Prislin, 1995). Within the VI model, self-efficacy influences how individuals perceive the relationship with the attitude-object. Every attitude-object affords a variety of different responses and courses of action. Self-efficacy moderates the relationship between the attitude object and the perceived set of behavioral choices, influencing how individuals compose the final behavioral decision. When self-efficacy (either trait or state) is low, individuals tend to perceive a low level of agency and control, and will often consider the situation with less motivation to act, as they perceive a smaller set of behavioral choices, with less confidence in their choice behavior. When occurring at higher levels, self-efficacy will tend to increase the perceived set of behavioral choices, and promote decision confidence and goal satisfaction. In the context of social action campaigns where the message advocates a specific behavior or behavioral change, revivers of the message must believe—or be convinced—they have the efficacy to change and/or engage the behavior relative to the attitude-object (Bandura, 1977, 1982, 1997; Beck & Lund, 1981). Related findings concerning the theory of planned behavior have shown that self-efficacy affects behavior both directly and indirectly, by moderating behavioral intentions (Ajzen & Madden, 1986).

A sizeable body of research has examined the function of each of the previously described dimensions of vestedness (see Glasman & Albarracan, 2006 for a recent review of the literature). As mentioned, research examining the attitude-behavior relationship often yields equivocal results with attitudes predicting behaviors only some of the time. Vested interest theory however is unique in that it specifies these five variables as simultaneously interacting to moderate the attitude-behavior relationship. The VI model posits that for every perceived attitude-object, these elements are cognitively present to some degree; further, when each of its components are present at high levels, attitudes will reliably predict behaviors.

The attitude-behavior relationship is multidimensional in that reliable behavioral predictions based on attitudes are moderated by more than one cognitive variable. Vested interest theory shows much promise as a useful and parsimonious framework with good empirical support validating its efficacy, for example, Sivacek and Crano (1982) found that, when faced with a referendum to raise the legal drinking age, college students' willingness to organize political groups to oppose the referendum was associated with age such that those who would be affected by the change were more opposed to it than those who would not be affected. Illustrating the effects of stake, the study demonstrated the degree to which only students affected by the law would perceive higher levels of hedonic relevance, and thereby become sufficiently motivated to show up to actually work against the referendum—and not merely report their intention to do so. In another

study, illustrating the effects of certainty, Sivacek and Crano (1982) found students, when presented with potential requirements for comprehensive collegiate exit exams, responded with greater willingness to organize campaigns to petition the administration as a function of the degree to which they perceived they would be affected by the exams. When students were told the administration was certain to require the exam, they reported being significantly more vested than those who were uncertain, or those who were positive their graduation would not be contingent on taking the exam. Taken together, these studies provide strong evidence that VI moderates attitude-behavior consistency.

Subsequent research has refined the model, for example, again using the topic of comprehensive collegiate exams, Crano and Prislin (1995) tested VI using a large-scale study (N= 980) of college students who were presented with one of five scripts systematically manipulated to create high vs. low vested conditions. The scripts described a student whose graduation was contingent on his ability to pass a rigorous and comprehensive exit exam. Although participants were not directly manipulated, study results indicated perceived overall stake, or personal consequence, had a direct impact on each of the other VI dimensions except immediacy, which approached significance. Conversely, the authors suggest each of the dimensions—salience, certainty, immediacy, and self-efficacy—impact perceptions of stake, which, when high, leads reliably to attitude-behavior consistency.

A further study provides evidence for the external validity of VI by examining political policy endorsement decisions (Lehman & Crano, 2002). The focal topics included living standard, universal health care and school bussing to achieve equality (original survey data was collected in 1976; the final reported analysis selected participants from a national sample of registered voters). Researchers conducted three separate analyses of national election data; the first of which tested measurement tools derived from a competing theory and found no direct relationship between self-interest and policy endorsement, as predicted by the symbolic attitude model. Analysis two examined the same policy topics but employed more nuanced measurement tools derived from the dimensions of VI, and found a strong moderator relationship between attitudes and policy opinion, showing VI to be a significant moderator of issue endorsement via attitude. Analysis three examined seven distinct issues, and across all seven, found VI to be a significant moderator of policy endorsement, which was, in this case, a proxy for behavior (Sears, 1997; Sears & Funk, 1991).

Although research has consistently pointed to the efficacy of the VI, the model is not perfect; nor is it the only theory to hypothesize relationships between similar variables. Recent research has argued that elements from Witte's (1992, 1994, 2001) extended parallel process model of fear appeals (EPPM) can lend further insight into the connection between attitudes toward disaster preparedness and preparedness behaviors (Miller et al., in press). VI posits high self-efficacy as a necessary though not sufficient condition for increased vestedness of an attitude.

Similarly, the EPPM asserts that self-efficacy is a necessary but not sufficient condition for danger control in response to an effective fear appeal. The EPPM contends, in addition to believing in one's own ability to affect change, message receivers must also believe the relevant corresponding behavior is efficacious as well. Research has shown this variable, termed response-efficacy, to be distinct from self-efficacy (Miller et al., in press), and it appears to attenuate attitudinally consistent behaviors deemed ineffective by message recipients (Witte, 1994, 2001; Witte & Allen, 2000; Witte, Cameron, Lapinski, & Nzyuko, 1998). Both VI and the EPPM share substantial conceptual overlap and both have been applied in campaign related research; accordingly, the EPPM warrants further discussion.

The Extended Parallel Process Model

Witte (1994) developed the EPPM as an extension of Leventhal's (1970) parallel process model of fear appeals, and Roger's (1975) protection motivation model, thus, consolidating the competing fear-based theories, and accounting for the equivocal results in the extant fear appeal research (Janis, 1954; Janis & Feshbach, 1954; Leventhal, 1970; Leventhal 1971; R. W. Rogers, 1975; Witte, 1992, 1994). The EPPM contributes three significant advancements over previous fear-as-motivation theories by (a) refining definitions for key theoretical variables, (b) providing a theoretical explanation as to why and how fear appeals fail, and lastly, (c) by illuminating the relationship between fear and efficacy (Witte, 1992).

According to the EPPM, fear appeal messages consist of two basic features: threat and efficacy, where threat is comprised of perceptions of severity and

susceptibility, and efficacy is parsed into perceptions of self-efficacy and response-efficacy. As mentioned, the key strength of the EPPM is in its ability to reconcile equivocal findings from the two dominant, competing fear appeal theories (c.f. Leventhal, 1970; Leventhal 1971; R. W. Rogers, 1975), accomplishing this by articulating specific operational definitions for primary variables, and by extending previous frameworks to address the affective and cognitive processes occurring when a receiver rejects the fear appeal message. Principal theoretical components include: fear, fear appeals, threat, efficacy, and various outcome variables such as message acceptance/rejection, and psychological reactance (J.W. Brehm, 1966, 1972; J.W. Brehm & Brehm, 1981; Witte, 1992, 1994; Witte & Allen, 2000; Witte, et al., 1998; Witte, Cameron, McKeon, & Berkowitz, 1996).

Fear is a negatively valenced emotional and physiological response to an environmental stimulus perceived to be personally threatening (Leventhal 1971; Ortony & Turner, 1990; R. W. Rogers, 1975; Witte, 1992). Fear appeal messages are persuasive campaign messages designed to elicit these emotional and physiological responses in message recipients by articulating a salient threat and then describing behaviors to mitigate that threat (Witte, 1992, 1994; Wong & Cappella, 2009).

The EPPM describes a threat as some known or unknown peril or hazard (Witte, 1992, 1994). Threat is further distinguished from perceived threat, which is the cognitive appraisal of the actual threat. Research has demonstrated significant differences between actual and perceived threat, moreover, perceived threat has

been shown to be essential to the persuasive effectiveness of the message (Fischhoff, Slovic, Lichtenstein, Read, & Combs, 1978; Slovic, 1987; Slovic, Fischhoff, & Lichtenstein, 1982; Witte, 1992, 1994). Perceived threat consists of two subcomponents: perceived severity and perceived susceptibility, where severity refers to the magnitude of the threat, and susceptibility is the degree of vulnerability (Witte, 1994).

The final variable articulated by the EPPM is efficacy. As noted earlier, efficacy within the EPPM also incorporates two subcomponents: perceived self-efficacy and perceived response efficacy. Similar to VI, self-efficacy is defined as the degree to which an individual perceives s/he has the ability to execute a required task or advocated response (Bandura, 1982). Perceived response efficacy, on the other hand, concerns the individual's beliefs in the effectiveness of that advocated response (Bandura, 1982; Witte, 1992, 1994).

Outcome variables specified by the EPPM include message acceptance, defensive avoidance and reactance (Witte, 1994, p. 130). Message acceptance within the EPPM refers to attitude or behavioral change (i.e., successful influence indicating danger control behaviors), whereas, defensive avoidance is thought of as an active, cognitive effort to resist the persuasive logic of the message, and is generally manifested by a number of dysfunctional responses, including: ignoring the message, derogating the source, threat denial, minimization (i.e., trivialization), and/or psychological reactance. Reactance occurs when the receiver feels the content and/or relational component(s) of the message is threatening important

perceived freedoms. In response, the reactant receiver is predicted to attempt to restore the threatened freedom by ignoring the message, and/or engaging in the risky behavior (Witte, 1992, 1994, 2001).

The EPPM posits that when presented with a message that arouses fear, receivers engage in one of two cognitive appraisals. The message recipient assesses the degree to which s/he feels threatened, and if that reaches a sufficiently high level, fear is elicited and the recipient is motivated to engage in a secondary appraisal of susceptibility where the recipient evaluates the degree to which he/she feels vulnerable to the threat. Messages not presenting a sufficient amount of threat do not warrant further processing or behavioral response and are subsequently ignored. When perceived threat is sufficient to warrant additional processing, the EPPM posits the receiver engages in one of two parallel and mutually exclusive processes: fear control or danger control. Messages generating high-perceived threat and low-perceived efficacy lead to fear control (emotion-focused coping), whereas messages producing high-perceived threat and high-perceived efficacy (*both* self and response) generate danger control (problem-focused coping) (Witte, 1992, 1994, 2001).

When engaging in fear control (i.e., emotion-focused coping), the individual is motivated to reduce the affective dimensions of fear. Feeling fearful of a threat, but perceiving a lack of ability, or a lack of tools with which to mitigate that threat, individuals in fear control are likely to ignore the message and the threat (or deny

the threat even exists), derogate the source of the message, and/or engage in reactant behaviors (Witte, 1992, 1994, 2001; Witte & Allen, 2000).

On the other hand, according to the EPPM, the desirable state, referred to as danger control (i.e., problem-focused coping), is marked by message acceptance, and is characterized by message recipients feeling sufficient threat along with commensurate degrees of self-efficacy and response-efficacy. In danger control, perceived fear motivates the receiver to reduce the threat by discontinuing the harmful or risky behaviors, or by making the decision to engage in the recommended response (Burgoon, Alvaro, Grandpre, & Voulodakis, 2002; Miller, Lane, Deatrick, Young, & Potts, 2007; Witte, 1992, 1994, 2001).

The virtues and applicability of the EPPM are well grounded in the research literature (Crano, Gorenflo, & Shackelford, 1988; Gore & Bracken, 2005; McKay, Berkowitz, Blumberg, & Goldberg, 2004; Murray-Johnson et al., 2004; Roberto & Goodall, 2009; Shari, Kim, & Jon'a, 1998; Witte, et al., 1996; Wong & Cappella, 2009), much of which has used the Risk Behavior Diagnosis Scale (RDB;Witte, et al., 1996) to measure four distinct attitudinal dimensions derived from the EPPM, namely: perceived threat susceptibility, perceived threat severity, perceived response-efficacy, and perceived self-efficacy. The Risk Behavior Diagnosis (RBD) scale has demonstrated reasonable reliability in measuring and distinguishing between the informational needs of potential fear appeal recipients (Witte, et al., 1996).

The results of a recent fear appeal meta-analysis indicate three of the variables articulated by the EPPM (the exception being perceived self-efficacy, which was not assessed) show a positive, significant relationship with at least one measure of effective persuasion (either intention or behavior, as specified by categories created for the meta-analysis). There was however, no interaction found between threat and efficacy on persuasion (de Hoog, Stroebe, & de Wit, 2007). These results are consistent with previous EPPM meta-analyses (c.f. Witte & Allen, 2000) and seem to indicate response-efficacy may not be nearly as important as the EPPM posits. However, it should be noted that EPPM studies are often inconsistent in their utilization of the two types of efficacy, and thus only studies that tested response efficacy alone were included in the de Hoog et al. (2007) meta-analysis.

Witte and Allen (2000), in their meta-analysis, were able to find a weak but significant effect for efficacy on persuasive outcomes. Witte and Allen (2000) found similar results for each of the other EPPM variables. They argue the weak but significant effects could be the result of an additional variable moderating the effectiveness of fear appeals, making some campaigns more successful than others. Miller et al. (in press) suggest the weak effect is likely due to the way efficacy is measured, since the RBD combines both self- and response-efficacy into a single four-item scale (Witte, 2001; Witte et al., 1996).

When comparing both models, it is apparent significant conceptual overlap exists between VI and the EPPM; each theory addresses similar concepts, however, VI provides a more nuanced and distinct articulation of the attitudinal variables

moderating the attitude-behavior relationship. Furthermore, where the domain of the EEPM is constrained to fear appeals, VI is applicable to virtually all situations where attitudes and behavior are hypothesized to exist within a causal relationship. Moreover, threat, which the EPPM hypothesizes as a function of severity and susceptibility, is perhaps better understood from a VI perspective as a function of stake, salience (i.e., the consciously perceived relevance and attitudinal centrality), certainty (i.e., the perceived probability of consequences), and immediacy (i.e., the perceived time before relevant consequences are manifested). Conceivably, individuals could consider themselves to be susceptible to a threat, but uncertain of the likelihood of its occurrence or its consequences. However, if the consequences are certain, then susceptibility will be assured (Miller et al., in press). Although threat salience is mentioned extensively in EPPM research, it is neither measured nor operationalized by the RBD (Witte et al., 1996).

Following Witte and Allen's (2000) observation that additional moderator variables exist between the attitudinal and behavioral components, Miller et al. (in Press) combined elements from both VI and the EPPM, developed and validated a measurement tool for assessing the vestedness of hedonically relevant attitude objects, including topics that would typically be addressed by EPPM-based research. Fear appeal campaigns are directed towards positive behavioral change and occur almost exclusively in the health behavior domain, and thus are necessarily hedonically relevant. The strengths of the VI perspective lie in the model's ability to nuance the relationship between threat and efficacy and in the

addition of response efficacy to account for situations where people are confident in their own abilities but lack faith in the recommended response (Miller et al., in press).

Previous VI research has presented participants with various scenario narratives designed to manipulate the various dimensions of vestedness to test their effects on attitude-behavior consistency (c.f. Crano, 1983b; Crano & Prislin, 1995). Although this research effectively demonstrated the viability of the VI model, its application is limited to homogeneous groups and situations where vestedness is assumed through demographic or contextual factors. The primary dependent measures were developed and tested by Miller et al. (in press) and consist of a series of subscales containing various items measured on a 7-point Likert scale designed to assess the components of VI and the EPPM (see below). Data were originally collected and tested across three distinct populations using two separate disaster contexts (earthquakes and tornados). Scales were further tested in an additional context (catastrophic flooding; Adame & Miller, under review-b) across two populations and performed consistently. Based on these findings, the scales developed by Miller et al. (in press) are argued to be a more nuanced and robust measure of perceived vested interest than competing scales used to measure similar constructs (cf. Witte, et al., 1996).

Researchers have explored each of the attitudinal elements described in VI separately, as well as a number of other mechanisms moderating the attitude-behavior relationship, much of which has been characterized by low to moderate

effects sizes, and equivocal or even contradictory results (Glasman & Albarracan, 2006). As a unified construct, however, an expanded conception of vested interest provides a unique perspective by offering stake, salience, immediacy, certainty, self-efficacy and the added component of response-efficacy as key variables for predicting reliable attitude-behaviors consistency. When each variable is perceived to be present in high amounts, research (at least with regard to the first five components) has shown attitudes are more reliably predictive of behaviors (Crano et al., 1988; Crano, 1983a, 1997; Crano & Prislin, 1995; Lehman & Crano, 2002; Siegel et al., 2008; Sivacek & Crano, 1982). Moreover, social influence research has established that experimental treatments in the form of written messages can affect perceived levels of each of these elements of VI (Crano et al., 1988; Crano, 1983a, 1997; Crano & Prislin, 1995; Miller et al., in press).

The present research expands upon previous research paradigms by using a television public service announcement (PSA) to deliver the experimental treatments while varying the levels of each of the key dimensions of VI within the various versions of soundtrack narration. The original PSA, produced as part of the *Red Dirt Ready* (RDR) campaign developed by the Oklahoma State government as part of its campaign to motivate disaster preparedness, was used as the basic video template for delivering the message manipulations.

The Red Dirt Ready Campaign

The bombing of the Murrah building in Oklahoma City motivated state and municipal agencies in Oklahoma to begin preparing for future disasters, both

natural and man-made. Shortly after the terror attacks of September 11, 2001, the Oklahoma state government consolidated its preparedness efforts creating the Oklahoma Office of Homeland Security (OKOHS, 2011a) and charging the agency with organizing and executing new preparedness programs throughout the state (OKOHS, 2011b).

One of the more recent programs initiated by OKOHS focuses on individual level preparedness with the goal of encouraging individual citizens to procure an emergency kit, formulate a plan of action, and become informed about a range of preparedness issues. One of the primary elements of the campaign is the 60-second RDR television PSA, which, in conjunction with the RDR website, functions as a key source of disaster preparedness information in Oklahoma. The PSA campaign is designed to raise awareness and direct viewers to the website where they can gain access to more detailed information concerning disaster preparedness (OKOHS, 2011b).

The objectives of the campaign, as articulated by OKOHS, are laudable, especially when compared to the inadequacy of many other current, nation-wide preparedness efforts (Redlener, et al., 2006). However, the extant research on public interest campaigns would suggest that because the RDR campaign was developed entirely without the benefit of formative research, or with any programs in place to conduct evaluation research (O'Hair, 2008). Thus, the probability of the RDR campaign – or any campaign following a similar atheoretical methodology –

successfully achieving many of its stated goals is likely to be low (Pfau & Parrott, 1993; Rice & Foote, 2001; Salmon & Murray-Johnson, 2001; Valente, 2001).

In an effort to provide a theoretically grounded alternative to the relatively naïve design of the current PSA message, this study uses the visual component of the RDR video but replaces the original script with theoretically designed message variations in treatment scripts specifically altered to emphasize the key aspects of VI.

Disaster events, whether natural or man-made, can be critically examined in light of the variables articulated by the VI model's components of stake, salience, immediacy, certainty, and self-efficacy, along with the EPPMs component of response-efficacy, as they each relate to audience perceptions and attitudes concerning crisis preparedness. For the current study, stake was inferred through participants' zip codes, since the dire consequences of disasters typically occurring in the region can be considered localized events. Likewise, salience levels may also be assumed to be high—at least temporarily—in virtue of the PSA itself. While it is being viewed, it should function to make the topic of disasters (e.g., tornadoes, ice storms, floods, terrorism, etc.) salient. In other words, the very presentation of the campaign PSA creates de facto salience by bringing the topic of disasters prominently into message consumers' focal awareness. To test the efficacy of the original message as well as alternative, theoretically developed message variations, a series of new scripts were developed for use in comparison with the original script. Each script contains context-relevant manipulations targeting the

immediacy, certainty, and self-efficacy components of VI and response-efficacy (from the Witte's (1992, 1994) EPPM), included here as an extension of the existing VI model.

The following hypotheses address each VI dimension and its influence on the dependent variables, beginning with immediacy, which concerns the temporal attitudinal component of vestedness, indicating that attitude objects, whose consequences are perceived as occurring sooner rather than later, should motivate greater levels of attitude consistent behavior. Vested interest further posits that, although the consequences associated with an attitude relevant behavior may be perceived to be immediate, the certainty one will suffer such consequences may be perceived as ranging between high and low levels of probability. In a disaster context, for example, one may be aware tornado season is looming within the immediate future, or even that a tornado has already touched down in the general vicinity, but nevertheless be wholly uncertain as to the odds that tornado will actually strike her/his specific location; therefore, high certainty should also motivate greater levels of attitude consistent behavior. Furthermore, when granting the likelihood that the consequences of a particular attitude-object are both immediately at hand and relatively certain, this alone may still not guarantee attitude-relevant action. Message receivers must also believe themselves personally capable of executing such a response in an effective manner; otherwise the likelihood of the message receiver performing the recommended action is diminished. Moreover, individuals may believe a recommended response, such as

assembling an emergency kit or formulating an evacuation strategy, will do little or nothing to aid them in responding to an actual disaster. Without the perception that a particular response will be efficacious, individuals are unlikely to respond.

Finally, past research shows that immediacy, certainty self-efficacy and response-efficacy interact in ways that produce contradictory and/or equivocal results when tested in combination and/or with other potential moderators of persuasion (Glasman & Albarracan, 2006). While vested interest specifies a finite set of moderators that can help to maximize persuasive outcomes, the exploratory nature of this study raises questions as to how the manipulated variables may interact.

Regarding the most basic and essential outcomes associated with behavioral intentions concerning disaster preparedness, the following hypotheses and research question are offered:

H1: Relative to the low immediacy condition, participants exposed to a high immediacy experimental condition will demonstrate optimal persuasive outcomes as indicated by more positive behavioral intentions including a) intention to build an emergency kit, b) intention to make a disaster plan, c) intention to visit the RDR website and, d) willingness to volunteer to aid emergency responders in the event of a disaster.

H2: Relative to the low certainty condition, participants exposed to a high certainty experimental condition will demonstrate optimal persuasive outcomes as indicated by more positive behavioral intentions including a)

intention to build an emergency kit, b) intention to make a disaster plan, c) intention to visit the RDR website and, d) willingness to volunteer to aid emergency responders in the event of a disaster.

H3: Relative to the low self-efficacy condition, participants exposed to a high self-efficacy experimental condition will demonstrate optimal persuasive outcomes as indicated by more positive behavioral intentions including a) intention to build an emergency kit, b) intention to make a disaster plan, c) intention to visit the RDR website and, d) willingness to volunteer to aid emergency responders in the event of a disaster.

H4: Relative to the low response-efficacy condition, participants exposed to a high response-efficacy experimental condition will demonstrate optimal persuasive outcomes as indicated by more positive behavioral intentions including a) intention to build an emergency kit, b) intention to make a disaster plan, c) intention to visit the RDR website and, d) willingness to volunteer to aid emergency responders in the event of a disaster.

RQ1: In what ways do immediacy, certainty, self-efficacy, and response efficacy interact to influence persuasive outcomes as indicated by behavioral intentions including a) intention to build an emergency kit, b) intention to make a disaster plan, c) intention to visit the RDR website and, d) willingness to volunteer to aid emergency responders in the event of a disaster?

Fundamentally, VI deals with hedonic relevance, or, that is, the perception of a particular attitude-object's potential capacity to confer pleasure or cause pain. We can reasonably assume message receivers are aware of the capacity for large-scale disasters to cause negative consequences. Consequently, messages that increase the receivers awareness of the immediacy of a disaster and the certainty of its consequences, while increasing their self-efficacy, and informing them of an efficacious response, should provide a method for attenuating the potential negative consequences, and thus should be perceived as hedonically relevant; thus increasing one's positive attitudes toward the attitude-object—in this case, disaster preparedness. Therefore, the following hypotheses and research question are offered:

H5: Relative to the low immediacy condition, participants exposed to a high immediacy experimental condition will demonstrate optimal persuasive outcomes as indicated by more positive attitudes toward preparedness.

H6: Relative to the low certainty condition, participants exposed to a high certainty experimental condition will demonstrate optimal persuasive outcomes as indicated by more positive attitudes toward preparedness.

H7: Relative to the low self-efficacy condition, participants exposed to a high self-efficacy experimental condition will demonstrate optimal persuasive outcomes as indicated by more positive attitudes toward preparedness.

H8: Relative to the low response-efficacy condition, participants exposed to a high response-efficacy experimental condition will demonstrate optimal

persuasive outcomes as indicated by more positive attitudes toward preparedness.

RQ2: In what ways do immediacy, certainty, self-efficacy, and response efficacy interact to influence persuasive outcomes as indicated by attitudes toward preparedness?

Early attitude-behavior research described the relationship as a linear, arguing that more deeply held attitudes were simply more predictive of related behaviors (Allport, 1935; Roskos-Ewoldsen, Arpan-Ralstin, & St. Pierre, 2002). More recent research has found, however, that, consonant with the assumptions of VI theory, this relationship is mediated by a series of variables. Dillard (1993) argues that attitude accessibility, or salience, is one of the most important of these variables. The basic premise is that, an attitude can have an impact on behavior only if the attitude is easily accessible from memory by the receiver (Fazio & Roskos-Ewoldsen, 1994; Roskos-Ewoldsen, 1997). Here, salience is assumed because, as discussed, the presence of a preparedness campaign should increase the level of perceived salience. According to Dillard (1993) then, changing the accessibility of an attitude can be as important as changing the attitude itself. One of the ways to increase salience, or attitude accessibility, is through a message that promotes positive affect (Dillard, Kinney, & Cruz, 1996). Thus, messages that are perceived to be hedonically relevant, because they increase perceptions of vestedness—by communicating high certainty, immediacy, self-efficacy and response-efficacy—should motivate more positive attitudes toward the message. Thus:

H9: Relative to the low immediacy condition, participants exposed to a high immediacy experimental condition will demonstrate more positive attitudes toward the message as indicated by greater a) perceived fairness of the message, b) message attention and, c) perceived importance of the message.

H10: Relative to the low certainty condition, participants exposed to a high certainty experimental condition will demonstrate more positive attitudes toward the message as indicated by greater a) perceived fairness of the message, b) message attention, and c) perceived importance of the message.

H11: Relative to the low self-efficacy condition, participants exposed to a high self-efficacy experimental condition will demonstrate more positive attitudes toward the message as indicated by greater a) perceived fairness of the message, b) message attention, and c) perceived importance of the message.

H12: Relative to the low response-efficacy condition, participants exposed to a high response-efficacy experimental condition will demonstrate more positive attitudes toward the message as indicated by greater a) perceived fairness of the message, b) message attention, and c) perceived importance of the message.

RQ3: In what ways do immediacy, certainty, self-efficacy, and response efficacy interact to influence persuasive outcomes as indicated by attitudes toward the message including a) perceived fairness of the message, b) message attention, and c) perceived importance?

Credibility assessment has been a concern for scholars since the days when Aristotle first described the notion of ethos (McCroskey, 1966). As a construct of interest for communication scholars, the onset of World War II inspired the systematic study of persuasion and credibility in an effort to build support for the war at home and understand the effectiveness of the Axis propaganda machine (Hovland, Janis, & Kelly, 1953; E. M. Rogers, 1994). Source credibility is a receiver-based construct, typically conceived of as perceptions of authority, expertise, trustworthiness, character competence, caring, and similarity, among other similar constructs (Kumkale & Albarracin, 2004; McCroskey, 1966; McCroskey & Teven, 1999; Simons, Berkowitz, & Moyer, 1970; Teven & McCroskey, 1997).

McCroskey (1966) offered some of the first scales to measure perceptions of source credibility and although his scales are labeled as "authority" and "character", McCroskey notes that these dimensions are synonymous with trustworthiness and expertise. Further, while the McCroskey own work has offered the "goodwill" as an additional dimension of credibility, the construct is based on interpersonal judgments of credibility where respondents would likely have a more rich set of observations from which to draw conclusions about source credibility (McCroskey & Teven, 1999; Teven & McCroskey, 1997).

In addition to its role in interpersonal perceptions, credibility has also been studied from an organizational communication perspective (Metzger, Flanagin, Eyal, Lemus, & Mccann, 2003). Gass and Seiter, (1999) argue that organizations

are subject to judgments of credibility similar to those of individuals, which can have a direct impact on stakeholder's attitudes and behaviors. Institutional credibility then, has been defined as a function of stakeholders' perception of the organization's trustworthiness and expertise (Goldsmith, Lafferty, & Newell, 2000). Although several other dimensions of institutional credibility have been offered, including attractiveness, prestige and familiarity, among others, research has demonstrated that trustworthiness and expertise continue to prevail as principal factors (Bobinski, Cox, & Cox, 1996; Haley, 1996; Metzger, et al., 2003).

Based on research concerning perceptions of institutional credibility, messages that are perceived to be hedonically relevant because they increase perceptions of vestedness – by communicating high certainty, immediacy, self-efficacy and response-efficacy – should also motivate more positive attitudes toward the message source as indicated by increased perceptions of credibility. Accordingly, the following hypotheses and research question concerning perceptions of credibility are offered:

H13: Relative to the low immediacy condition, participants exposed to a high immediacy experimental condition will demonstrate optimal persuasive outcomes as indicated by more positive perceived source credibility including a) authoritativeness and b) character.

H14: Relative to the low certainty condition, participants exposed to a high certainty experimental condition will demonstrate optimal persuasive

outcomes as indicated by more positive perceived source credibility including a) authoritativeness and b) character.

H15: Relative to the low self-efficacy condition, participants exposed to a high self-efficacy experimental condition will demonstrate optimal persuasive outcomes as indicated by more positive perceived source credibility including a) authoritativeness and b) character.

H16: Relative to the low response-efficacy condition, participants exposed to a high response -efficacy experimental condition will demonstrate optimal persuasive outcomes as indicated by more positive perceived source credibility including a) authoritativeness and b) character.

RQ4: In what ways do the manipulated variables interact to influence persuasive outcomes as indicated by perceived source credibility including a) authoritativeness and b) character?

Separately, each of these variables has been shown to moderate the attitude-behavior relationship, with varying results (de Hoog, et al., 2007; Glasman & Albarracan, 2006; Witte & Allen, 2000). According to VI, however, there should be an additive effect; when all of these variables are perceived as high, attitudes should most reliably predict attitude-relevant behavior; thus:

H17: Relative to the control message and low-vested conditions, there is an additive effect for the components of vested interest, such that a high immediacy, high certainty, high response-efficacy, high self-efficacy experimental message will demonstrate optimal persuasive outcomes as

indicated by increased scores on the perceptions of vestedness scales including perceptions of a) immediacy, b) certainty, c) self-efficacy, d) response-efficacy.

H18: Relative to the control message and low-vested conditions, there is an additive effect for the components of vested interest, such that a high immediacy, high certainty, high response-efficacy, high self-efficacy experimental message will demonstrate optimal persuasive outcomes as indicated by more positive behavioral intentions including a) intention to build an emergency kit, b) intention to make a disaster plan, c) intention to visit the RDR website and, d) the likelihood that they would volunteer to aid emergency responders in the event of a disaster.

H19: Relative to the control message and low-vested conditions, there is an additive effect for the components of vested interest, such that a high immediacy, high certainty, high response-efficacy, high self-efficacy experimental message will demonstrate optimal persuasive outcomes as indicated by more positive attitudes toward preparedness.

H20: Relative to the control message and low-vested conditions, there is an additive effect for the components of vested interest, such that a high immediacy, high certainty, high response-efficacy, high self-efficacy experimental message will demonstrate the most positive attitudes toward the message as indicated by a) perceived fairness of the message, b) message attention and, c) perceived importance of the message.

H21: Relative to the control message and low-vested conditions, there is an additive effect for the components of vested interest, such that a high immediacy, high certainty, high response-efficacy, high self-efficacy experimental message will demonstrate optimal persuasive outcomes as indicated by more positive perceived source credibility including a) authoritativeness and b) character.

Method

Materials

Messages were developed using an iterative process such that high vested manipulations were developed first. Each independent variable was defined in terms of both its common and theoretical definitions. The definitions for each IV were compared and contrasted and a set of equivalent synonyms was developed. From this list, a message strategy was articulated, where the precise goals for the manipulation were identified. Finally, using these three components, several drafts of high vested message manipulations were written, discussed and rewritten.

Following this process, the same message components for each variable, immediacy, certainty, self-efficacy and response-efficacy manipulated for low vestedness by inserting a variety of antonyms and comparing with its high-vested counterpart. Each manipulation was then placed into context in the message skeleton and read aloud to assess readability, message flow and face validity. For each independent variable, this process was repeated numerous times over the course of several weeks, until a satisfactory message template was built. The

completed message template is comprised of the first line and the last two lines from the original RDR message – which remain consistent throughout all of the treatments – and each of the high vested and low vested manipulations, marked in the text and identified by a message key. To assemble the set of factorial message treatments, the template was copied and the relevant message components, as determined by the specific condition were selected.

A total of 16 messages were designed to manipulate each of four expanded VI dimensions — immediacy, certainty, self-efficacy and response efficacy. Salience, and stake were assumed to be high in virtue of the campaign topic itself, given that simply presenting the video message manifests salience, and stake is emphasized by several dramatic visual references to life and death consequences arising within Oklahoma. A message template was developed incorporating each of the four independent variables in either high or low variations, resulting in a 2 (immediacy: high/low) x 2 (certainty: high/low) x 2 (response-efficacy: high/low) x 2 (self-efficacy: high/low) + 1 (control) = 17 factorial message conditions. The control condition used the original RDR version of the PSA developed by OKOHS, and aside from the 16 manipulations, the voice and style of narration remained consistent across the control and all conditions.

Scripts for each condition, including the control, were recorded by a professional radio announcer using studio recording equipment, and then built into the PSA using video editing software. All sounds and audio tracks from the original PSA were deleted and replaced by new music and sound effects, which were held

constant across all 17 conditions; thus, the same professional quality was maintained for each condition, including the control condition, giving the appearance of having been produced by OKOHS. The original message produced by OKOHS was narrated by actor with a distinct and recognizable voice, thus, to avoid a potential confound, the control condition was re-produced to match the characteristics of the manipulated commercials, using the same music, sound effects and voice actor of the manipulated commercials. Following are detailed descriptions of each manipulation.

***Immediacy*.** High immediacy was created by suggesting more immediate temporal proximity, such as, "in the next few months," and, "in the near future," whereas, correspondingly, low immediacy mentioned, "in the next few years," and, "sometime far in the future."

***Certainty*.** High certainty was manipulated through the use of concrete language such as, "will affect all" and, "will affect you." Whereas, low certainty was manipulated through the use of more ambiguous language such as (disasters) "may affect some" and, "might affect you."

***Self-efficacy*.** High self-efficacy within the treatment scripts suggested "These items are inexpensive and readily available, so you can easily assemble a preparedness kit." Conversely, low self-efficacy language used, "These items can be expensive and hard to find so assembling a kit may be difficult."

***Response-efficacy*.** High response-efficacy was suggested by phrasing such as "Research has shown" and "is the most effective way." Conversely, low

response-efficacy language used suggested by, “some people believe” and “may be one way.”

Messages were thus systematically varied to produce the 16 factorial conditions, while leaving the overall general content of the PSAs consistent across conditions. See Appendix A for a complete message template and condition table.

Power Analysis and Pilot Study

An a priori power analysis was conducted using the computer program G*Power (Erdfelder, Faul, & Buchner, 1996). G*Power is a free computer program which assess the expected power and other experimental parameters, based on data entered by the user. A review of the relevant literature indicated a reasonable expected effect size of .01. With the alpha level set at .05, G*Power recommended a sample size of $N = 773$ to detect a significant treatment effect. Based on this information, a pilot study was conducted using a truncated experimental design.

The pilot study was conducted using a 2 (high vs. low vested) X 2 (audio only vs. visual and audio) design to examine both the effectiveness of the high and low vested messages and the potential effect of the unaltered visual track. Since the messages were re-scripted but the visual aspects of the commercial were unchanged, there existed the possibility that the visual aspects of the commercial could potentially overpower the verbal elements. With the exception of the experimental conditions described above, the pilot study procedure and the examined dependent variables were identical to the procedure described herein.

A total of $N = 197$ participants were sampled from Communication classes during the summer session at the University of Oklahoma. Data were cleaned according to the procedure described above, using survey duration for a final sample size of $N = 153$. As before, participants whose duration indicated that they moved too quickly through the survey to have processed the messages thoroughly were eliminated. Likewise, participants whose duration was longer than 60 minutes were eliminated.

Based on the results of the pilot study, both the design of the message and the experiment were modified to increase the power of the manipulation. First, the messages were re-written to increase both the strength of the treatment and the contrast between the high and low treatments. Second, the design was changed to increase the dosage of the treatment from once to twice. A detailed explanation of the final experimental procedure follows.

Dependent Measures

Vested interest. Scales for measuring perceptions of each element of vestedness were developed and tested in previous research (Miller, et al., in press). The following scales are used as criterion measures in this research: perceived susceptibility (5 items; $\alpha = .86$) (Witte, 2001; Witte et al., 1996); perceived immediacy (6 items; $\alpha = .78$); perceived certainty (6 items; $\alpha = .86$); perceived self-efficacy (6 item; $\alpha = .86$); perceived response-efficacy (7 items; $\alpha = .80$); and perceived salience (8 items; $\alpha = .88$) (Miller et al., in press; Adame & Miller, under review).

Attitude toward the topic. Scales were adapted from Dillard, Kinney and Cruz's (1996) attitudinal scales for the preparedness context. Preparedness-related statements were pilot tested on a separate population and refined to a ten-item scale, measured on a 7-point continuum anchored by "Strongly Agree" and "Strongly Disagree" (ten items; $\alpha = .87$). See Appendix B for scale items.

Behavioral intention/preparedness. Preparedness behaviors and behavioral intention were measured using an instrument adapted from Dillard and Shen (2005), wherein respondents were asked to report on a 0–100 scale (with 0 = definitely will not and 100 = definitely will) the likelihood they would assemble an emergency kit in the next three months, the likelihood that they would volunteer to aid emergency responders in the event of a disaster and the likelihood of visiting the RDR website.

Attitude toward the message. Perceptions of the message were measured using scales adapted from Dillard, Kinney and Cruz (1996). Three dimensions, including message fairness (8 items; $\alpha = .90$), message attention, (4 items; $\alpha = .94$) and message importance (4 items; $\alpha = .93$) measured on a 7-point, Strongly Agree/Strongly Disagree continuum.

Attitudes toward the source. Perceptions of source credibility were measured using scales adapted from McCroskey (1966), comprised of 12 items scored on a 7-point continuum anchored by "Strongly Agree" and "Strongly Disagree." Past research has demonstrated these scales measure two distinct

dimensions of credibility, authority (6 items; $\alpha = .86$) and character (6 items; $\alpha = .87$).

Participants

Participants ($N = 861$) were students enrolled at the University of Oklahoma. Participants were recruited in two separate data collection sessions. A total of N = 879 participants were recruited using the University of Oklahoma Department of Communication undergraduate research pool. Participants were offered course credit for their participation. Another N = 638 participants were recruited using The University of Oklahoma mass email system. A university-approved IRB email was distributed to 21,155 students, for an effective response rate of 3.01%. The email described the study, the procedure and the compensation process. Participants were allowed to select their method of compensation, either course credit for their communication course, or to be entered into a raffle to win one of 20, $25 gift cards of their choice. Funding for the raffle was generously provided through a University of Oklahoma Department of Communication graduate student dissertation grant. A grand total of $N = 1517$ participants were collected. Data collection was completed when the total number of participants exceeded the *N* recommended by a power analysis conducted prior to the data collection.

To assure that only the highest quality data was included in the analysis, responses were systematically filtered. First, surveys that were less than 50% complete were deleted from the dataset. Then, the duration of time each participant

spent interacting with the materials was calculated from variables included by the survey software. Participants whose time indicated that they could not have watched the videos and accurately responded to the scales were excluded first (Duration < 10 min.). The mean duration for remaining participants was then calculated (M = 20.11; SD = 7.92) and it was determined that data should be further refined. With five total minutes of video and post measures, participants simply could not move through the survey quicker than 12 minutes while providing genuine responses and after 60 minutes; the treatment effect would have diminished, thus invalidating responses to the post measures. To provide another standard by which to measure the quality of the data, 10 individuals were asked to take the survey and instructed to process the messages and carefully read and answer each question. The mean duration (M = 20.36; SD = 2.76) for these participants was then calculated and used referent to further evaluate the data. Using this method, an additional 218 participants whose duration indicates that they were below the referent mean were removed from the analysis. Data one standard deviation below the mean and 4.83 standard deviations above the mean were retained for analysis.

Using this method, N = 656, or 43.24% of the data collected was excluded from the analysis for a final sample with a mean duration of 22.03 (SD =7.76). The final sample was 64% female, and ranged in age from 18 to 55 (M = 20.7, SD = 3.87). The ethnic profile was consistent with the typical campus demographic

profile: Native American (4.0%); Black (4.3%); White (79%); Asian (6%); Hispanic (4.4%); other (2%).

Procedure

The experiment was administered via a web-based survey. Participants were directed by hyperlink to the Qualtrics website, where they were informed of the nature of the study and consented to participate. Upon consenting, the software randomly assigned participants to one of the 17 conditions.

Each condition was assembled to simulate a television viewing experience where participants viewed a commercial produced by the Oklahoma tourism commission, followed by the experimental PSA. Next they viewed a different Travel OK commercial, and finally, a repeated exposure to the experimental PSA. Because the manipulations were subtle, treatments were presented twice in order to enhance their effectiveness, and to simulate conventional television viewing dynamics, thus the order of presentation was: Commercial-PSA-Commercial-PSA.

Immediately following the four segments, the survey program presented participants with the dependent measures. To attenuate any potential ordering effects in the post-test measures, question presentation was randomized both within and between each distinct scale. Thus, each participant was randomly assigned to one of the 17 experimental conditions and viewed a uniquely ordered version of the survey. All participants were presented with the same set of post measures. Once finished, participants were thanked for their time and, and directed to a final webpage, generated by the survey software.

Results

A first step in the analysis was to create variables to identify participant responses based on the experimental condition. Responses were first identified by their unique experimental condition (1-17), which was used to create dummy variables for each condition: immediacy – high/low; certainty – high/low; self-efficacy – high/low; and response-efficacy – high/low, these variables were used in the analyses for H1-H16. Analyses for H17-H20 were conducted using the highest vested (high-high-high-high) group, the lowest vested (low-low-low-low) group, and the RDR control message. These messages were arranged and treated as singular independent variable with three levels. As appropriate for this application of VI theory, each hypothesis is directional, thus, analyses for all of the hypotheses are one-tailed. Levine and Banas (2002) argue the use of one-tailed *F*-tests in communication research is justifiable in certain instances, especially in applied research (p. 141). Because the interactions are examined via research questions, there was no theoretical justification for directional hypotheses, therefore, values reported for significant interactions also follow the recommendations of Levine and Banas (2002) and are therefore, two-tailed.

Hypotheses one through 16 posit main effects for each treatment condition such that individuals exposed to these conditions report optimal persuasive effects as indicated by more positive attitudes toward preparedness, behavioral intentions, perceived reliability of the message, message attention, perceived importance and perceived source credibility. Research questions one through five address the

effects of potential interactions between the individual IV's. To minimize Type I error, analyses for main effects and interactions were conducted using factorial MANOVA (expect where appropriate and noted).

Covariate analysis. The limited research in the area of disaster preparedness indicates an individual's age and income can influence the decision to prepare for disasters (Redlener, et al., 2006). Initial data analyses included three variables, age, income, and survey duration (i.e., presumably indicating time of engagement with study materials) entered as covariates to assess their impact in the present study. Because none of these variables were significant covariates in any of the tests, they were discarded from further analysis. However, because survey duration was judged to be of interest based on its potential to influence the results, and because it was influential in determining the final sample size, it was converted into a five-level categorical variable, and tested with each of the dependent variables. Since results were non-significant it was excluded as a factor in all further analyses.

Manipulation check. To analyze the effectiveness of the manipulations, univariate tests for each factorial condition on the corresponding VI scale (i.e., immediacy, certainty, self-efficacy and response-efficacy) were conducted. Results indicate significant multivariate effects for self-efficacy, Wilks' $\lambda = .987$, $F(4, 787) = 2.26$, $p = .017$, $\eta^2 = .01$, and for response-efficacy, Wilks' $\lambda = .984$, $F(4, 787) = 3.26$, $p = .005$, $\eta^2 = .02$. Multivariate effects for immediacy, Wilks' $\lambda = .994$, $F(4, 787) = 1.23$, $p = .27$, $\eta^2 = .01$, and certainty, Wilks' $\lambda = .995$, $F(4, 787) = .945$, $p =$

.44, η^2 = .01 were non significant (note that all effect sizes were hand calculated for η^2).

Examination of the univariate effects reveals a significant effect for self-efficacy on perceptions of self-efficacy, $F(1, 806) = 6.50$, $p = .005$, $\eta^2 = .01$, indicating participants in the high self-efficacy condition ($M = 4.89$, $SE = .06$) perceived higher amounts of self-efficacy than participants in the low condition ($M = 4.66$, $SE = .063$) (see Figure 1). A significant univariate effect for response-efficacy on perceptions of self-efficacy was also found, $F(1, 806) = 10.82$, $p = .001$, $\eta^2 = .01$, indicating participants in the high response-efficacy condition also perceived higher amounts of self-efficacy ($M = 4.92$, $SE = .062$) than participants in the low response-efficacy condition ($M = 4.63$, $SE = .062$) (see Figure 2).

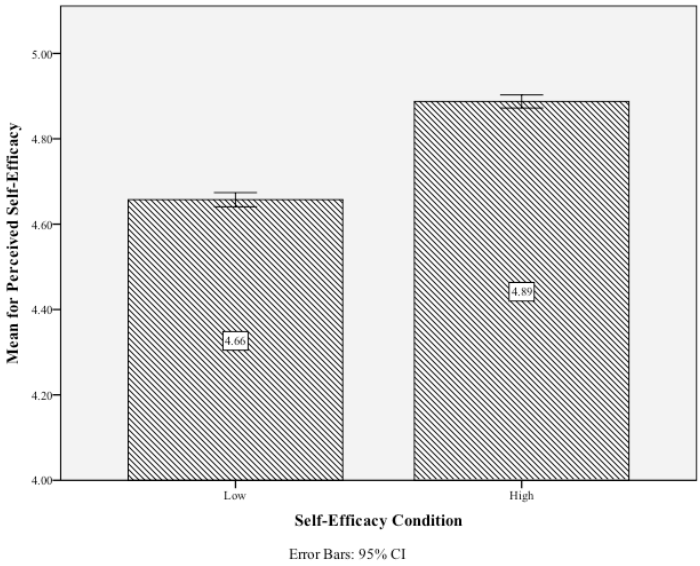


Figure 1. Main Effect for Self-Efficacy on Perceived Self-Efficacy.

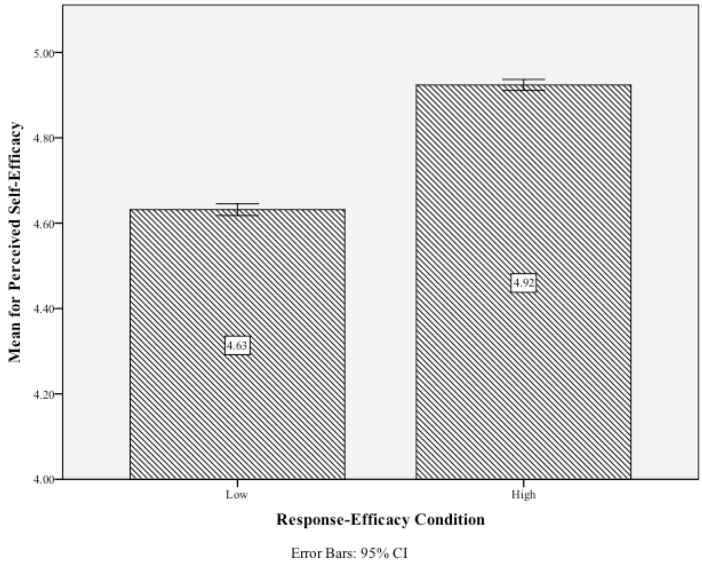


Figure 2. Main Effect for Response-Efficacy on Perceived Self-Efficacy.

Finally, there is a significant univariate interaction for immediacy x certainty on perceptions of certainty, $F(1, 806) = 4.47$, $p = .035$, $\eta^2 = .02$, where participants in the low immediacy x high certainty condition report the highest levels of perceived certainty ($M = 4.40$, $SE = .076$) and those in the low immediacy x low certainty condition report the lowest level of perceived certainty ($M = 4.13$, $SE = .075$) (see Figure 3).

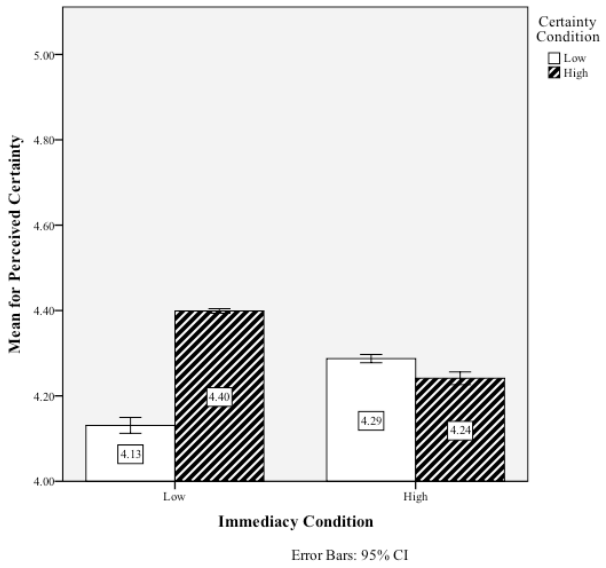


Figure 3. Interaction Effect for Immediacy and Certainty on Perceived Certainty.

Behavioral intentions: H1 – H4 and RQ1. Hypotheses one through four posit high-vested experimental treatments for immediacy, certainty, self-efficacy and response-efficacy, respectively, yield more positive persuasive outcomes as indicated by higher scores on measures of behavioral intentions to prepare for disasters including the intention to build an a) emergency kit, b) intention to make a disaster plan, c) intention to visit the RDR website and, d) willingness to volunteer in the event of a disaster. Whereas, RQ1 addresses potential interaction effects of the message treatments on these same measures of behavioral intention. Results of a factorial MANOVA failed to find significance for immediacy (H1), Wilks' λ = .995, $F(4, 730) = .952$, $p = .44$, $\eta^2 = .01$, certainty (H2), Wilks' $\lambda = .998$, $F(4, 730) = .296$, $p = .88$, $\eta^2 = .00$, self-efficacy (H3), Wilks' $\lambda = .994$, $F(4, 730) = 1.190$, $p = .31$, $\eta^2 = .01$, or response-efficacy (H4), Wilks' $\lambda = .993$, $F(4, 730) = 1.35$, $p =$

.24, η^2 = .01, indicating a lack of support for H1-H4. See Table 1 for means and standard errors.

Table 1. Means for Attitudes Behavioral Intentions

		High *M (SE)*	Low *M (SE)*
Immediacy	BI Kit	47.91 (1.37)	47.46 (1.39)
	BI Plan	61.88 (1.42)	59.44 (1.42)
	BI Web	37.35 (1.48)	34.50 (1.50)
	BI Volunteer	68.96 (1.48)	67.20 (1.50)
Certainty	BI Kit	48.18 (1.38)	47.20 (1.38)
	BI Plan	61.23 (1.43)	60.01 (1.43)
	BI Web	36.44 (1.50)	35.42 (1.50)
	BI Volunteer	67.18 (1.50)	67.00 (1.50)
Self-Efficacy	BI Kit	49.13 (1.40)	46.23 (1.40)
	BI Plan	61.54 (1.42)	59.78 (1.44)
	BI Web	35.53 (1.50)	36.23 (1.42)
	BI Volunteer	69.21 (1.50)	66.96 (1.50)
Response-Efficacy	BI Kit	49.31 (1.40)	46.10 (1.36)
	BI Plan	61.83 (1.50)	59.50 (1.41)
	BI Web	35.94 (1.51)	35.92 (1.48)
	BI Volunteer	69.73 (1.51)	66.43 (1.47)

In response to RQ1, the multivariate results indicate a significant interaction for immediacy x response-efficacy, Wilks' λ = .982, $F(4, 730) = 3.36$, $p = .01$, η^2 = .02. Additionally, interactions for immediacy x self-efficacy, Wilks' λ = .989, $F(4, 730) = 2.11$, $p = .077$, η^2 = .01, and certainty x response-efficacy, Wilks' λ = .988, $F(4, 730) = 2.18$, $p = .070$, η^2 = .01, approach significance. Examination of the

univariate effects reveals a significant interaction for immediacy x response-efficacy on intention to volunteer in the event of a disaster, $F(1, 749) = 5.05$, $p = .025$, $\eta^2 = .01$, where participants in the low immediacy, high response-efficacy condition report the highest intention to volunteer ($M = 71.11$, $SE = 2.17$), and participants in the low immediacy, low response-efficacy report the lowest intention to volunteer ($M = 63.06$, $SE = 2.08$) (see Figure 4).

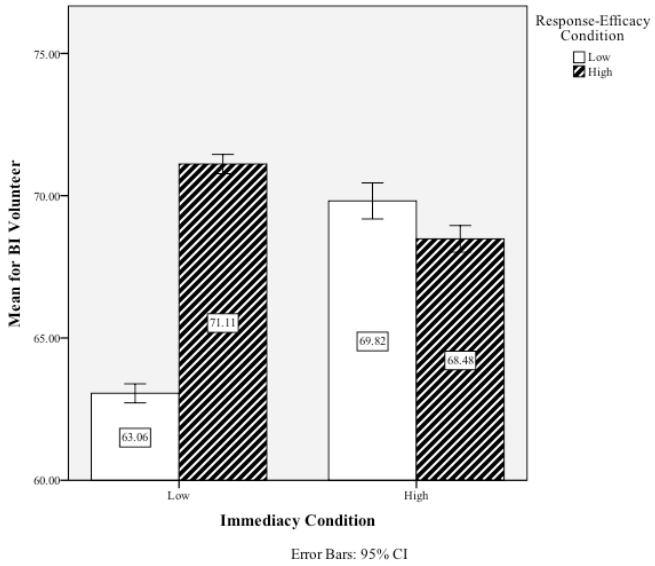


Figure 4. Interaction Effect for Immediacy and Response-Efficacy on Intention to Volunteer in the Event of A Disaster.

The immediacy x response-efficacy interaction also demonstrated an effect approaching significance, on intention to visit the RDR website, $F(1, 749) = 3.05$, $p = .08$, $\eta^2 = .00$, indicating participants in the high immediacy, low response-efficacy condition report the highest intention to visit the RDR website ($M = 39.09$, $SE = 2.09$) and participants in the low immediacy, low response-efficacy condition report the lowest intention ($M = 32.65$, $SE = 2.09$) (see Figure 5).

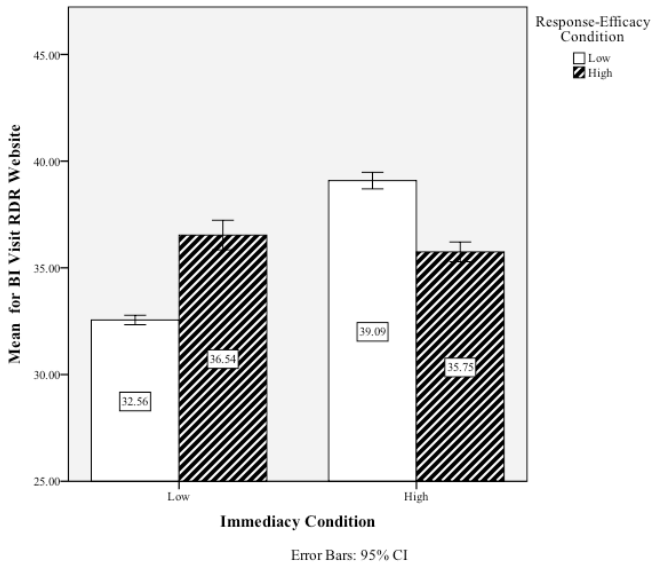


Figure 5. Interaction Effect for Immediacy and Response-Efficacy on Intention to Visit the RDR Website.

There was also a significant interaction effect for immediacy x self-efficacy on intention to make a disaster plan, $F(1, 749) = 4.48$, $p = .035$, $\eta^2 = .01$, indicating participants in the high immediacy, low self-efficacy condition report the highest intention to make a disaster plan ($M = 63.12$, $SE = 2.05$), while participants in the low immediacy x low self-efficacy condition report the lowest intention to make a disaster plan ($M = 56.39$, $SE = 2.02$) (see Figure 6).

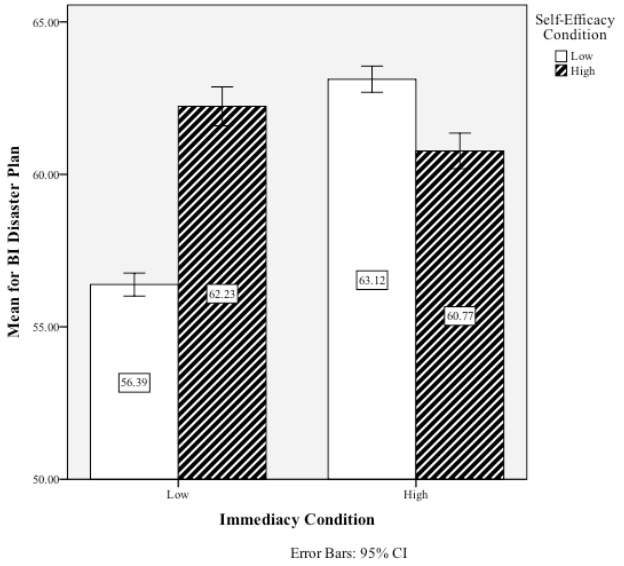


Figure 6. Interaction Effect for Immediacy and Self-Efficacy Condition on Intention to Make a Disaster Plan.

Finally, there was a significant three way interaction for immediacy x certainty x response-efficacy on intention to make a disaster plan, $F(1, 749) = 4.41$, $p = .036$, $\eta^2 = .01$ indicating participants in the high immediacy, high certainty, high response-efficacy report the highest intention to make a disaster plan ($M = 67.17$, $SE = 2.83$) while participants in the high immediacy, high certainty, low response-efficacy report the lowest intention to make a disaster plan ($M = 58.83$, $SE = 2.78$) (see Figure 7). No other univariate interactions indicated statistical significance.

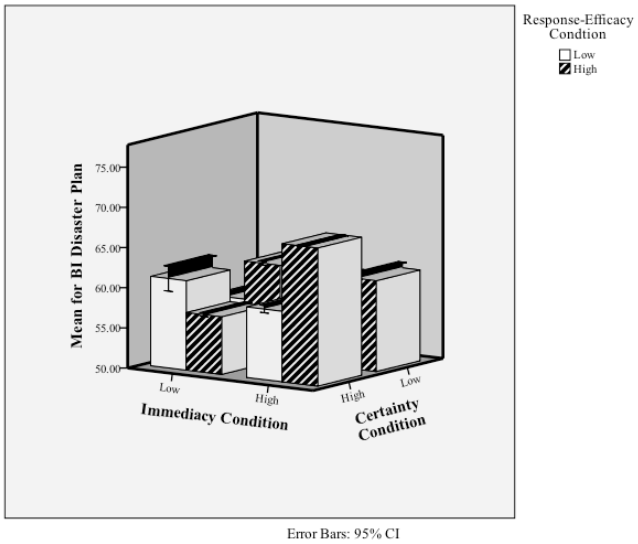


Figure 7. Three-way Interaction for Immediacy, Certainty and Response-Efficacy on Intention to Make a Disaster Plan.

Attitudes toward preparedness: H5-H8; RQ2. Hypotheses five through eight postulate that, relative to the low vested treatments, the high vested experimental treatments for immediacy, certainty, self-efficacy and response-efficacy yield more positive persuasive outcomes as indicated by scores on the attitudes toward preparedness scale, whereas RQ2 addresses the effect of potential interactions between the variables. However, results of a univariate test failed to find significance for immediacy (H5), $F(1, 803) = 2.44$, $p = .12$, $\eta^2 = .00$, certainty (H6), $F(1, 803) = .170$, $p = .68$, $\eta^2 = .00$, self-efficacy (H7), $F(1, 803) = 1.28$, $p = .25$, $\eta^2 = .00$, or response-efficacy (H8), $F(1, 803) = .014$, $p = .98$, $\eta^2 = .00$, indicating a lack of support for H5-H8 See Table 2 for means and standard errors.

Examination of interactions, in response to RQ2, revealed no significant interactions.

Table 2. Means for Attitude Toward Preparedness		
	High *M (SE)*	Low *M (SE)*
Immediacy	5.11 (.05)	5.00 (.05)
Certainty	5.10 (.05)	5.04 (.05)
Self-Efficacy	5.01 (.049)	5.01 (.05)
Response-Efficacy	5.06 (.05)	5.05 (.05)

Perceived message fairness, attention and importance: H9-H12; RQ3.

Hypotheses 9 through 12 propose that, relative to the low vested treatments, the high vested experimental treatments for immediacy, certainty, self-efficacy and response-efficacy yield more positive persuasive outcomes as indicated by more perceived fairness of the message, increased message attention, and higher perceived importance, and RQ3 concerned potential interactions between these variables. Results of a factorial MANOVA failed to find significance for immediacy (H9), Wilks' $\lambda = .997$, $F(3, 787) = .751$, $p = .55$, $\eta^2 = .00$, certainty (H10), Wilks' $\lambda = .996$, $F(3, 787) = 1.18$, $p = .32$, $\eta^2 = .00$, self-efficacy (H11), Wilks' $\lambda = .998$, $F(3, 787) = .627$, $p = .60$, $\eta^2 = .00$, or response-efficacy (H12), Wilks' $\lambda = .993$, $F(3, 787) = 1.77$, $p = .15$, $\eta^2 = .01$, indicating a lack of support for H9-H12. See Table 3 for means and standard errors.

Table 3. Means for Attitudes Toward the Message

		High *M (SE)*	Low *M (SE)*
Immediacy	Fairness	5.05 (.052)	4.97 (.053)
	Attention	4.17 (.074)	4.05 (.074)
	Importance	4.32 (.072)	4.22 (.072)
Certainty	Fairness	4.99 (.053)	5.03 (.053)
	Attention	4.08 (.074)	4.15 (.074)
	Importance	4.31 (.072)	4.28 (.072)
Self-Efficacy	Fairness	5.05(.052)	4.80 (.053)
	Attention	4.13(.073)	4.10 (.074)
	Importance	4.30(.071)	4.23 (.072)
Response-Efficacy	Fairness	5.10 (.053)	4.93(.052)
	Attention	4.15 (.075)	4.10 (.073)
	Importance	4.40 (.073)	4.24 (.071)

Examination of potential interaction effects, in response to RQ3, revealed a significant three way interaction for immediacy x self-efficacy x response-efficacy, Wilks' $\lambda = .985$, $F(3, 787) = 3.91$, $p = .009$, $\eta^2 = .02$. Analysis of the univariate effects reveals this three-way interaction is significant for perceptions of message attention, $F(1, 805) = 7.00$, $p = .008$, $\eta^2 = .01$, indicating participants in the high immediacy, low self-efficacy, low response-efficacy report the highest perceptions of message attention ($M = 4.43$, $SE = .152$) and participants in the low immediacy, low self-efficacy, low response-efficacy report the lowest perceptions of message attention ($M = 3.80$, $SE = .142$) (see Figure 8).

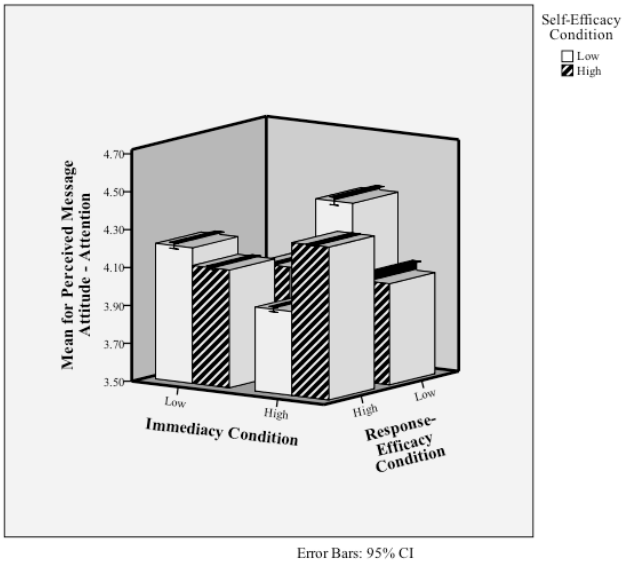


Figure 8. Three-way Interaction for Immediacy, Self-Efficacy and Response-Efficacy on Perceived Message Attitude- Attention.

This interaction was also significant for message importance, $F(1, 805) = 7.78$, $p = .01$, $\eta^2 = .01$ indicating participants in the high immediacy, low self-efficacy, low response-efficacy report the highest perceptions of message importance ($M = 4.57$, $SE = .148$) and participants in the low immediacy, low self-efficacy, low response-efficacy report the lowest perceptions of message importance ($M = 3.98$, $SE = .138$) (see Figure 9).

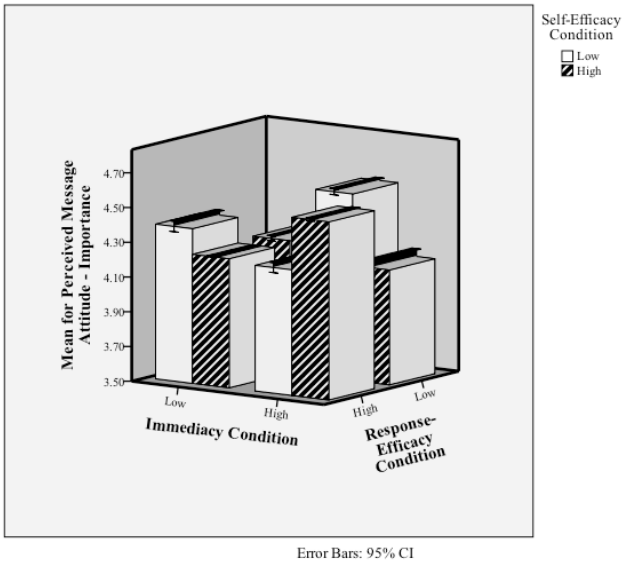


Figure 9. Three-way Interaction for Immediacy, Self-Efficacy and Response-Efficacy on Perceived Message Attitude – Importance.

Perceived source credibility: authority and character: H13-16; RQ4.

Hypotheses 13-16 hypothesized experimental treatments yield more positive persuasive outcomes as indicated by more perceived source credibility with potential interactions explored by RQ4. Results of a factorial MANOVA found a significant effect for response-efficacy (H16), Wilks' $\lambda = .994$, $F(2, 788) = 2.56$, $p = .039$, $\eta^2 = .01$, indicating support for H16. Results for immediacy (H13), Wilks' $\lambda = .998$, $F(2, 788) = .605$, $p = .52$, $\eta^2 = .00$, certainty (H14), Wilks' $\lambda = .998$, $F(2, 788) = .651$, $p = .32$, $\eta^2 = .00$, self-efficacy (H15), Wilks' $\lambda = .999$, $F(2, 788) = .513$, $p = .60$, $\eta^2 = .00$, failed to achieve significance. See Table 4 for means and standard errors.

Table 4. Means for Perceptions of Credibility			
		High *M (SE)*	Low *M (SE)*
Immediacy	Authority	5.62 (.052)	5.55 (.052)
	Character	5.11 (.036)	5.07 (.036)
Certainty	Authority	5.60 (.052)	5.58 (.052)
	Character	5.12 (.036)	5.07 (.036)
Self-Efficacy	Authority	5.62 (.051)	5.55 (.52)
	Character	5.11 (.036)	5.08 (.036)
Response-Efficacy	Authority	5.67 (.036)	5.50 (.051)
	Character	5.13 (.036)	5.05 (.036)

Examination of the univariate effects reveals a significant effect for response-efficacy on perceptions of authority, $F(1, 805) = 5.04$, $p = .013$, $\eta^2 = .01$, demonstrating participants in the high response-efficacy condition report higher perceptions of authority ($M = 5.67$, $SE =$. 036) than those in the low condition ($M =$ 5.50, $SE = .051$), lending support for H16a (see Figure 10). Examination of interactions, in response to RQ4, revealed no significant interactions.

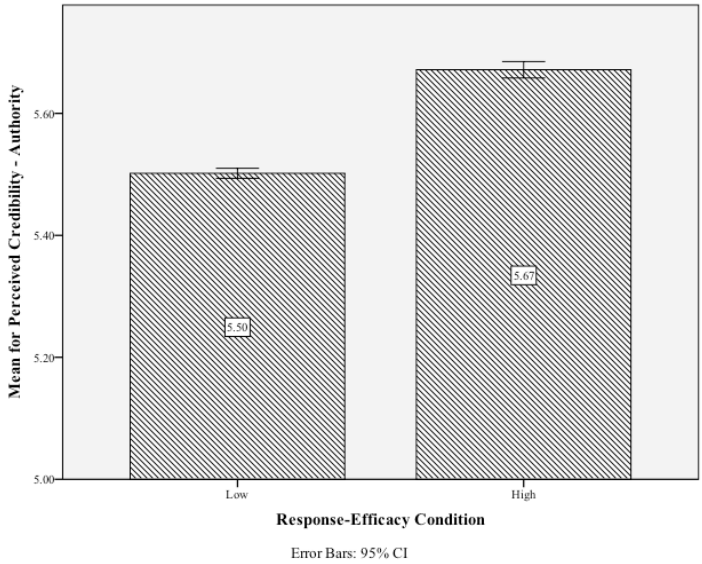


Figure 10. Main effect for Response-Efficacy on Perceived Credibility – Authority.

Main vested conditions. Vested interest theory predicts when vestedness is high across all treatment conditions – immediacy, certainty, self-efficacy and response-efficacy – message receivers' motivation to engage in attitudinally relevant preparedness behaviors should be maximized. Hypotheses 17-21 predict an additive effect for the vested conditions, such that the fully-high vested condition should demonstrate optimal persuasive outcomes as indicated by increased perceptions of vestedness, more positive behavioral intentions, attitudes toward preparedness, perceived fairness of the message, message attention, perceived importance and perceived source credibility. Thus, to test the efficacy of these messages in manipulating high and low vestedness and their effectiveness relative to the control message produced by OKOHS, one-way MANOVAS were performed using main condition (high-high-high-high, low-low-low-low and

control), effectively creating a single independent variable with three levels to test with each of the dependent variables.

Covariate analysis. For H17-21, age and income and survey duration were again entered into the model as covariates. None of these variables were significant covariates in any of the tests and were thus discarded from further analysis as covariates. As with tests for H1-H17, duration was examined as a five level categorical variable, was found to be non-significant and excluded from further analyses.

Perceptions of vestedness: H17a-f. Results found a significant multivariate effect for the main vested condition on the perceptions of vested interest scales, Wilks' λ =. 90, $F(8, 310) = 2.11$, $p = .02$, $\eta^2 = .10$. Examination of the univariate data reveals significant effects for perceptions of immediacy, $F(2, 161) = 2.74$, $p = .033$, $\eta^2 = .03$ and self-efficacy, $F(2, 161) = 5.60$, $p = .002$, $\eta^2 = .10$ (see Figures 11 and 12). Additionally, the effect for certainty, $F(2, 161) = 1.92$, $p = .08$, $\eta^2 = .02$ approaches significance (see Figure 13).

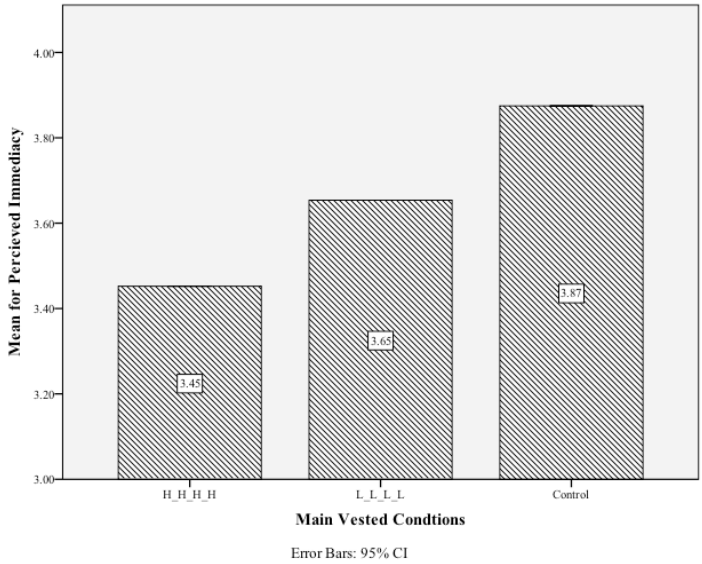


Figure 11. Effect for Main Vested Conditions on Perceived Immediacy.

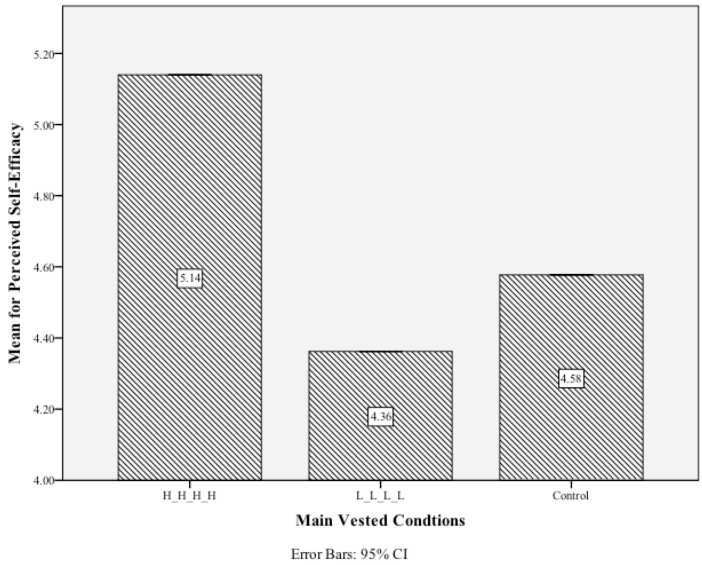


Figure 12. Effect for Main Vested Conditions on Perceived Self-Efficacy.

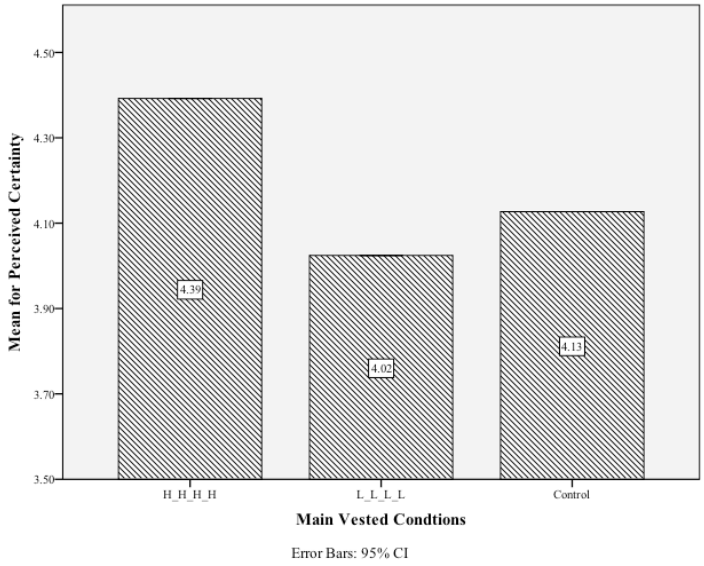


Figure 13. Effect for Main Vested Conditions on Perceived Certainty.

Examination of the means reveals, contrary to H17a; participants in the control condition reported the highest level of perceived immediacy while participants in the high-vested condition reported the lowest level of perceived immediacy. Effects for self-efficacy and certainty are in the predicted directions, where participants in the high-vested condition report the highest levels of perceived self-efficacy and certainty, those in the control condition report the second-highest, and those in the low condition report the lowest levels of perceived self-efficacy and certainty, lending support for H17c and qualified support for H17b. See Table 5 for means and standard errors.

Table 5. Main Condition Means for Perceived Vested Interest		
		M (SE)
High Vested	Immediacy	3.45 (.126)
	Certainty	4.39 (.135)
	Self-Efficacy	5.14 (.167)
	Response-Efficacy	4.10 (.129)
Control	Immediacy	3.87 (.129)
	Certainty	4.13 (.139)
	Self-Efficacy	4.58 (.172)
	Response-Efficacy	4.07 (.133)
Low Vested	Immediacy	3.65 (.131)
	Certainty	4.02 (.140)
	Self-Efficacy	4.36 (.174)
	Response-Efficacy	4.01 (.134)

Behavioral intentions: H18. Hypothesis 18 posits optimal persuasive outcomes in the high vested condition as evidenced by increased preparedness intentions. Results indicate a multivariate effect, approaching significance, Wilks' $\lambda = .920$, $F(8, 294) = 1.56$, $p = .07$, $\eta^2 = .08$ for the overall model. Examination of the univariate effects reveals significant effects in the predicated directions for intention to build an emergency kit, $F(2, 153) = 3.38$, $p = .02$, $\eta^2 = .04$, and intention to make a disaster plan, $F(2, 153) = 3.12$, $p = .023$, $\eta^2 = .04$, lending qualified support for H18a and H18b (see Figures 14 and 15).

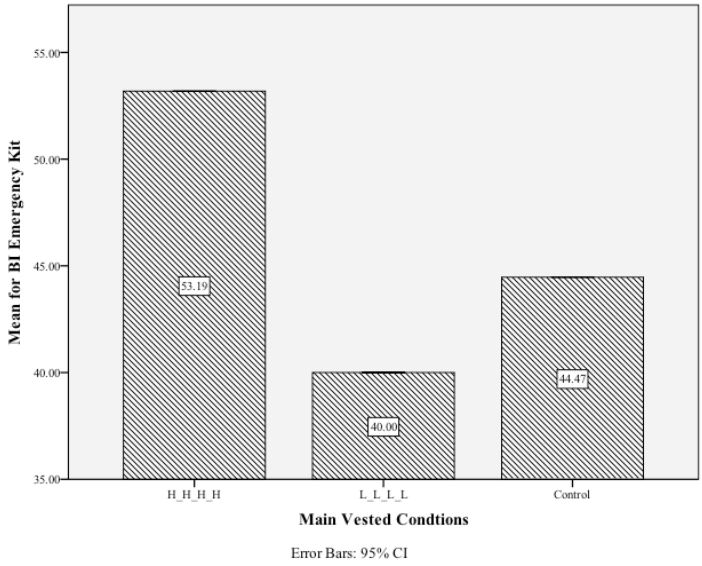


Figure 14. Effect for Main Vested Conditions on Intention to Build an Emergency Kit.

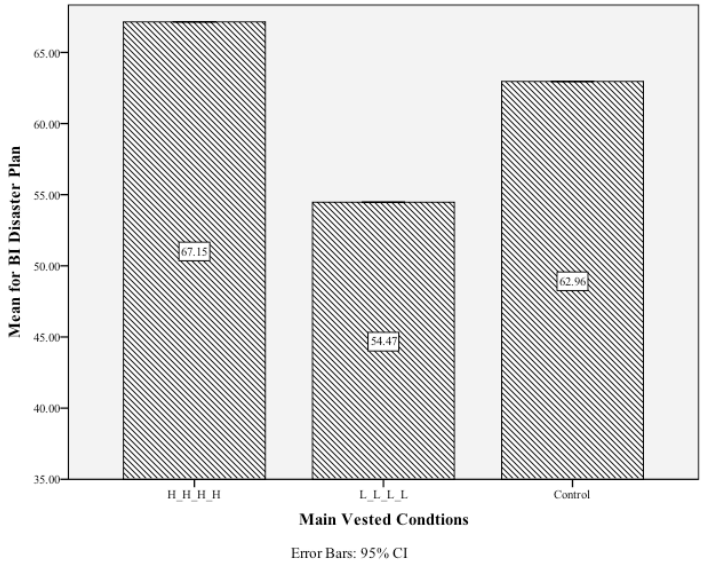


Figure 15. Effect for Main Vested Conditions on Intention to Make a Disaster Plan.

Additionally, there was a significant effect for intention to volunteer in the event of a disaster, $F(2, 153) = 2.97$, $p = .027$, $\eta^2 = .04$. Here, the means indicate

participants in the high vested condition and the control condition report almost identical intentions to volunteer in the event of a disaster, while participants in the low vested condition report the lowest intention to volunteer, lending support for H18d (see Figure 16). See Table 6 for means and standard errors.

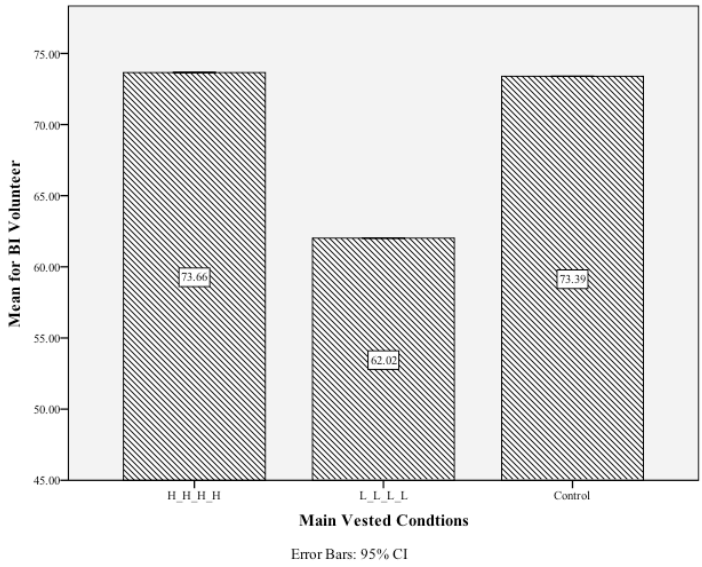


Figure 16. Effect for Main Vested Conditions on Intention to Volunteer in the Event of a Disaster.

Table 6. Main Condition Means for Behavioral Intentions		
		M (SE)
High Vested	BI Build a Kit	53.19 (3.60)
	BI Make a Plan	67.15 (3.60)
	BI Visit the RDR site	40.22 (3.94)
	BI Volunteer	73.66 (3.74)
Control	BI Build a Kit	44.47 (3.66)
	BI Make a Plan	62.96 (3.64)
	BI Visit the RDR site	36.22 (4.02)
	BI Volunteer	73.39 (3.82)
Low Vested	BI Build a Kit	40.00 (3.74)
	BI Make a Plan	54.47 (3.71)
	BI Visit the RDR site	33.80 (4.10)
	BI Volunteer	62.02 (3.90)

Attitudes toward preparedness: H19. This hypothesis was not supported by the univariate analysis, which, contrary to expectations, indicated more positive attitudes within the control condition $F(2, 161) = 3.69$, $p = .013$, $\eta^2 = .05$, which may be because the RDR control PSA presented more of an emotional appeal relative to the high VI condition (see Figure 17 and discussion below). See Table 7 for means and standard errors.

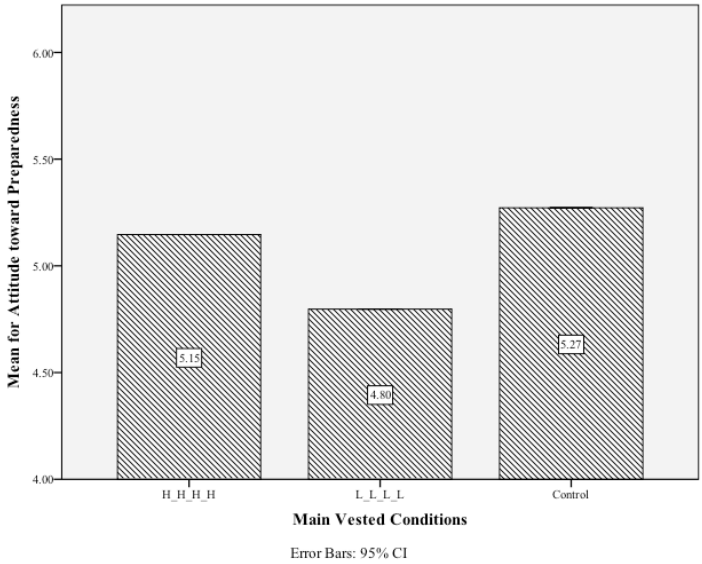


Figure 17. Effect for Main Vested Conditions on Attitude Toward Preparedness.

Table 7. Means for Attitude Toward Preparedness

	M (SE)
High Vested	5.15 (.124)
Control	5.27 (.127)
Low Vested	4.80 (.129)

Attitudes toward the message, (a) perceived fairness, b) attention, and c) importance) H20a-c. This hypothesis was not supported as the main effect for the primary vested condition was not significant, Wilks' $\lambda = .980$, $F(6, 314) = .542$, $p = .78$, $\eta^2 = .02$. See Table 8 for means and standard errors.

Table 8. Main Condition Means for Perceptions of Credibility		
		M (SE)
High Vested	Fairness	5.20 (.130)
	Attention	4.31 (.190)
	Importance	4.56 (.186)
Control	Fairness	5.10 (.133)
	Attention	4.08 (.200)
	Importance	4.23 (.193)
Low Vested	Fairness	4.96 (.134)
	Attention	3.97 (.200)
	Importance	4.10 (.194)

Perceived source credibility, (a) authority and (b) character: H21a-b. This hypothesis was not supported as the main effect for the primary vested condition was not significant, Wilks' $\lambda = .969$, $F(4, 316) = 1.27$, $p = .28$, $\eta^2 = .03$. See table 9 for means and standard errors.

Table 9. Main Condition Means for Perceptions of Credibility		
		M (SE)
High Vested	Authority	5.84 (.134)
	Character	5.14 (.103)
Control	Authority	5.71 (.139)
	Character	5.18 (.110)
Low Vested	Authority	5.48 (.140)
	Character	4.93 (.108)

Additional data analyses. Due to the exploratory nature of this research, a supplementary analysis was conducted to attempt to replicate the findings discussed in (Miller, et al., in press).

The EPPM suggests perceptions of susceptibility to and severity of a threat motivate individuals to control either the threat or their fear (danger control and fear control, respectively; Witte, 1992, 1994). Other research argues, however, that the VI variable, certainty, offers a more nuanced and thorough explanation of this process (Adame & Miller, under review; Miller et al. in press). Certainty and susceptibility are similar constructs but certainty is a more precisely focused measure. We can assume most people would agree that catastrophic floods, crippling ice storms and tornados are accompanied by severe consequences. If outcomes are certain, individuals should be more likely to perceive themselves as susceptible, while the converse would not necessarily be true—people may perceive themselves to be susceptible to a threat, but in no way certain of the outcomes. Past research demonstrates that certainty, and to a lesser extent, immediacy and salience, are predictors of susceptibility (Miller, et al., in press). To test this with the current data, susceptibility was regressed on certainty, salience and immediacy. The resulting model was significant at the $p < .001$ level, predicting 58.0% of the variance, replicating the results found by Miller, et al. (in press); perceptions of immediacy, certainty and salience predict perceptions of susceptibility and provide a more nuanced and useful measure for capturing complex and multidimensional attitudes. Here, immediacy shows a negative value,

implying that less immediacy predicts increased susceptibility. This specific result is different from that reported in Miller et al. (in press), where immediacy, along with the certainty and salience had significant, positive values. The current data characterize immediacy to be an inconsistently performing moderator such that in some cases, lower immediacy leads to more favorable persuasive outcomes while in other cases, higher immediacy leads to optimal persuasive outcomes. The reason for the immediacy variable's inconsistent performance could be due to the fact that data was collected during the late fall and early spring in Oklahoma. The weather is typically milder during these times and thus, the immediacy manipulation could have had differential effects for participants. This point is addressed in detail in the discussion. For the full regression results, see Table 10; correlations between the factors are reported in Table 11; in Appendix C.

Table 10. Regression for perceptions of Susceptibility

	B	SE	β
Constant	1.32	.188	
Immediacy	-.092**	.028	-.080
Certainty	.714***	.028	.667
Salience	.103***	.024	.108

Notes. n =860, R^2 = .58, adjusted R^2 = .58, $F(3, 859) = 388.24$,
* = $p < .05$, **= $p < .01$, ***= $p < .001$

Discussion

The goals of this research are a) to examine how individuals respond to subtle message-based manipulations of vestedness, and b) to test the efficacy of theoretically derived messages in a social action campaign designed to motivate citizens of Oklahoma to prepare for disasters. Using principles from VI theory, a message template was developed and systematically manipulated to produce a 16 condition factorial design with the original campaign message serving as condition 17, the experimental control.

Analysis of the manipulation check indicates the self-efficacy manipulation produced statistically significant results such that participants in the high self-efficacy condition, regardless of the specific message they received, perceived higher levels of both self-efficacy and response-efficacy related to disaster preparedness. Analysis of the interactions between the independent variables indicated self-efficacy also played a role in the interactions that achieved significance. While results from the manipulation check and dependent variable analysis indicate a general lack of significance for each of the independent variables, the results demonstrated by the self-efficacy manipulation provide evidence that messages of this type can potentially be effective in motivating individuals to prepare for relevant disasters.

The self-efficacy manipulation was designed to inform people that the kit is affordable and easy to assemble, while the response-efficacy manipulation was designed to inform people of the effectiveness of a kit in mitigating negative

consequences; all treatments received information regarding the contents of a kit. Perhaps the response-efficacy manipulation was too weak to influence individuals' perceptions of how well a kit may or may not work, however, receiving information about the required contents of a kit, being told a kit is an effective response, and that kits are easy to obtain, appeared to have influenced individuals to perceive more overall self-efficacy relevant to disaster preparedness. This result is important because if the goal of a campaign is to motivate citizens to prepare, then increasing overall feelings of efficacy in an important step in overcoming what national survey data indicate, is one of the most significant barriers preventing citizens from preparing for disasters (Redlener, et al., 2006).

In support of H16a, there was a significant effect for response-efficacy on perceptions of the authority dimension of credibility where, participants in the high response-efficacy condition reported higher perceptions of authority than those in the low response-efficacy condition. The messages were designed in such a way that everyone, regardless of their condition, received information about the recommended contents of a disaster kit, while the high response-efficacy manipulation informed participants, "research has shown" (versus the low response efficacy manipulation which stated, "some people believe") that these contents can be effective in mitigating the consequences of a disaster. This manipulation, which derives a level of credibility by citing research, paired with the detailed description of a proper kit's contents, likely led to the increased perceptions of the authoritativeness of the message.

The significant interactions between the independent variables examined by the individual research questions give insight into how the variables may work in concert to affect perceptions of vestedness. There was a significant interaction for immediacy by certainty, where participants in the low immediacy, high-certainty condition reported the highest level of perceived certainty. Although the main effect for immediacy was non-significant for all the hypotheses, it was a significant factor in several interactions, though data indicate that immediacy did not perform consistently in every interaction. For example, in an interaction with certainty, those in the high immediacy, high certainty condition reported the highest levels of intention to make a disaster plan, while in an interaction with response-efficacy, those in the low immediacy, high response-efficacy condition report the highest level of intention to volunteer in the event of a disaster. In another significant interaction between immediacy and response-efficacy, participants in the high immediacy, low response-efficacy interaction reported the highest intention to visit the RDR website.

Several three-way interactions where immediacy played a significant role were also found. First, for intention to make a disaster plan, immediacy, certainty and response-efficacy interacted such that those in the high-high-high condition report the highest behavioral intention to make a disaster plan while those in low-low-low condition report the lowest intention. While this interaction is consistent with what would be hypothesized by VI theory, two three-way interactions involving immediacy were theoretically inconsistent. The immediacy by self-

efficacy by response-efficacy interaction was significant for both perceived message attention and importance. In both cases, participants in the high immediacy, low self-efficacy, low response-efficacy report the highest levels of perceived message attention and importance.

The fact that few interactions were statistically significant limits the conclusions that can be drawn from the data. The significant interactions are important however for two reasons. First, these findings are consonant with the findings of Glasman and Albarracan's (2006) meta analysis that found the variables addressed by VI theory, as well as others, when tested in combinations of two or three as moderators of the attitude behavior relationship, generally return inconsistent and/or equivocal results. Second, the inconsistent nature of the interactions between variables, when combined with the results from the main conditions, lend strength to the argument that the variables articulated by VI theory function together in an additive relationship such that a highly vested message is equal to more than the sum of its parts. Vested interest theory posits one condition is optimal: high immediacy, high certainty, high response-efficacy, high self-efficacy. In this fully vested condition attitudes should consistently and reliably predict attitudinally consistent behaviors (Crano, 1997; Crano & Prislin, 1995; Lehman & Crano, 2002; Sivacek & Crano, 1982).

Hypothesis 17a-d predicted that participants in the high-vested condition would report the highest levels of perceived vestedness. As indicated by the results, participants in the high vested condition did report significantly higher perceptions

of self-efficacy, and although the effect for certainty is slightly below the traditional level of significance, the means occur in the predicted direction such that individuals in the high vested condition report higher levels of perceived certainty, lending limited support for H17. One should also note, the means for response-efficacy also occur in a theoretically consistent pattern, though this finding did not achieve statistical significance. Support for the effectiveness of the high-vested condition is qualified, however, by the finding for immediacy, where contrary to the predictions of VI theory, participants in the control condition report the highest levels of perceived immediacy.

This result is likely due to the nature of the manipulation and seasonal timing of the data collection, rather than being evidence of a flaw in the theory. Data were collected in Oklahoma during the late fall through winter and late winter through early spring (several weeks before the onset of tornado season). Traditionally, the late fall and early spring are calm periods for weather in Oklahoma; moreover, Oklahoma experienced its eleventh warmest winter since 1895 (McManus, March 1, 2012) during data collection periods. Thus, the strong possibility exists that the immediacy manipulation was washed out by the salience of the mild weather, and thus participants did not perceive heavy winter storms as an imminent threat, and therefore they were more willing to reject this portion of the message outright; whereas, the more subtle insinuations made in the control condition may have been more believable because they reminded individuals that winter does, in fact bring the increased possibility of inclement weather. Given

these findings, one can reason that an effective message would be required to either address the long-term weather predictions of each season, or communicate immediacy in a less concrete and more palatable fashion so as to work in conjunction with the other components of vestedness, especially the potential effect of current weather conditions and seasonal timing on perceptions of salience. Conceivably, a weaker immediacy manipulation might actually be more effective (especially during milder seasons) in motivating a change in receivers' attitudes and behaviors toward preparedness.

Perhaps the most exciting findings are those involving the effect of the main vested conditions for the measures of behavioral intention, H18a-d. The multivariate results for the overall model approach significance at the traditional alpha level of .05, and the univariate effects indicate the high vested message was effective in motivating individuals to report the highest levels of intention to build a disaster kit, as well as intention to make a disaster plan. Moreover, for the intention to volunteer in the event of a disaster, participants in the high vested and control conditions reported essentially equal intentions, likely because the control condition emphasizes willingness to volunteer to aid emergency workers as way to make Oklahoma, "Red dirt ready" (OKOHS, 2011b), whereas, the high-vested condition does not expressly mention volunteerism. The significance of the overall model (at $p = .068$) and the trends evident in the means for each behavioral intention support that the high-vested condition was more effective than both the control and the low-vested conditions at motivating individuals to report higher

levels of behavioral intentions related to preparedness behaviors. As further evidence of theoretical consistency, the low-vested condition resulted in the lowest means for all measures of behavioral intention. This pattern of results supports one of the central claims of VI, that the variables associated with vestedness act together to reliably predict the attitude-behavior relationship.

These results have significant implications for campaign message design. If the intention of the campaign is to elevate levels of preparedness, these results are evidence that the high-vested message can be more effective than the OKOHS message in influencing intended behaviors for two of the three federal guidelines for citizen-level disaster readiness which are: to be informed, make a plan and build a kit (www.ready.gov). Although building a kit is listed last, it probably demands the highest levels of persuasion because building a kit requires individuals to spend time and money and exert effort. Further, recall that research has demonstrated efficacy presents one of the single greatest barriers to citizen level preparedness (Redlener, et al., 2006). The data presented here show the high vested message significantly impacted both the behavioral intention to build a kit and perceptions of self-efficacy. Taken together, these findings suggest that providing individuals with clear information about the contents and affordability, of an emergency kit, as well as increasing their perceptions of self-efficacy, can potentially lead to increased numbers of prepared citizens. These findings were the result of only two viewings of the message. One can easily assume that a properly funded and distributed campaign, using theoretically-derived messages of this type, broadcast

of a longer period of time to a state-wide audience, would increase both the significance of the findings and lead to appreciable changes in preparedness attitudes and behaviors.

Also of interest are the results for the intention to visit the website. The RDR message directs viewers to the website and reinforces such behavior by showing an individual logging on to the companion website. Although the univariate effect was not significant for the intention to visit the RDR website, the means indicate that participants in the high-vested condition report slightly higher intention to visit the RDR website than do the participants in the control condition. Even disregarding this pattern of means, the overall takeaway message from the OKOHS message, as indicated by both verbal and non-verbal cues, is that individuals should visit the RDR website to gather preparedness information. Given the design of the OKOHS message, one could have expected the control to significantly outperform the high-vested condition on this specific measure of behavioral intention. The data indicate that this is probably not the case.

The high-vested condition was designed specifically to provide information and efficacy regarding preparedness behaviors, though in a 30 second television commercial, one can only include a finite amount of information. Since the visual aspect of the commercial included a reference to the internet, the possibility exists that individuals in both the high-vested and control condition were influenced to seek more information about preparedness, while those in the low-vested condition were influenced to believe that preparedness was irrelevant and therefore, indicated

a diminished intention to visit the website. This pattern presents an interesting circumstance, because while the main goal of the OKOHS message is to motivate citizens to prepare by first visiting the companion website, the results show the high VI message can potentially achieve essentially the same goals with greater effectiveness by providing detailed preparedness information up-front, thus offering a degree of context and basic knowledge for those wishing to seek more information.

This particular effect would likely be magnified by technological trends; approximately 98% of Americans own a television, while only 66% have access to broadband Internet (Smith, 2010; Taylor, 2006). This number is substantially lower in rural areas, where in Oklahoma for example, only 36.35% of residents in rural areas have access to at least the minimum speed broadband of broadband internet (Genachowski, 2011). Further, residents of rural areas are arguably more vulnerable to the effects of natural disaster simply because they live geographically farther away from centralized resources (i.e. emergency responders, grocery/supply stores, and clear evacuation routes) than those who live in more urbanized areas. A message designed to persuade individuals to seek information from the Internet becomes essentially useless for up to 63.65% of Oklahoma's rural population who either do not have broadband Internet, or are not patient enough for their dial-up service access the state government server. A high-vested television commercial would be able to reach a significantly larger, more geographically and economically diverse audience, attenuate the extra step of gathering information

from the Internet, and more effectively persuade individuals to prepare for relevant disasters.

Care should be taken in the interpretation of the specific results for H18a-d for two reasons; the first is that while the pattern of evident means follows the predicted pattern, the multivariate results fall slightly short of traditional levels of significance. Second, the outcome measures employed here are not behaviors per se, but rather self-reports of behavioral intention, which can vary widely from what individuals will actually do. Despite these two limitations, the results for H18a-d warrant further examination; one can reasonably hypothesize that with increased exposures to a high-vested message, the trends evident here would continue in their current directions and result in increased statistical significance and actual behavioral change.

Despite the effectiveness of the messages shown in the results for H18, results for H19 indicate that the control was slightly more effective in motivating more positive attitudes toward preparedness than was the high vested message. Once again however, the participants in the low-vested condition report the lowest means for attitudes toward preparedness. While this pattern is contrary to the hypothesis, the results make sense, to a degree, since the dominant strategy of the control message appears to be to increase affect toward preparedness rather than to persuade individuals to act in a meaningful way. The advertisement appeals to the identities of Oklahomans and discusses the relative strength that can be found in unifying these identities to become Red Dirt Ready. Aside from the directive to

visit the website however, there is little in the way of concrete information about disaster preparedness. While these findings are disappointing in the context of the current research, the development of the preparedness attitude scale holds promise for future research in disaster preparedness.

The preparedness attitude scale requires additional research and development, as it was created and tested specifically for this study. Nevertheless, the development and testing of this scale begins to address a significant deficiency of research in the area of citizen-level disaster preparedness (Decker, 2009). Decker makes an explicit call for more and better psychometrics related to public preparedness. Preliminary results indicate that this scale is reliable and one-dimensional. Along with the VI scales, the preparedness attitude scale promise to be useful tools for researchers in the context of disaster preparedness research.

The lack of significance for hypothesis 19 and 20, addressing the measures of credibility and attitudes toward the message respectively, is again, disappointing, although probably not an artifact of VI theory but rather due to message design. Credibility and message-attitude variables, while typically associated with effective persuasion, were not expressly manipulated or mentioned in any of the messages and likely because of this, did not inspire in significant mean differences (with the exception of H16a, which showed a main effect for the response-efficacy manipulation).

Another possible reason for the lack of significant results relative to perceptions of credibility and message attitude is that the Red Dirt Ready campaign

is the first publicity effort undertaken by OKOHS, even though the department was chartered in 2004 (OKOHS, 2011b). Further, the push for citizen level preparedness is a relatively recent item on the public agenda (Decker, 2009). Research shows that institutional credibility is typically a function of perceptions of authority and character (Goldsmith, et al., 2000), but if the institution in question, and its message, lack a larger context in which these judgments can occur, the result may be that individuals do not feel strongly about either the credibility of the organization or have a distinct attitude concerning its message. Sadly, the real test for the credibility of OKOHS and its message may come as a result of its response to a catastrophic disaster.

Finally, a degree of slippage exists between the verbal and visual elements of the manipulated messages. Although every effort was made, within financial and technological constraints, to make the messages appear as if they came directly from OKOHS, there may be a slight, discernable difference between what is being communicated via the audio channel and what is being communicated via the visual channel. Perhaps this subtle discrepancy led participants to respond with equivocal results when reporting their attitudes and rating their perceptions of credibility and attitudes toward the message(s). A high-VI message, consistent across verbal and visual elements, would likely produce significantly higher ratings for credibility and more positive attitudes toward the message, further increasing the message's effectiveness in producing optimal persuasive outcomes.

That the majority of hypotheses 1-16 were not supported by the results should not be a reason to reject VI theory nor its use in this context. An examination of the means, especially for the measures of behavioral intention, show that participants in the high conditions generally report slightly higher levels of behavioral intention to prepare, higher levels of positive attitude toward the message, and perceptions of credibility. Although the findings should be interpreted with caution, the results generally point to the conclusion that the high-vested message performed better than the OKOHS and low-vested messages on a number of key outcome variables and thus deserves further investigation, perhaps with a more an even more powerful experimental design using a professionally produced message, broadcast to the entire state of Oklahoma.

Based on the results of the pilot experiment, the decision was made to increase the power of the treatment in three ways: the messages were re-written to make manipulations more concrete, the desired sample size was increased, and the treatment was doubled – from once to twice. In re-designing the messages, the manipulations were made as powerful as possible, while still remaining ethical. Messages too extreme in the high-vested direction would likely contain inaccurate risk information and could easily be perceived as an attempt to inspire fear, thus leading to either outright message rejection or, in the extreme case, inspiring panic in the intended audience. Messages too extreme in the low-vested direction would misinform individuals as to the magnitude of the threat and their susceptibility to that threat. Although the sample size was slightly smaller than recommended by the

a priori power analysis, the final sample was very large and contained only the highest quality data, based on analysis of the sample parameters. Thus, the most practical way to increase the power of this study would be to increase the number of treatments, or exposures to the message. Given the trends evident in the analysis of the main vested conditions, there is reason to believe messages of this type, repeated over a longer period of time to a wider audience, would yield statistically significant differences between the high and low-vested conditions.

Aside from the data collected expressly for the testing of H1-H21, data was also collected for the further testing of scales developed by Miller et al. (in press). Results suggest that the scales all performed well in yet another context with a different sample. Moreover, past research has used the scales as pre-measures to assess attitudes, whereas this research used them as post-treatment metrics. Data continue to show that the scales are reliable and perform as intended. The regression analysis reported here replicates the finding of Miller at al (in press) and Adame & Miller (under review). Specifically, they argue that certainty is a more focused construct than susceptibility, because if outcomes are certain, one is necessarily susceptible. The regression reported here demonstrates that certainty and, to a lesser extent, immediacy and salience predict susceptibility. Self-efficacy was left out of the model here because past treatments of self-efficacy involved, in general, one's perceived ability to generally respond to disasters, whereas in the present study, self-efficacy dealt specifically with one's ability to build an emergency kit and was thus not relevant for perceptions of susceptibility. These

support the utility of the VI scales created by Miller et al. (in press) and lend strength to the argument that they should be used in future research related to both vested interest and disaster preparedness.

The results from this study further suggest these effects, though subtle, can be communicated via television. Typical message-based studies rely on text to deliver the treatment. Text is advantageous because individuals can consume the information at their own pace; refer back to unclear points and re-read the entire message if desired. In this experiment, participants had no control over the pacing or playback of the message. Although participants were exposed to the messages twice, comprehension rates may have been lower than if the message was read, but again, the goal of the present research was to test the effectiveness of these messages in television, since that is the tactic currently being employed by OKOHS. Mass-mediated messages, particularly televised messages, have the ability to reach far larger audiences than dense text-based messages.

This project sought to shift this research paradigm into a new medium and in doing so, succeeded in lending qualified support to the idea that nuanced manipulations of this nature can be effective. Television has the power to reach far larger audiences than essay or pamphlet-based campaigns. This data shows significant effects can be elicited and measured from only two exposures of very subtle manipulations in a passive medium.

These results are also encouraging for other message design theories such as regulatory focus theory (Higgins, 1997) and reactance theory (Brehm, 1966, 1972;

Brehm & Brehm, 1981). The application of these theories within influence messages is similar to the use of VI in that the relevant key variables can be manipulated via subtle language variations, and tested using a factorial design. Regulatory focus theory (Higgins, 1997) asserts individuals often have a tendency to focus on positive outcomes relative to negative outcomes, and these two basic and mutually exclusive views relating to prevention and promotion orientations can mediate how individuals are motivated to scrutinize and respond to social influence messages. Reactance theory argues that when individuals perceive a threat to behavioral or cognitive freedoms, they will act to restore those freedoms and exert their own agency (Brehm, 1966, 1972; Brehm & Brehm, 1981). Both theories have been used to frame individuals' responses to persuasive messages and to inform the development of more effective messages (cf. Adams, Faseur, & Geuens, 2011; Dillard & Lijiang, 2005). Messages can be formulated to accommodate either a prevention or promotion focus, or to influence threats vs. restorations of freedom, and tested using the method described here. Moreover, these theories could inform the development of television campaigns aimed at far larger audiences, and theoretically, lead to greater persuasive effects when presented over repeated viewings.

Limitations and Future Research Directions

Future research should address the limitations of the present study. Foremost, the research relied on a convenience sample of undergraduate students. Undergraduates do not always approximate a representative sample of a population

and thus, findings should be interpreted accordingly. Despite this, the undergraduates sampled live in disaster prone areas and are subject to the same threats and consequences. As with other populations, they should still be responsive to persuasive messages such as those presented here since they too have a stake in disaster related consequences.

Given the small number of treatment repetitions (two), small effect sizes were expected. To offset these limitations, a large sample was sought, and the treatment was administered twice. Although the small effects indicate the potential for the method described herein to produce results from a short, subtle and limited treatment, the possibility for larger effect sizes exists, although it likely requires additional repeated exposures to the treatments, and even larger samples—which should be justified given the nature of mass-mediated PSAs and the subtly of the manipulations involved. Future research could examine campaign messages of this type using both a larger sample size and a higher number of message exposures, perhaps in the context of a formal social action campaign.

Every effort was made to present a professional and consistent message. However, the visual components of the original commercial were developed without a clear theoretical frame. A professionally-produced, high quality commercial narrated by a professional with a distinct and recognizable voice, that is also consistent between the scripted and visual aspects should provide enough persuasive power to return significant statistical results and motivate individuals to prepare for salient disasters.

The scales used to measure perceptions of vestedness are in need of additional validation and refinement. Although evidence indicates these scales are valid and useful measures (Adame & Miller, under review-b; Miller, et al., in press), more studies are needed to further substantiate their validity in this and other contexts.

Finally, stimulus materials were created using the visual track acquired from a state agency. Additional research should be able to find significantly larger effects by developing television messages that are more consistent across visual and verbal elements. The commercial used in this study contained a number of visual cues, which functioned to accentuate the verbal message. Because the original video track could not be obtained, visual aspects of the commercial could not be manipulated. The researcher was mindful of these cues but the disconnect potentially interfered with the overall cohesion of the message. Television commercials developed in conjunction with qualified communication researchers would allow for greater control over both how visual cues are manipulated and connections between visual and verbal message characteristics, ostensibly leading increased persuasive effects.

Conclusion

This dissertation attempts to provide support for the use of an expanded VI model in the development and testing of a social action campaign to motivate individuals to prepare for potential and imminent disasters. Individual level disaster preparedness increases survivability rates, not only for those who are prepared but

also for those who cannot help themselves, relives pressure from aid and rescue workers and contributes to overall disaster resilience (Landau, 2007; Norris, et al., 2008). Messages were developed, using tenets of VI and the EPPM as well as materials from an extant preparedness campaign and tested on a large audience.

The results presented here expand on VI theory and contribute to campaign research in a number of significant ways. Data lend qualified support for the use of the expanded VI model in the development and testing of social action campaign messages, although further testing is required. Vested interest, combined with elements of the EPPM, shows promise in its ability to explain the attitude-behavior relationship and predict potential behavioral outcomes.

The scales developed in this dissertation and this line of research fill an important void in the disaster preparedness literature. According to Decker (2009), developing effective measures of public preparedness is an important first step in increasing overall levels of preparedness. This research partially satisfies this call by offering data supporting the reliability and validity of theory-specific scales which can be used in both the formative and testing stages of campaign development as well as introducing a scale to measure individual attitudes toward disaster preparedness.

Designing an effective campaign requires theory and formative research (Atkin, 2001; Capella, et al., 2001; Pfau & Parrott, 1993). The context and the campaign stakeholders, however, dictate the choice of theory. By examining main and interaction effects for message-based variables, researchers can gain insight

into how the various factors involved can function to persuade and affect attitudinal and behavioral change. Moreover, campaigners will be able to adjust the content of their messages to meet a variety of needs and conditions.

REFERENCES

Abelson, R. (1988). Conviction. *American Psychologist, 43*, 267-275.

Adame, B. J., & Miller, C. H. (under review-a). Factorial Message Design for Testing Campaign Messages. *Manuscript submitted for publication.*

Adame, B. J., & Miller, C. H. (under review-b). Vested interest and crisis management: Developing scales for assessing flooding disaster preparedness.

Adams, L., Faseur, T., & Geuens, M. (2011). The Influence of the Self-Regulatory Focus on the Effectiveness of Stop-Smoking Campaigns for Young Smokers. *Journal of Consumer Affairs, 45*(2), 275-305.

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology, 22*(5), 453-474.

Allport, G. W. (1935). Attitudes. In C. Murchinson (Ed.), *Handbook of social psychology*. Worcester: Clark University Press.

Atkin, C. K. (2001). Theory and principles of media health campaigns. In R. E. Rice & C. K. Atkin (Eds.), *Public communication campaigns.* (pp. 49-68). Thousand Oaks: CA: Sage.

Atkin, C. K., & Freimuth, V. S. (2001a). Formative evaluation research in campaign design. In R. E. Rice & C. K. Atkin (Eds.), *Public communication campaigns.* (pp. 125-145). Thousand Oaks: CA: Sage.

Atkin, C. K., & Freimuth, V. S. (2001b). Formative evaluation research in campaign design. In R. E. Rice & C. K. Atkin (Eds.), *Public communcation campaigns* (3 ed., pp. 125-145). Thousand Okas, CA: Sage.

Bakker, B. (1993). A new measure of social status for men and women - the Social Distance Scale. *Netherlands Journal of Social Science, 29*, 113-129.

Bandura, A. (1977). Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-215.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*, 122-147.

Bandura, A. (1997). *Harvard Mental Health Letter, 13*, 1-2.

Beck, K. H., & Lund, A. K. (1981). The Effects of Health Threat Seriousness and Personal Efficacy upon Intentions and Behavior1. *Journal of Applied Social Psychology, 11*(5), 401-415.

Berger, I. E. (1992). The nature of attitude accessibility and attitude confidence: A triangulated experiment. *Journal of Consumer Psychology, 1*(2), 103-123.

Bobinski, G. S., Jr, , Cox, D., & Cox, A. (1996). Retail "sale" advertising, perceived retailer credibility, and price rationale. *Journal of Retailing, 72*(3), 291-306.

Bogardus, E. S. (1925). Measuring Social Distance. *Sociology and Social Research, 9*(March), 299-308.

Boninger, D. S., Krosnick, J. A., & Berent, M. K. (1995). Origins of attitude importance: Self-

interest, social identification, and value relevance. *Journal of Personality and Social Psychology, 68*, 61-80.

Breckler, S. J. (1993). Emotion and attitude change. In M. Lewis & J. Haviland (Eds.), *Handbook of Emotions*. New York, NY: Guilford Publications.

Brehm, J. W. (1966). *A theory of psychological reactance.* . New York: Academic Press.

Brehm, J. W. (1972). *Responses to loss of freedom: A theory of psychological reactance.* Morristown, NJ: General Learning Press.

Brehm, J. W., & Brehm, S. S. (1981). *Psychological reactance: A theory of freedom and control.* San Diego, CA: Academic Press.

Burgoon, M., Alvaro, E., Grandpre, J., & Voulodakis, M. (2002). Revisiting the theory of psychological reactance: Communicating threats to attitudinal freedom. . In J. P. Dillard & M. Pfau (Eds.), *The Persuasion Handbook: Developments in Theory and Practice*. Thousand Okas: Sage.

Capella, J. N., Fishbein, M., Hornick, R., Ahern, R. K., & Sayeed, S. (2001). Using theory to select messages in antidrug media campaigns: Reasoned action and media priming. In R. E. Rice & C. K. Atkin (Eds.), *Public communcation campaigns* (3 ed., pp. 214-230). Thousand Okas, CA: Sage.

Carpenter, C. J. (2010). A meta-analysis of the effectiveness of Health Belief Model variables in predicting behavior. *Health Communication, 25*(8), 661-669.

Cary, D. (2004). *Hazard Mitigation Plan: Community of Clevland County, OK*.

Clarkson, J. J., Tormala, Z. L., & Rucker, D. D. (2008). A new look at the consequences of attitude certainty: The amplification hypothesis. *Journal of Personality & Social Psychology, 95*(4), 810-825.

Crano, W. D. (1983). Assumed consensus of attitudes: The effect of vested interest. *Personality and Social Psychology Bulletin, 9*(4), 597-608.

Crano, W. D. (1997). Vested interest, symbolic politics, and attitude-behavior consistency. *Journal of Personality and Social Psychology, 72*(3), 485-491.

Crano, W. D., Gorenflo, D. W., & Shackelford, S. L. (1988). Overjustification, assumed consensus, and attitude change: Further investigation of the incentive-aroused ambivalence hypothesis. *Journal of Personality and Social Psychology, 55*(1), 12-24.

Crano, W. D., & Prislin, R. (1995). Components of vested interest and attitude-behavior consistency *Basic and Applied Social Psychology, 17*(1 & 2), 1-21.

de Hoog, N., Stroebe, W., & de Wit, J. B. F. (2007). The impact of vulnerability to and severity of a health risk on processing and acceptance of fear-arousing communications: A meta-analysis. *Review of General Psychology, 11*(3), 258-285.

Decker, D. K. (2009). Before disaster strikes: Rate and raise public preparedness now. *Policy Brief* Retrieved 3/25, 2011, from http://belfercenter.ksg.harvard.edu/files/Decker-Public-Preparedness-Policy-Brief.pdf

Dillard, J. P. (1993). Persuasion past and present: Attitudes aren't what they used to be. *Communication Monographs, 60*(1), 90-97.

Dillard, J. P., Kinney, T. A., & Cruz, M. G. (1996). Influence, appraisals, and emotions in close relationships. *Communication Monographs*(63), 105-130.

Dillard, J. P., Kinney, T. A., & Cruz, M. G. (1996). Influence, appraisals, and emotions in close relationships. *Communication Monographs, 63*(2), 105 - 130.

Dillard, J. P., & Lijiang, S. (2005). On the nature of reactance and its role in persuasive health communication. *Communication Monographs, 72*(2), 144-168.

Dutta-Bergman, M. J. (2005). Theory and practice in health communication campaigns: A critical interrogation. *Health Communication, 18*(2), 103-122.

Eisenman, D. P., Wold, C., Fielding, J., Long, A., Setodji, C., Hickey, S., et al. (2006). Differences in individual-level terrorism preparedness in Los Angeles County. *American Journal of Preventative Medicine, 30*(1), 1-6.

Erdfelder, E., Faul, F., & Buchner, A. (1996). G*Power: A general power analysis program. *Behavior Research Methods, Instruments, & Computers, 28*(1), 1-11.

Fazio, R. H., & Roskos-Ewoldsen, D. R. (1994). Acting as we feel: When and how attitudes guide behavior. In T. C. Brock & S. Shavitt (Eds.), *Psychology of Persuasion*. Boston, MA: Allyn & Bacon.

Federal Emergency Management Agency, Department of Homeland Security, 206 Cong. Rec.(1984).

Feeley, T. H., & Moon, S.-I. (2009). A meta-analytic review of communication campaigns to promote organ donation. [Article]. *Communication Reports, 22*(2), 63-73.

FEMA. (2004). *Are you ready? An in-depth guide to citizen preparedness*.

FEMA. (2007). Welcome to the National Integration Center (NIC) Incident Management Systems Division. Retrieved February 23, 2011, from http://www.fema.gov/emergency/nims/

FEMA. (2011). Declared disasters by year or state. Retrieved 2/22/2011, 2011, from http://www.fema.gov/news/disaster_totals_annual.fema

Fischhoff, B., Slovic, P., Lichtenstein, S., Read, S., & Combs, B. (1978). How safe is safe enough? A psychometric study of attitudes towards technological risks and benefits. *Policy Sciences 9*(2), 127-152.

Fiske, S. T., Pratto, F., & Pavelchak, M. A. (1983). Citizens' images of nuclear war: Contents and consequences. *Journal of Social Issues, 39*, 41-65.

Franc, R. (1999). Attitude Strength and the Attitude-Behavior Domain: Magnitude and Independence of Moderating Effects of Different Strength Indices. *Journal of Social Behavior & Personality, 14*(2), 177-195.

Gass, R. H., & Seiter, J. S. (1999). *Persuasion, social influence and compliance gaining*. Boston, MA: Allyn & Bacon.

Genachowski, J. (2011). *Bringing broadband to rural America: Update to report on rural broadband strategy*. Retrieved from http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-11-1095A2_Rcd.pdf.

Glasman, L. R., & Albarracan, D. (2006). Forming attitudes that predict future behavior: A meta-analysis of the attitude-behavior relation. *Psychological Bulletin, 132*(5), 778-822.

Goldsmith, R. E., Lafferty, B. A., & Newell, S. J. (2000). The Impact of corporate credibility and celebrity credibility on consumer reaction to advertisements and brands. [Article]. *Journal of Advertising, 29*(3), 43-54.

Gore, T. D., & Bracken, C. C. (2005). Testing the theoretical design of a health risk message: Reexamining the major tenets of the extended parallel process model. *Health Education & Behavior, 32*(1), 27-41.

Guion, D. T., Scammon, D. L., & Borders, A. L. (2007). Weathering the storm: A social marketing perspective on disaster preparedness and response with lessons from Hurricane Katrina *Journal of Public Policy and Marketing, 26*(1), 20-32.

Haley, E. (1996). Exploring the construct of organization as source: Consumers' understandings of organizational sponsorship of advocacy advertising. [Article]. *Journal of Advertising, 25*(2), 19-35.

Hovland, C., Janis, I., & Kelly, H. (1953). *Communication and persuasion*. New Haven: CT: Yale University Press.

Janis, I. L. (1954). Personality Correlates of Susceptibility To Persuasion. [Article]. *Journal of Personality, 22*(4), 504.

Janis, I. L., & Feshbach, S. (1954). Personality differences associated with responsiveness to fear-arousing communications. *Journal of Personality, 23*(2), 154.

Kapucu, N. (2008). Collaborative emergency management: better community organising, better public preparedness and response. *Disasters, 32*(2), 239-262.

Krishnan, H. S., & Smith, R. E. (1998). The relative endurance of attitudes, confidence and attitude-behavior consistency: The role of information source and delay. *Journal of Consumer Psychology, 7*(3), 273-298.

Krugman, H. E., & Hartley, E. L. (1970). Passive learning from television. *Public Opinion Quarterly, 34*(2), 184-190.

Kumkale, G. T., & Albarracin, D. (2004). The sleeper effect in persuasion: A meta-analytic review. *Psychological Bulletin, 130*(1), 143-172.

Landau, J. (2007). Enhancing Resilience: Families and Communities as Agents for Change. *Family Process, 46*(3), 351-365.

Laroche, M., Cleveland, M., & Maravelakis, I. (2002). Attitude accessibility, certainty and the attitude--behaviour relationship: an empirical study of ad repetition and competitive interference effects. *International Journal of Advertising, 21*(2), 149-174.

Lehman, B. J., & Crano, W. D. (2002). The persuasive effects of vested interest on attitude-criterion consistency in political judgment. *Journal of Experimental Social Psychology, 38*, 101-112.

Leventhal, H. (1970). Findings and theory in the study of fear communications. In L. Berkowitz (Ed.), *Advances in experimental social psychology*. New York: Academic Press.

Leventhal , H. (1971). Fear appeals and persuasion: The differentiation of a motivational construct. *American Journal of Public Health, 61*(4), 1208-1224.

Levine, T., & Banas, J. (2002). One-Tailed F-tests in communication research. *Communication Monographs, 69*(2), 132-143.

McCroskey, J. C. (1966). Scales for the measurement of ethos. *Speech Monographs, 33*, 65-72.

McCroskey, J. C., & Teven, J. J. (1999). Goodwill: A reexamination of the construct and its measurement. [Article]. *Communication Monographs, 66*(1), 90.

McEntire, D. A., & Myers, A. (2004). Preparing communities for disasters: Issues and processes for government readiness. *Disaster Prevention and Managment, 13*(2), 140-152.

McKay, D. L., Berkowitz, J. M., Blumberg, J. B., & Goldberg, J. P. (2004). Communicating cardiovascular disease risk due to elevated homocysteine levels: Using the EPPM to develop print materials. *Health Education & Behavior, 31*(3), 355-371.

McManus, G. (March 1, 2012 April 4). Warm February closes out eleventh warmest winter in Oklahoma. http://climate.ok.gov/index.php/site/page/news/warm_february_closes_out_eleventh_warmest_winter_in_oklahoma

Metzger, M. J., Flanagin, A. J., Eyal, K., Lemus, D. R., & Mccann, R. M. (2003). Credibiility for the 21st century:Integrating perspectives on source, message and media credibility in the contemportary media environment. In P. J. Kalbfleisch (Ed.), *Communication yearbook 27*. Mahwah, NJ: Lawrence Erlbaum Assocaites.

Mileti, D. (1999). *Disasters by design: A reassessment of natural hazards in the United States*. Washington DC: Joseph Henry Press.

Miller, C. H., Adame, B. J., & Moore, S. D. (in press). The role of vested interest in disaster preparedness. *Disasters XX*(XX), XX-XX.

Miller, C. H., & Averbeck, J. M. (in press). A measure of hedonic relevance: Insight and application.

Miller, C. H., Lane, L. T., Deatrick, L. M., Young, A. M., & Potts, K. A. (2007). Psychological Reactance and promotional health essages: The effects of controlling language, lexical concreteness, and the restoration of freedom. *Human Communication Research, 33*(2), 219-240.

Mirels, H. L., & Dean, J. B. (2006). Right-wing authoritarianism, attitude salience, and beliefs about matters of fact. *Political Psychology, 27*(6), 839-866.

Murray-Johnson, L., Witte, K., Patel, D., Orrego, V., Zuckerman, C., Maxfield, A. M., et al. (2004). Using the extended parallel process model to prevent noise-induced hearing loss among coal miners in appalachia. *Health Education & Behavior, 31*(6), 741-755.

Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology, 41*(1/2), 127-150.

O'Hair, D. (2008). OHOHS grant news. In B. Adame (Ed.). Norman.

OKOHS. (2011a). Our history. Retrieved 3/28, 2011, from http://www.ok.gov/reddirtready/ABOUT_US/Our_History/index.html

OKOHS. (2011b). What is Red Dirt Ready? Retrieved 3/28, 2011, from http://www.ok.gov/reddirtready/ABOUT_US/What_is_Red_Dirt_Ready/index.html

Ortony, A., & Turner, T. J. (1990). What's basic about basic emotions? *Psychological Review, 97*(3), 315-331.

Paek, H.-J., Hilyard, K., Freimuth, V., Barge, J. K., & Mindlin, M. (2010). Theory-based approaches to understanding public emergency preparedness: Implications for effective health and risk communication. *Journal of Health Communication, 15*(4), 428-444.

Paisley, W. J. (2001). Public communication capaigns: The American experience. In R. E. Rice & C. K. Atkin (Eds.), *Public communication campaigns.* (3 ed., pp. 3-21). Thousand Oaks: CA: Sage.

Petrocelli, J. V., Tormala, Z. L., & Rucker, D. D. (2007). Unpacking attitude certainty: Attitude clarity and attitude correctness. *Journal of Personality & Social Psychology, 92*(1), 30-41.

Petty, R. E., & Cacioppo, J. T. (1984). The effects of involvement on responses to argument quantity and quality. *Journal of Personality and Social Psychology, 46*(1), 69-81.

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology*. New York: Academic.

Petty, R. E., Cacioppo, J. T., & Goldman, R. (1981). Personal involvement as a determinant of argument-based persuasion *Journal of Personality and Social Psychology, 41*, 847-855.

Pfau, M., & Parrott, R. (1993). *Persuasive Communication Campaigns*. Needham Heights, MA: Allyn and Bacon.

Redlener, I. M. D., Grant, R., Berman, D. A., Johnson, D., & Arbramson, D. (2006). *Where the American public stands on terrorism, security and disaster preparedness*. New York: Columbia University Mailman School of Public Health.

Rice, R. E., & Foote, D. R. (2001). A systems-based evaluation planning model for health communication campaigns in developing countries. In R. E. Rice & C. K. Atkin (Eds.), *Public communication campaigns.* (pp. 146-167). Thousand Oaks: CA: Sage.

Roberto, A. J., & Goodall, C. E. (2009). Using the extended parallel process model to explain physicians' decisions to test their patients for kidney disease. *Journal of Health Communication, 14*(4), 400-412.

Rogers, E. M. (1994). *A history of communication study: A biographical approach*. NY: The Free Press.

Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. *Journal of Psychology, 91*(1), 93-114.

Roskos-Ewoldsen, D. R. (1997). Attitude accessibility and persuasion. In B. Burleson (Ed.), *Communication Yearbook 20*. Thousand Oaks, CA: Sage.

Roskos-Ewoldsen, D. R., Arpan-Ralstin, L., & St. Pierre, J. (2002). Attitude accessibility and persuasion: The quick and the strong. In J. P. Dillard & M. Pfau (Eds.), *The Persuasion Handbook: Developments in Theory and Practice.* Thousand Oaks, CA: Sage.

Salmon, C. T., & Murray-Johnson, L. (2001). Communication campaign effectiveness: Critical decisions. In R. E. Rice & C. K. Atkin (Eds.), *Public communication campaigns.* (pp. 168-180). Sage: Thousand Oaks: CA.

Sears, D. O. (1997). The impact of self-interest on attitudes - a symbolic politics perspective on differences between survey and experimental findings: Comment on Crano (1997). *Journal of Personality and Social Psychology, 72*(3), 492-496.

Sears, D. O., & Funk, C. L. (1991). The role of self-interest in social and political attitudes. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 24, pp. 1-91). San Diego: Academic Press.

Shaffer, D. R. (1975). Some effects of consonant and dissonant attitudinal advocacy on initial attitude salience and attitude change. *Journal of Personality and Social Psychology, 32*(1), 160-168.

Shari, M., Kim, W., & Jon'a, M. (1998). The Perception of Risk Messages Regarding Electromagnetic Fields: Extending the Extended Parallel Process Model to an Unknown Risk. *Health Communication, 10*(3), 247-259.

Shavitt, S., & Fazio, R. H. (1991). Effects of attribute salience on the consistency between attitudes and behavior predictions. *Personality and Social Psychology Bulletin 17*, 507-516.

Siegel, J. T., Alvaro, E. M., Lac, A., Crano, W. D., & Dominick, A. (2008). Intentions of Becoming a Living Organ Donor Among Hispanics: A Theory-Based Approach Exploring Differences Between Living and Nonliving Organ Donation. *Journal of Health Communication, 13*(1), 80-99.

Simons, H. W., Berkowitz, N. N., & Moyer, R. J. (1970). Similarity, credibility, and attitude change: A review and a theory. *Psychological Bulletin, 73*(1), 1-16.

Sivacek, J., & Crano, W. D. (1982). Vested interest as a moderator of attitude-behavior consistency. *Journal of Personality and Social Psychology, 43*(2), 210-221.

Slovic, P. (1987). Perception of Risk. *Science, 236*(4799), 280-285.

Slovic, P., Fischhoff, B., & Lichtenstein, S. (1982). Why Study Risk Perception? *Risk Analysis, 2*(2), 83-93.

Smith, A. (2010). *Home broadband, 2010*. Washington DC: Pew Research Center.

Snyder, L. B. (2001). How effective are mediated health campaigns? In R. E. Rice & C. K. Atkin (Eds.), *Public communication campaigns.* (pp. 181-192). Thousand Oaks: CA: Sage.

Soman, D. (2001). Effects of Payment Mechanism on Spending Behavior: The Role of Rehearsal and Immediacy of Payments. *Journal of Consumer Research, 27*(4), 460-474.

Sparrow, K., & Chretien, D. (1993). The social distance perceptions of racial and ethnic groups by college students—A research note. *Sociological Spectrum*(13), 277-288.

Taylor, P. (2006). *Luxury or necessity? Things we can't live without: The list has grown in the last decade.* Washington DC: Pew Research.

Teven, J. J., & McCroskey, J. C. (1997). The relationship of perceived teacher caring with student learning and teacher evaluation. [Article]. *Communication Education, 46*(1), 1.

Tormala, Z. L., DeSensi, V. L., Clarkson, J. J., & Rucker, D. D. (2009). Beyond attitude consensus: The social context of persuasion and resistance. *Journal of Experimental Social Psychology, 45*(1), 149-154.

Triandis, H. C. (1984). A note on Rokeach's theory of prejudice. *Journal of Abnormal and Social Psychology, 62*, 184-186.

Valente, T. W. (2001). Evaluating communication campaigns. In R. E. Rice & C. K. Atkin (Eds.), *Public communication campaigns.* (pp. 105-124). Thousand Oaks: CA: Sage.

van der Pligt, J., Eiser, J. R., & Spears, R. (1986). Construction of a nuclear power station in one's locality: Attitudes and salience. *Basic & Applied Social Psychology, 7*(1), 1-15.

Whiteman, H. (1/12/2011). Tense waiting game for Brisbane residents as water levels rise. *CNN World*. Retrieved from http://www.cnn.com/2011/WORLD/asiapcf/01/12/australia.floods/index.html?eref=mrss_igoogle_cnn

Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. *Communication Monographs, 59*(4), 329.

Witte, K. (1994). Fear control and danger control: A test of the extended parallel process model (EPPM). *Communication Monographs, 61*(2), 113-134.

Witte, K. (2001). *Effective health risk messages: A step-by step guide*. Thousand Oaks: Sage.

Witte, K., & Allen, M. (2000). A meta-analysis of fear appeals: Implications for effective public health campaigns. *Health Education & Behavior, 27*(5), 591-615.

Witte, K., Cameron, K. A., Lapinski, M. K., & Nzyuko, S. (1998). A theoretically based evaluation of HIV/AIDS prevention campaigns along the Trans-Africa Highway in Kenya. *Journal of Health Communication, 3*(4), 345.

Witte, K., Cameron, K. A., McKeon, J. K., & Berkowitz, J. M. (1996). Predicting Risk Behaviors: Development and Validation of a Diagnostic Scale. *Journal of Health Communication, 1*(4), 317-342.

Wong, N. C. H., & Cappella, J. N. (2009). Antismoking Threat and Efficacy Appeals: Effects on Smoking Cessation Intentions for Smokers with Low and High Readiness to Quit. *Journal of Applied Communication Research, 37*(1), 1-20.

APPENDIX A EXPERIMENTAL MATERIALS

Message Manipulations

Parentheses indicate (High emphasis), whereas brackets indicate [low emphasis]. Font features are varied to indicate the manipulated dimension of VI as follows: **Certainty**, *Immediacy*, Response-Efficacy, **Self-Efficacy**.

Average word count of individual messages: 141

Oklahoma is the heart of the homeland and historically, we've set the standard on how to meet adversity head-on. But as the world changes, it would be a grave error to close our eyes to new threats. Disasters like tornados, floods and ice storms (**will affect all) [may affect some]** Oklahomans *(in the next few months) [in the next few years]*. (Research has shown) [Some people believe] that being prepared with a go-kit, containing basics like food and water for your household; a flashlight, radio and extra clothes (is the most effective way) [may be one way] to help yourself survive a major disaster. **(These items are inexpensive and readily available, so you can easily assemble a preparedness kit) [These items can be expensive and hard to find so assembling a kit may be difficult]**. The Oklahoma Office of Homeland Security needs you to be prepared. Both natural and man-made disasters (**will) [might]** affect you *(in the near future)[sometime far in the future]*. Get started today. Log on to reddirtready.com. Let's make Oklahoma Red Dirt Ready.

Control Message– OK Office of Homeland Security

Words: 125

Oklahoma is the heart of the homeland and historically, we've set the standard on how to meet adversity head-on. But as the world changes, it would be a grave error to close our eyes to new threats. So, we're calling on Oklahomans with different experiences and backgrounds to pull together, get prepared and be ready. That's why the Oklahoma office of homeland security wants you to get red dirt ready, because by being informed, and being willing to volunteer, together, we can handle anything. Get started today. Log on to reddirtready.com, answer a few questions and find out how you can help. And lets make Oklahoma ready for anything that might come our way because together, we are secure. Let's get Oklahoma red dirt ready.

Experimental Condition Table

	Certainty	Immediacy	RE	SE
1	HIGH	HIGH	HIGH	HIGH
2	HIGH	HIGH	HIGH	LOW
3	HIGH	HIGH	LOW	LOW
4	HIGH	HIGH	LOW	HGIH
5	HIGH	LOW	LOW	LOW
6	HIGH	LOW	HIGH	LOW
7	HIGH	LOW	LOW	HIGH
8	HIGH	LOW	HIGH	HIGH
9	LOW	LOW	LOW	LOW
10	LOW	LOW	HIGH	LOW
11	LOW	LOW	LOW	HIGH
12	LOW	LOW	HIGH	HIGH
13	LOW	HIGH	HIGH	HIGH
14	LOW	HIGH	LOW	HIGH
15	LOW	HIGH	HIGH	LOW
16	LOW	HIGH	LOW	LOW

APPENDIX B SCALES

Vested Interest

Susceptibility

Susceptibility is defined as being vulnerable to harm or at risk for a particular threat.

Please answer the following questions regarding how susceptible and vulnerable you feel living in Oklahoma, a region of the country know to have frequent disasters.

1. How susceptible are you to getting injured in a disaster?

Not Susceptible 1 2 3 4 5 6 7 Highly Susceptible

2. How susceptible is your property to getting damaged in a disaster?

Not Susceptible 1 2 3 4 5 6 7 Highly Susceptible

3. What is the possibility your property will get damaged in a disaster?

Not Possible 1 2 3 4 5 6 7 Highly Possible

4. How at risk is your community for being affected by a disaster?

Not at Risk 1 2 3 4 5 6 7 Highly at Risk

5. Given that you live in Oklahoma, what is your risk for being affected by a disaster?

Low Risk 1 2 3 4 5 6 7 High Risk

Response Efficacy

Response efficacy is defined as the ability of a tool or procedure to produce a desired result.

The Oklahoma Office of Homeland Security recommends the use Emergency Supply Kits, which commonly include such things as a three-day supply of water, non-perishable food, radio, first aid kit, matches, etc. Please answer to the following questions regarding how effective various related responses may be to a disaster.

1. How effective is an emergency kit at minimizing the negative consequences of disaster?

Not Effective 1 2 3 4 5 6 7 Highly Effective

2. How effective would an emergency kit be to reduce the damage caused by a disaster?

Not Effective 1 2 3 4 5 6 7 Highly Effective

3. How effective do you think an emergency kit will be at lowering distress following a disaster?

Not Effective 1 2 3 4 5 6 7 Highly Effective

4. How effective is an emergency kit at minimizing damage from a disaster to your property or belongings?

Not Effective 1 2 3 4 5 6 7 Highly Effective

5. How effective is an emergency kit at reducing the impact of disaster?

Not Effective 1 2 3 4 5 6 7 Highly Effective

6. How effective is planning ahead of time at reducing the potential harm caused by disaster?

Not Effective 1 2 3 4 5 6 7 Highly Effective

7. How effective are emergency alert radio messages at helping respond to a disaster?

Not Effective 1 2 3 4 5 6 7 Highly Effective

Self-Efficacy

Self-efficacy is defined as your ability to effectively produce a desired result.

Please answer to the following questions regarding how effective you think you can be at preparing for and responding to a disaster.

1. How capable are you at effectively preparing an emergency kit to help respond to a disaster?

Not Capable 1 2 3 4 5 6 7 Highly Capable

2. How able are you to take the time to prepare an emergency kit for use in the event of a disaster?

Not Able 1 2 3 4 5 6 7 Very Able

3. Can you afford to buy the items needed for an emergency kit in case of a disaster?

Cannot Afford 1 2 3 4 5 6 7 Can Easily Afford

4. How easy would it be for you to prepare an emergency kit for use in a disaster?

Not Easy 1 2 3 4 5 6 7 Very Easy

5. How much knowledge do you have about using an emergency kit in response to a disaster?

No Knowledge 1 2 3 4 5 6 7 Great Knowledge

6. How effective are you at using an emergency kit in case of a tornado disaster?

Not Effective 1 2 3 4 5 6 7 Highly Effective

Outcomes Certainty

Certainty is defined as the perceived probability of an event or outcome occurring.

Please answer the following questions regarding your perceptions of the certainty of a disaster.

1. How likely is a disaster to occur in your community?

Not Likely 1 2 3 4 5 6 7 Highly Likely

2. What is the chance of you being affected by a disaster?

Small Chance 1 2 3 4 5 6 7 Large Chance

3. What are the odds you will be injured in a disaster?

Not Likely 1 2 3 4 5 6 7 Highly Likely

4. What are the odds your property will be damaged in a disaster?

Not Likely 1 2 3 4 5 6 7 Highly Likely

5. How certain are you that you can avoid injury if there is a disaster?: (item dropped)

Not Certain 1 2 3 4 5 6 7 Very Certain

6. How certain are the risks of property damaged due to a disaster?

Not Certain 1 2 3 4 5 6 7 Very Certain

7. How likely are injuries to occur as a result of a disaster?

Not Likely 1 2 3 4 5 6 7 Highly Likely

8. How likely is loss of belongings or property damage to occur as a result of a disaster?

Not Likely 1 2 3 4 5 6 7 Highly Likely

Immediacy of Outcomes

Immediacy is defined as the perceived amount of time before the consequences of an event may come about.

Please answer to the following questions regarding how immediate you think the consequences of a disaster will occur.

1. How soon might a disaster occur? (item dropped)

Not Soon 1 2 3 4 5 6 7 Very Soon

2. How far in the future might a disaster affect you?

Not Far 1 2 3 4 5 6 7 Very Far

3. How long do you think it will be before a disaster occurs in your area?

Not Long 1 2 3 4 5 6 7 Very Long

4. How long do you think it will be before a disaster damages your belongings or property?

Not Long 1 2 3 4 5 6 7 Very Long

5. How long do you have to prepare for a disaster?

Short Time 1 2 3 4 5 6 7 Long Time

6. How much time do you expect before a disaster affects your area?

Short Time 1 2 3 4 5 6 7 Long Time

Threat Salience

Salience is defined as your awareness of the presence or prominence of a potentially threatening event.

Please answer to the following questions regarding how salient of an event tornados are for you.

1. How often do you think about a potential disaster?

Not Often 1 2 3 4 5 6 7 Very Often

2. How concerned are you about potential disaster?

Not Concerned 1 2 3 4 5 6 7 Very

Concerned

3. How prominent of an issue does disaster represent?

Not Prominent 1 2 3 4 5 6 7 Very

Prominent

4. How obvious is the threat of disaster to you?

Not Obvious 1 2 3 4 5 6 7 Very Obvious

5. How often do you think about the threat of disasters?

Not Often 1 2 3 4 5 6 7 Very

Often

6. How aware do you think the public is concerning the issue of disaster?

Not Aware 1 2 3 4 5 6 7 Very Aware

7. How often do you think about preparing for the possibility of a disaster?

Not Often 1 2 3 4 5 6 7 Very Often

8. How much do you care about disaster?

Not Much 1 2 3 4 5 6 7 Very Much

Attitudes Toward Preparedness

Please indicate the degree to which you agree with the following statements.
1-7 Likert-type scale.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

1. Preparing for natural disasters is a worthwhile activity.
2. Preparing for man-made disasters is a worthwhile activity.
3. Preparing for disasters will increase my odds of survival in the event of a disaster.
4. Having an emergency kit is an essential tool for helping me survive after a disaster.
5. In the event of a disaster, an emergency kit will be a valuable tool when rescue and aid workers are not immediately available.
6. Knowing disaster related information such as evacuation routes would increase my odds of survival.
7. Awareness of disaster related information is a worthwhile activity for my well-being.
8. Researching which type of disasters both natural and man-made, may occur in my geographic area is a valuable use of my time.
9. I can exercise control over what happens to me during a disaster.
10. Preparation will help me to lessen the consequences of a disaster.

Source Credibility Scales

Source Credibility Scale – B (based on McCroskey, 1966)

7-point differential anchored on either end with opposing adjectives.
1 and 7 indicate a very strong feeling.
2 and 6 indicate a strong feeling.
3 and 5 indicate a fairly weak feeling.
4 indicates you are undecided or do not understand the adjectives themselves.

Authoritativeness

1. Reliable/Unreliable
2. Uninformed/Informed
3. Unqualified/Qualified
4. Intelligent/Unintelligent
5. Valuable/Worthless
6. Inexpert/Expert

Character

1. Honest/Dishonest
2. Unfriendly/Friendly
3. Pleasant/Unpleasant
4. Selfish/Unselfish
5. Awful/Nice
6. Virtuous/Sinful

Message Attitude Scales

Message Fairness Scale (8-items):

1. The message was fair
2. I found the message to be reasonable
3. The message was pleasant
4. I felt the message to be enjoyable
5. I think the message was reliable
6. The message was accurate
7. I did not think the message was exaggerated
8. I felt as though the message reflected my attitudes

Message Attention Scale (4-items):

1. The message was interesting
2. The message made me want to try to understand it
3. The message made me want to give all my attention
4. The message made me want to focus on the information

Message Importance Scale (4-items):

1. The message was important to me
2. The message mattered to me
3. I appreciated the significance of the message
4. I found the message to be meaningful

Behavioral Intention Scale

On a scale of 0 – 100 with 0 = "definitely will not" and 100 = "definitely will":

1. Indicate the degree of your intention to prepare for a salient disaster by constructing a go-kit.
2. Indicate the degree of your intention to prepare for a salient disaster by making a plan.
3. Indicate the degree of your intention to seek information about preparedness by visiting Reddirtready.gov.
4. Please indicate the degree to which you would be willing to volunteer to aid relief organizations in the event of a tornado, flood or ice storm.

Demographic Questions

1. How old are you?
2. Are you Male or female?
3. With which race do you most identify?
4. What is the highest level of education that you have completed?
5. What is your approximate annual income?
6. Including yourself, how many people live in your household?
7. In what Zip code do you reside?

APPENDIX C ADDITIONAL TABLE

Table 11. Correlations Among Subscales for VI by Susceptibility

	1	2	3	4
1. Immediacy	-	-.395**	-.285**	-.378**
2. Certainty		-	.448**	.741**
3. Salience			-	.434**
4. Susceptibility				-

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