The Pennsylvania State University

The Graduate School

College of Communications

THE EFFECTS OF MESSAGE EVIDENCE TYPE AND VISUAL

REPRESENTATION ON COGNITIVE AND AFFECTIVE RESPONSES

A Thesis in

Media Studies

by

Shardé Ardelle Hardy

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Master of Arts

May 2011

The thesis of Shardé Ardelle Hardy was reviewed and approved* by the following:

Michel M. Haigh
Assistant Professor of Communications
Thesis Adviser

Frank Dardis
Associate Professor of Communications

Fuyuan Shen
Associate Professor of Communications

Marie Hardin
Associate Professor of Communications
Associate Dean for Graduate Studies and Research

*Signatures are on file in the Graduate School.

ABSTRACT

The prevalent use of images employed by strategic communicators within messages, combined with a lack of empirical evidence of the vividness effect, prompted this study to examine how information portrayed through different types of messages (narrative or statistics) and visual representations (image or no image) would affect persuasion. While it was predicted narratives would be more persuasive than statistical messages, the results of this study indicate narrative messages are neither more nor less persuasive than statistical messages, when employing a pro-social topic.

A second goal of this study was to examine how message type impacted the variables vividness, transportation, affect, and credibility.

The results of the current study revealed narratives were perceived as more vivid, sad, and transporting than statistical messages; whereas, statistical messages were perceived as having greater credibility and produced more fear and surprise than narratives.

Transportation, involvement, and vividness were not found to mediate the relationship between message type and persuasion.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGEMENTS

Chapter 1

Introduction

"We live in the world's wealthiest nation. Yet 13 percent of people living in the United States live in poverty. Nearly one in four children live in households that struggle to put food on the table. That's 16.7 million children" (Bread for the World, 2010). Furthermore, an estimated 49.1 million Americans (16.4 percent) are considered food insecure; meaning their access to enough nutritionally adequate food is limited by a lack of money and/or other resources (Feeding America, 2010).

Over the past 50 years, the federal government has gathered annual statistics of homelessness and hunger (Employment Policies Institute, 2002). Researchers and policymakers utilize such statistical estimates to explore the scope of a problem and to allocate enough time, resources, programs, and policies to develop solutions (Employment Policies Institute, 2002).

One way complex issues, such as hunger, are then relayed to the masses is through stories employed by the mass media (Zillmann, 1999). Media outlets play a critical role in transmitting accurate and verifiable messages. Local and national statistics are used frequently by the media to present viewers with the most reliable, typical, and holistic representation of any given issue (Feeley, Marshall, & Reinhart, 2006). In general, consumers of statistical messages perceive the information as more objective and informative than narrative messages (De Wit, Das, & Vet, 2008; Greene & Brinn, 2003).

Narrative messages appeal to human nature (Kopfman, Smith, Ah Yun, & Hodges, 1998). They highlight a single perspective, appeal to the reader's emotions, and allow individuals to identify with the source of the information (Reinhart & Feeley,

1

2007). Narratives with a beginning, middle, and end (Green, 2006) are often more memorable than statistical messages (Baesler & Burgoon, 1994; Greene & Brinn, 2003).

To date, prior research on the presentation of messages has focused a great deal on campaign messages within the health communication literature. Greene and Brinn (2003) considered which message type (statistical vs. narrative) might be more persuasive in designing campaigns to influence college women's use of tanning beds.

They found statistical messages (over narratives) to be slightly more effective in reducing the use of tanning beds among young women. Hinyard and Kreuter (2007) promote narrative communication as an important tool in designing health campaign programs. They offer theoretical support, practical support, and recommendations to practitioners within the health communication field. Kopfman et al. (1998) considered the affective and cognitive reactions of narrative versus statistical messages designed to encourage individuals to carry a signed organ donor card. The researchers found dual-support for both narrative and statistical messages to be used as a persuasive tool in health communication.

This ubiquitous research of message evidence within health communication is not surprising due to the salience of these message types throughout public service announcements, health brochures, and news coverage. Unfortunately, little attention has been paid to how these same persuasion tools might affect other relevant campaigns, such as the pro-social movement (Reinhart & Feeley, 2007). In recent decades, national leaders have encouraged a wide-spread movement to elicit donations, advocacy, and volunteerism. Most recently, First Lady Michelle Obama called on Americans to participate in America's "renewal and recovery" in a keynote address at the National

2

Conference on Volunteering and Service. She stated, "This new Administration doesn't view service as separate from our national priorities, or in addition to our national priorities – (but) as the key to achieving our national priorities" (Scott & Roberts, 2009, para. 2). Therefore, because civic engagement is recognized as essential to American democracy, it serves as a crucial message topic to consider in the context of designing persuasive messages.

With charities most recently being named as the "latest victims of the sagging economy" (Gross, 2008, para. 1), the current study aims to provide valuable insight into specific message components (i.e., transportation; vividness; affect; credibility) to consider when creating persuasive messages, particularly within the non-profit sector. American non-profits are fueled by mostly non-multi-billionaire individuals, rather than large companies and corporations (Gross, 2008).

It is important for communication practitioners to create messages that persuade able-individuals to donate, advocate, and/or volunteer. The topic, hunger, was chosen for this study because of its scope, relevance, and national impact. Food is a basic human need. However, to combat hunger, individuals aren't limited to giving financially, but instead can advocate for changed legislation, volunteer at a food bank, or even start a food drive. Providing participants (i.e., college students) with a topic that impacts almost 50 percent of the American population and allows for students to become involved in a way they feel most comfortable will provide important feedback regarding beliefs and behavioral intent surrounding a pressing social issue. Results of the present research contribute to the marketing practices of government and communication practitioners that seek to provide the public with non-profit, pro-social messages.

Few would dispute the important role statistical and narrative messages play in helping individuals make sense of human relations, complex events, and the world in which they live (Slater & Rouner, 2002; Zillmann, 1999). However, researchers continue to debate whether narratives or statistical messages are *more* persuasive when attempting to influence beliefs, opinions, attitudes, and behavior (Reinhart & Feeley, 2007). Mixed results regarding the effectiveness of one message type over the other (Allen & Preiss, 1997; Baesler & Burgoon, 1994; Braverman, 2008; Dickson, 1982; Greene & Brinn, 2003; Kazoleas, 1993) have left researchers perplexed (Feeley et al., 2006).

Researchers suggest a number of confounding variables and methodological problems might account for the varied findings (Baesler & Burgoon, 1994; Kopfman et al., 1998). Baesler and Burgoon (1994) propose differences in message readability, message length, and the participant's background and individual experiences could lead one message type to be more persuasive over another.

In addition, vividness or "information that's emotionally interesting, concrete and imagery provoking, proximate in a sensory, temporal, or spatial way" (Baesler & Burgoon, 1994, pp. 584-585) has been one of the most frequently cited explanations for why narratives hold a persuasive advantage over statistical messages (Baesler, 1997; Baesler & Burgoon, 1994; Bell & Loftus, 1985; Brosius & Bathelt, 1994; Feeley et al., 2006; Kazoleas, 1993; Reinhart & Feeley, 2007). Theoretically, vivid information is more readily brought to mind because of its "colorful and concrete nature" (Taylor & Thompson, 1982, p. 156). Vividly presented information is expected to have a greater impact on judgments (Taylor & Thompson, 1982) because the information appears more realistic, affective, memorable (Reinhart & Feeley, 2007), and requires individuals to

4

spend a greater amount of time in thought when processing the message. This ultimately allows the message to become more accessible in one's memory when a decision must be made (Bell & Loftus, 1985; Feeley et al., 2006; Taylor & Thompson, 1982).

While vividly presented information, including illustrations and engaging language is expected to be more influential than non-vivid information, researchers have found little empirical support for the hypothesized vividness effect (Taylor & Thompson, 1982).

Taylor and Thompson (1982) argue a lack of agreed upon conceptualization and operationalization of what constitutes as vividness may account for the obscure findings. Central to the disagreement is the researcher's decision to manipulate the *message* (i.e., concrete language; case histories) or the message *presentation* (i.e., pictures; illustrations; multi-media). Previous scholars have treated these vivid constructs independently (Taylor & Thompson, 1982). For example, Baesler and Burgoon (1994) employed a linguistic manipulation of vividness, such that vividness was a result of emotiveness (i.e., "the ratio of adjectives plus adverbs to nouns plus verbs"), concreteness (specific vs. abstract information), and imagery (i.e., "imagistic verbs") (pp. 588-589).

Although Baesler and Burgoon (1994) make an important contribution to the persuasion literature; they operationalized vividness of the *message only*, rather than also including a visual representation (image) of the given message. Few would argue the unique and important role the written word has played in stories and strategic communication (Niederdeppe, Bu, Borah, Kindig, & Robert, 2008). However, the visual medium has historically provided the most common source of storytelling in America; therefore, it is surprising visual images have been studied in less detail than other

strategic communication methods, such as message type and framing (Niederdeppe et al., 2008).

Motivated by the fact few studies within the persuasion literature have considered the impact of images in conjunction the written word (Niederdeppe et al., 2008), combined with a lack of empirical evidence for the vividness effect, the primary goal of this study is to examine what combination of employing visuals within different types of messages leads to the greatest persuasive effects. With a 2 (message type: statistical vs. narrative) x 2 (visual representation: image vs. no image) experimental design, the current study aims to examine vividness from a more *holistic* perspective by exploring which vivid characteristics (i.e., the image and/or the message) enhances or undermines the proposed vividness effect. Through manipulating both the message type and message presentation within the same study, it is expected the results will contribute to the literature on vividness by offering insight into how and under what conditions vividness is likely to occur.

Additional factors, beyond vividness, including transportation (Braverman, 2008; Escalas, 2004 Green, 2006), message credibility (Lindsey & Ah Yun, 2003), topic involvement (Braverman, 2008; Maheswaran & Meyers-Levy, 1990), affect, and cognitions (Kopfman et al., 1998) have been cited as potential mediating and/or moderating variables which might affect the impact of messages on persuasion. A final goal of this study is to explore how message type (statistical vs. narrative) uniquely impacts the above variables. Examining multiple variables within the same study offers insight into how and why differences between statistical and narrative persuasion exist.

Chapter 2

Literature Review

Message Evidence

Evidence, defined by James McCroskey (1969) as factual statements, objects, and opinions, originating from a source other than the speaker, which are used to provide support for a speaker's claims, has intrigued scholars for more than 80 years. Prior literature has consistently proven the use of evidence will produce a greater amount of attitude change than a lack of evidence (Perloff, 2003); however, understanding how and why which types of evidence are more persuasive remains an important empirical question.

Evidence has been widely used in framing research (i.e., Chang & Lee, 2010; Das, Kerkhof, & Kuiper, 2008; Matthes, 2008), which explores how reader's attitudes, judgments, and interpretations of issues and events can be modified by selecting some information to be more prominent at the exclusion of other information (Matthes, 2008). Social issues, including poverty and welfare, are most prominently examined in the context of news framing (Matthes, 2008). News can be framed episodically, such that "social issues are constructed around specific instances and individuals" (i.e., concrete examples) or thematically, such that social issues are depicted with in-depth information, that places the issue in a greater historical or geographical context (Matthes, 2008, p. 4). Framing messages episodically or thematically can impact the way individuals interpret and make sense of social issues and subsequently attribute responsibility for those issues. According to Iyengar (1989) individuals seek to break down complex social issues by questioning "who is responsible?" Prior research indicates episodic framing typically

leads individuals to ascribe individualistic responsibility, while thematic framing leads individuals to ascribe societal responsibility (Iyengar, 1991; Matthes, 2008).

Research on gain-framed versus loss-framed messages has recently been extended to social issues as well (Chang & Lee, 2010; Nan, Puig Abril, Binder, Nevar, & Rojas, 2007). Results consistently indicate negatively framed messages lead to greater persuasion than positively framed messages because people are more willing to make riskier choices to prevent a loss than to promote or maintain a gain (Nan et al., 2007).

The current study moves beyond perceptions of responsibility and gain-framed versus loss-framed messages in order to research the persuasive effects of a third, more traditional type of message evidence: narratives vs. statistical information.

Narratives might include testimonials, opinions, examples, case histories, and/or stories, while statistical information might be divided into reports of events and hard data (Baesler & Burgoon, 1994). Feeley et al. (2006) suggest these two dichotomies have led to one of the oldest questions examined by communication scholars: which appeal is more persuasive – the realistic and emotional character story or the rational and far more objective nature of statistics?

Statistical Evidence

Rational, quantitative messages, utilize information about an "object, person, concept or phenomena" (Kazoleas, 1993, p. 40) reported as hard data. Statistical information is often presented as a "rate, frequency, proportion, percentage, probability, average, median, or mode" (Dickson, 1982, p. 399). In the present study, statistical evidence was conceptualized as "information numerical in nature (such as a percentage or a ratio) or of statistical nature (such as a mean or standard deviation) meant to

meaningfully characterize the sample population from which it was derived in a logical manner" (Reinhart & Feeley, 2007, p. 3). In a study providing message evidence concerning opinions of year-round school, an example of statistical evidence might read, "An overwhelming 79% of those students surveyed explained that they were in favor of the year-round school" (Lindsey & Ah Yun, 2003, p. 320). Statistics have been recognized as icons of objectivity (Reinard, 1988). Messages employing statistical information summarize across a number of cases (Greene & Brinn, 2003) and provide a unique technique for "describing groups of data and for making decisions in the absence of complete information" (Reinard, 1988, p. 23). Statistical messages have been found to be perceived as being highly verifiable, due to their use of precise numerical representations (Lindsey & Ah Yun, 2003). It would be easier for an individual to check the accuracy of a statistical message than to check the accuracy of a narrative (Lindsey & Ah Yun, 2003). Furthermore, Baesler and Burgoon (1994) suggest "sample size might operate as a heuristic favoring the persuasiveness of statistics because a claim based on a large sample should have more of an impact than an identical claim based on a small sample" (p. 584).

Because statistical evidence is thought to be more representative; present "typical" information on a topic; and utilize sample groups similar in demographics to a target audience, researchers believe statistical evidence could produce stronger persuasive effects than narratives (Feeley et al., 2006; Reinhart & Feeley). Greene and Brinn (2003) found narrative messages were perceived as more realistic than statistical messages; but statistical messages were perceived as having greater information value. Their results suggest content that includes verifiable facts is potentially more effective in persuading

individuals than information which is of a more personal nature. Greene and Brinn (2003) propose individuals exposed to the narrative may have consciously or subconsciously disassociated themselves from the character in the message, assuming the problem advocated in the message could not occur to them. However, those in the statistical message condition may have processed and considered the probability of themselves becoming a "statistic," such that, the message became more influential. These findings support Allen and Preiss (1997) who found, in a meta-analysis, statistical messages were overall more effective than narratives.

Narrative Evidence

While there are a number of researchers who have found empirical evidence for statistical messages to be more persuasive than narratives (Baesler & Burgoon, 1994; Dickson, 1982; Greene & Brinn, 2003), there are several researchers who have found the narrative to be more persuasive (Braverman, 2008; Kazoleas, 1993; Reinhart & Feeley, 2007).

Intuitively, the power of stories is thought to be preferred and more persuasive over pallid, rational messages (Kopfman et al., 1998). Humans have long been recognized as storytellers and enthusiastic story recipients. At an early age children learn how to process and make sense of the narrative. Narratives can be quite powerful and compelling as they are able to "capture the recipient's imagination and enlist him or her in the performance of meaning under the guidance of the text" (Kopfman et al., 1998, p. 282).

Because individuals cannot possibly have direct contact with every social issue and/or event, journalists and public relations specialists rely heavily on narratives, and

especially vivid exemplars, to help the public identify with a population, individual, social and/or policy issue in question; this process is called exemplification (Gilliam, 2006; Zillmann, 2006). Exemplification aims to take a phenomenon and/or issue which are a part of the universe and break it down into smaller groups containing similar characteristics so these characteristics can illustrate the phenomenon as being a typical example of it (Gilliam, 2006; Zillmann, 1999; Zillmann, 2006). Exemplars provide insight into the gravity of a phenomenon from the subjective perspective of an individual who serves essentially as a case study of the phenomenon in question (Brosius & Bathelt, 1994).

Exemplification theory posits the more personal, concrete, vivid, and affective a message and/or visual exemplar is, the greater impression the exemplar will leave on the reader (Gray, 2009; Taylor & Thompson, 1982). Thus, historically, narrative exemplars are more likely to persuade individuals' opinions, attitudes, and behaviors compared to statistics, which, although are often more representative of the population than narratives, are too abstract to comprehend, resulting in less salient and accessible information to use when making judgments (Gilliam, 2006; Nisbett & Ross, 1980).

Cox and Cox (2001) surmised the reason subjects often "tune out abstract generalizations, especially statistical generalizations" (p. 93) is due to the difficulty people have in processing hard numbers (Brosius & Bathelt, 1994; Cox & Cox, 2001). Statistical message evidence is not as likely to "engage attention, facilitate involvement, maintain interest, or activate connections to associative networks of similar information" (Baesler & Burgoon, 1994, p. 585).

In contrast, narrative messages, which vary significantly from statistical messages, can approach reality from the perspective of each individual receiver (De Wit et al., 2008). These messages typically rely on anecdotal reports, emotions, and vivid appeals to persuade the public (Feeley et al., 2006; Kazoleas, 1993). Compared to statistics, narratives are generally accepted as more concrete, memorable, and colorful. Further, the vividness of the story encourages involvement with the characters and engages the reader's attention and interest throughout the story (Baesler & Burgoon, 1994).

In the current study, a narrative was conceptualized as a message providing a subjective perspective on an issue through the use of personal anecdotes in a story format (Reinhart & Feeley, 2007). A typical narrative requires a number of basic story elements including a theme, main character, setting, plot, conflict, and resolution (Green & Brock, 2000; Greene & Brinn, 2003). Narratives tell a story through a sequence of events, structured with a beginning, middle, and end. The story aims to provide a "suspension of disbelief" (Slater & Rouner, 2002, p. 179) through characters that form relationships, encounter conflict, and ultimately resolve a crisis or crises (Green & Brock, 2000). In persuasive messages it is quite common for the main character to offer his or her personal experience to influence a target audience to follow his or her example (Braverman, 2008). Narratives can take many forms, including, official stories, invented stories, firsthand experiential accounts, secondhand stories, and even culturally common stories (Hinyard & Kreuter, 2007). A typical narrative might read, "I began managing my eating habits four years ago. To me, the most rewarding thing is that I was able to lose weight and keep it off since my first semester" (Braverman, 2008, p. 666).

Studies have revealed the familiar form and structure of the story embedded in a narrative makes it easier to understand, easier to encode into memory, and ultimately more available in memory (Baesler & Burgoon, 1994; Dickson, 1982), than statistical evidence. Furthermore, researchers have indicated a number of additional theoretical and practical reasons why narrative evidence may lead individuals to be more persuaded than statistical evidence. Researchers state (1) narratives lead to persuasion by immersing or transporting readers into the story, allowing their mental capabilities to be focused on events in the story (Green & Brock, 2000) so their existing real world beliefs are momentarily forgotten (Busselle & Bilandzic, 2008); (2) as readers become lost in the story they have the power to reduce and/or block out the formation of counterarguments and are therefore more likely to consider novel messages and ideas (Dahlstrom, 2009); (3) compared to statistics, narratives are easier to recall and understand due to their close resemblance of real-life events and experiences (Feeley et al., 2006; Niederdeppe et al., 2008); (4) narratives often provide believable characters and situations allowing the reader to identify with the story's protagonist (source), eliciting greater immersion and acceptance of the persuasive message (Green & Brock, 2000); and (5) narratives are more persuasive and easier to remember due to their affective nature (Green, 2006).

In summary, narratives can play a central role in influencing beliefs, opinions, attitudes, and behavior through leading readers to become immersed into the message, to identify with believable characters, to aid in message vividness, and to encourage message comprehension, recall, and reduced formation of counterarguements (Niederdeppe et al., 2008). Based on these prior findings, this study predicts:

H1: Narrative messages will be perceived to be more persuasive than statistical messages.

Finding support for the persuasive effects of narratives has been found to be related to the vividness quality of not only the message content, but the *message presentation* as well (Gray, 2009). Niederdeppe et al. (2008) argue messages, when combined with images, can be especially influential in leading to sustained changes in beliefs and estimates regarding the occurrence of a number of social risks. Furthermore, visual exemplars perform a number of persuasive functions within a message, including: "inviting generalizations, inviting causal interpretations, highlighting contrasts, and creating analogies," which can ultimately enhance message recall and emotional responses toward an issue in question (Niederdeppe et al., 2008, pp. 498-499).

Based on the above literature, the current study seeks to provide a richer understanding of how message evidence (statistical vs. narrative), when combined with visual exemplars, can impact readers' attitudes, intentions, and behaviors.

Vividness

It is a commonly held belief the more "vivid the cases, the better the story" (Gilliam, 2006, p. 1). According to Nisbett and Ross (1980), vivid information has the ability to capture emotional and cognitive attention if the information is concrete, illustrative, emotionally engaging, and proximate to one's senses and/or location. Based upon the above definition, vividness has conceptually been treated in a number of ways. Vividness has been manipulated as (a) "a communication characteristic, inherent in the stimulus qualities of information itself" (i.e., concrete, specific, detailed language is more vivid than abstract information); (b) as "pictorially illustrated or videotaped information,"

which assumes information accompanied by illustrations is more vivid than information lacking in pictorial appeal; (c) as "direct experience," assumed to be more vivid than experiencing information indirectly or vicariously; and (d) as "case history information," which is widely regarded as more vivid than other forms of message evidence due to its concrete and emotionally engaging "image-enhancing properties" (Taylor & Thompson, 1982, p. 156).

It is important to acknowledge vividness is more than pictures and the above-mentioned manipulations can occur independently (i.e., vivid language does not have to include case history information). When one *or more* of the characteristics are manipulated, the vivid message will likely have a greater effect on the target audiences' inferential judgments compared to its bland, abstract counterpart (Kazoleas, 1993; Taylor & Thompson, 1982).

Over the past 50-60 years, little experimental research has been able to confirm, or disconfirm the "vividness effect" on message persuasion and recall (Block & Keller, 1997; Brosius & Bathelt, 1994; Taylor & Thompson, 1982). Bower (1970) found visual information is better recalled than non-visual information, while other researchers, including Borgida (1979) and Taylor and Thompson (1982) found no such difference. Furthermore, the effect of vividness on persuasion has yielded similar inconclusive results. Researchers Reyes, Thompson, and Bower (1980) found vividness to enhance persuasion, while Frey and Eagly (1993) uncovered direct contrary findings claiming vividness undermines persuasion due to the potentially distracting nature of its qualities. Despite lack of concrete evidence for the vividness effect, it is likely pre-mature to conclude the construct in fact does not exist (Taylor & Wood, 1983).

While researchers provide a number of potential hypotheses for the lack of evidence surrounding the vividness effect, the most promising explanation may be due to a lack of agreed upon conceptualization and operationalization of what constitutes as "vividness" (Taylor & Thompson, 1982). In some studies (i.e., Baesler & Burgoon, 1994; Bell & Loftus, 1985) vividness was operationalized by manipulating components of the message, such as concreteness, affect, and message evidence. However, in other studies (i.e., Borgida, 1979), vividness was further operationalized using illustrative pictures or videotapes. Taylor and Thompson (1982) recognize vividness may appear weak and even "elusive" due to the lack of consistent underlying conceptualization and operationalization of the vividness construct. Nisbett and Ross (1980) defined vividness as being dependent on a number of potential characteristics (i.e., case histories, direct experience, concrete language, and pictures), which leads to a wide assortment of possible manipulations. The lack of agreement and consistency of conceptualizing and manipulating vividness hinders academics to conclude whether or not vividness plays a role in persuasion.

Taylor and Thompson (1982) argue the conceptualization disagreement centers on the failure to distinguish between a *vivid message*, which is using concrete language and/or case histories, and a *vivid presentation*, which conveys a message using pictures, illustrations, or multi-media. In the past, most researchers have treated these vivid constructs as separate entities (Taylor & Thompson, 1982). Nevertheless, Niederdeppe et al. (2008) argue for the importance of empirically testing the effects of using the written or spoken message in conjunction with pictorial images. Niederdeppe et al. (2008) claim

adding a pictorial element to an already concrete message will likely improve message recall, affective responses, and changes in beliefs and attitudes.

While combining both pictorial and written elements of a message could enhance persuasion, it could just as likely undermine persuasion as well. Frey and Eagly (1993) found when vivid elements were used together with a written message one element (i.e., the message or the image) has the potential to out-shadow the other, which leads to undermining the persuasiveness of the content in question. Ultimately, Frey and Eagly (1993) and Taylor and Thompson (1982) argue lack of empirical proof for the vividness effect could be attributed to researchers placing the persuasive message within overly vivid and distracting contexts.

Evidence suggests visual images attract attention and require a great deal of cognitive resources to process, thus draining mental resources away from systematically processing other elements of the message (Frey & Eagly, 1993; Niederdeppe et al., 2008) and therefore making the "context, but not the message itself, vivid" (Taylor & Wood, 1983, p. 540). In contrast, Baesler and Burgoon (1994) and Bell and Loftus (1985) posit for a message to be persuasive *the written message* must be vivid, and therefore, they fail to consider the visual presentation (i.e., images and context) that encompasses the message (Taylor & Thompson, 1982). The current study argues the construct *vividness* should be examined from a more holistic perspective and proposes one should manipulate vividness by creating a concrete message and visual presentation. Researchers who focus solely on making only the image (or only the message) vivid are potentially missing out on the entirety of the construct.

While past research (i.e., Baesler & Burgoon, 1994; Bell & Loftus, 1985; Kazoleas, 1993) has focused on the persuasiveness and vividness of statistical versus narrative messages, it has failed to incorporate visual images into the messages, which could arguably assist in heightening the vividness construct as well as emotional and issue awareness. Most campaigns rely on visual images and verbal exemplars when developing persuasive messages, therefore it makes sense to empirically examine vividness from a holistic standpoint (i.e., vividness conceptualized as concrete language accompanied by visual image) in order to gain a richer understanding of the characteristics which make up "vividness."

The current study explores the construct of vividness by creating message-only conditions (i.e., pallid statistical message vs. concrete narrative messages) and message plus vivid presentation conditions (i.e., message evidence in conjunction with visual images). By providing four conditions, this study suggests different degrees of "vividness" could emerge, such that pallid, statistical information should be less vivid than concrete, narrative information, which should be less vivid than messages including a colorful, detailed, illustration component.

Furthermore, vivid information is theoretically assumed to carry several properties expected to affect inferential judgments and behavior (Niederdeppe et al., 2008; Taylor & Thompson, 1982). Vividly presented information should allow for greater imageability, affective appeal, and greater availability when judgments are made (Bell & Loftus, 1985). Vivid information appears to have "more resistance to interference" causes people to spend more time in thought, and may even be perceived as having a more credible source (Bell & Loftus, 1985, p. 662).

In summary, concreteness of information (i.e., precise, definite facts) emerges as a central characteristic of vividness (Taylor & Thompson, 1982). According to Taylor and Thompson (1982), "when a description contains specific details of a setting or person, such as color, appearance, or gesture, the impression the perceiver forms is thought to be stronger" (p. 157). The details stemming from concrete information allow vivid information to be more readily recalled when making inferential judgments (Taylor & Thompson, 1982). Thus, it is hypothesized concrete case studies (narratives) should be more vivid than statistical information. Furthermore, because pictures provide a more realistic, detailed, and illustrative exemplar of the issue in question, it is expected images should make messages more vividly appealing than a lack of images. As vivid characteristics are added to a message (i.e., language; photographs) it is expected the message will have a greater impact on persuasion (Niederdeppe et al., 2008; Taylor & Thompson, 1982). Based on the above research on vividness, this study posits:

> **H2:** Participants exposed to the narrative condition will perceive the message to be more vivid than those exposed to the statistical condition.

> **H3:** Messages with visual images will be perceived as more persuasive than messages without visual images.

Transportation Theory

The theory of transportation provides an additional layer of insight to understanding the elements and mental processes which take place while comprehending a persuasive message. Transportation is most often conceptualized as "a distinct mental process and an integrative melding of attention, imagery, and feelings" it is the "feeling of being lost in a story" (Green & Brock, 2000, p. 701).

Transportation greatly influences persuasion through changing beliefs, attitudes, and ultimately behavior (Green, 2006; Green & Brock, 2000). According to Braverman (2008), individuals who become highly transported are more likely to align their attitudes toward the message content presented than individuals who are not transported while reading the message. This finding is attributed to a number of reasons. One explanation is transportation seeks to reduce negative cognitive responses, such that individuals who are enjoying the "flow" of the story are less likely to find a need to interrupt their immersed cognitive and emotional state to dispute claims or implications found within a narrative (Busselle & Bilandzic, 2008; Green, 2008). According to Busselle and Bilandzic (2008), the "narrative experience is engaging to the extent that cognitions are focused on assembling coherent models of the setting, events, characters, and their relationships, as well as hypothesizing explanations and anticipating incoming information" (p. 261). Busselle and Bilandzic (2008) further argue greater levels of transportation into the narrative can be achieved as individuals lose self-awareness as a result of creating mental models.

An additional explanation regarding the effective persuasive nature of transportation can be attributed to characters who serve as one of the central forces of narratives and the transportation theory. Green and Brock (2000) suggest it is likely an individual's "relationship" or attachment with characters may play a critical role in changing his or her beliefs and/or behavioral intention. According to Igartua (2010) character attachment is the result of the reader becoming emotionally and cognitively empathetic toward the character, such that the reader begins to vicariously feel what the character feels and think as the character thinks. Such attachments with characters

emerge as the reader allows him/herself to become absorbed into the story. Specifically, an individual who forms a relational attachment with a character learns how to take on the point of view of the character when conflict and resolution arises and even can develop the impression he or she *is the character* (Igartua, 2010). Based upon the social cognitive theory, Green (2006) posits individuals may perceive characters within narratives as role models who demonstrate the potential costs and benefits of taking a particular action, which in turn, may influence an individual's behavior and beliefs.

Furthermore, characters can aid in generating emotion, which Green (2006) argues is "a core component of narrative impact" (p. 168). Emotions are internal mental states as a result of an individual's evaluation of an object or an event (Nabi, 2002). Emotions are "generally short-lived, intense, and directed at some external stimuli" (Nabi, 2002, p. 290).

Emotions have historically been separated into two dichotomies: positive (i.e., happiness; joy) or negative (i.e., fear, sadness) (Griskevicius, Shiota, & Neufeld, 2010). Individuals who experience negative emotions often engage in systematic or central processing because they are aware of a problem encountered in their environment and are motivated to search for solutions (Griskevicius et al., 2010). In contrast, individuals who experience positive emotions engage in more simplistic, heuristic processing because the state of contentment they feel indicates the environment does not pose a threat or danger in need of being fixed (Griskevicius et al., 2010). Persuasion can occur through positive or negative affect; however negative emotions tend to lead to persuasion only if the arguments are strong. Individuals who feel negative affect are more likely to scrutinize the arguments with greater cognitive effort and subsequently will be persuaded if the

evidence is logical, whereas positive affect can lead individuals to become persuaded despite argument strength because individuals are relying on heuristics when making judgments (Griskevicius et al., 2010).

The pro-social topic chosen for the current study describes hunger and poverty in present-day America; therefore, it is expected more negative rather than positive emotion should be elicited. This study examines sadness, fear, and surprise. Sadness is experienced when an individual perceives he/she has been physically or psychologically separated by a goal; therefore, motivating individuals to search for solutions to overcome their loss (Nabi, 2002). Fear is stimulated when an individual perceives his/her situation is "both threatening to one's physical or psychological self and out of one's control" (Nabi, 2002, p. 291). Individuals experiencing fear are motivated by a desire to protect themselves and escape the potential threat (Nabi, 2002). Surprise is considered a mixed emotional state blending positive and negative emotions, including "shock, fear, awe, and anticipatory enthusiasm" (Griskevicius et al., 2010); however, it is expected due to the nature of the topic, individuals will experience surprise as a negative emotion.

Affective responses, negative or positive, experienced during transportation can enhance narratives in order to make them appear more "real," which in turn leads to greater persuasion (Escalas, 2004; Green, 2006). Specifically, Green (2008) found stories which evoke strong emotions have a greater probability of affecting the reader's attitudes and behavior. Narratives provide an opportunity for emotions to be explored in order to gain a deeper understanding about an issue that is not experienced first-hand and therefore offer a "safe space for individuals to explore the implications of their experiences" (Green, 2006, p. 173). While non-narrative persuasive messages focus on

changing cognitive attitudes, Green (2006) argues narrative messages have the ability to form and change attitudes that are *both* affective and cognitively based.

It is therefore predicted more negative emotions, including fear, sadness, and surprise, will be experienced by those reading narratives rather than statistical messages. Narratives allow the reader to take on the perspective of the main character (Igartua, 2010) who faces poverty daily. The character, fearful for where her next meal will come and sad because she cannot achieve her hopes and dreams, will likely provide a realistic opportunity for the reader to experience the same emotions as the character (Igartua, 2010) in a safe and non-threatening environment (Green, 2006). Therefore, this study predicts:

> **H4:** Those in the narrative conditions will experience more negative affect than those in the statistical conditions.

Green (2008) suggests individuals who experience greater emotion while reading a message are more likely to pass on the story to others. This finding has potentially important implications for the present study, such that, if individuals are transported and emotionally moved by a story emphasizing the need to combat American hunger, they will be more likely to share their enthusiasm and/or transported experience with others (i.e., friends, family, co-workers). Ultimately, this may lead individuals who are not directly affected by a message to become involved in the social issue as well.

In summary, the above literature suggests transported individuals are immersed completely into the story and may possibly lose track of time or even fail to notice events going on around them (Green, 2008; Green et al., 2008). The transported individual is able to leave his/her real-world worries and self-consciousness behind; thus

lacking motivation to counterargue claims found within the narrative (Green, 2008).

Upon "returning" from the transported experience, at a minimum, Green and Brock

(2002) argue, individuals are changed by having a memory of what they have read or

experienced; even more profoundly, transportation may lead to belief and even

behavioral change. Furthermore, it is expected narrative structures, which provide central

characters who experience a causal chain of events resulting in a beginning, middle and

an end, allow for transportation to occur more readily than non-narrative messages

(Escalas, 2004; Green, 2006); therefore, this study predicts:

H5: Narrative messages will lead to greater transportation than statistical

messages.

Potential Mediators and Moderators

Past researchers have suggested a number of factors might act as moderating or

mediating variables affecting the relationship between message evidence (narrative vs.

statistic) and persuasive appeal. Factors include perceived message credibility (Lindsey

& Ah Yun, 2003); perceived source credibility (i.e., source expertise and trustworthiness)

(Kazoleas, 1993); involvement, prior attitudes (Reinhart & Feeley, 2007); and perceived

message truthfulness (fiction vs. non-fiction) (Green & Brock, 2000; Green, 2006).

Involvement

 Involvement, defined as "an individual, internal state of arousal, interest, or drive

evoked by a particular stimulus" (Polyorat, Alden, & Kim, 2007, p. 542), is

conceptualized as a person's perceived relevance of the message based on their

experience, beliefs, and interests (Zaichowsky, 1985). This study is particularly

concerned with the participants' involvement with the *topic*; that is the degree to which

participants perceive the message portraying, "hunger in America," as an issue of personal relevance (Reinard, 1988).

Communication scholars have a strong reason to believe a person's involvement and/or experience with a message topic under study may ultimately affect his/her attitudes of narrative or statistical messages (Braverman, 2008). Models of persuasion suggest individuals who are highly involved with an issue will be more likely to scrutinize and process the message more carefully, which ultimately leads to message-relevant attitudinal beliefs (Maheswaran & Meyers-Levy, 1990). These attitudinal beliefs stemming from involvement may potentially alter the results of the study (Braverman, 2008; Reinhart & Feeley, 2007). Simply stated, if readers are passionate about a topic, they will process a message referencing the topic with great rational, cognitive effort and will make judgments based on evidence provided, such that if the arguments used as evidence are logical, the reader will be influence (Lindsey & Ah Yun, 2003; Reinard, 1988).

Reinard (1988) further suggests initial topic attitudes can moderate the effects of message type (narrative or statistical) on persuasion. Because the current topic chosen is a pro-social issue, it is likely a participant's experience, values, and/or interests in "volunteering" or "hunger relief" might influence the individual to become more or less persuaded by message evidence. Reinard (1988) claims initial attitudes toward an issue are a function of the degree of involvement the individual has toward the topic in question. According to Reinard (1988), when an individual deeply cares about a topic in a message, he/she will attend carefully to the evidence presented. Messages are predicted to increase persuasion if they are both consistent with the reader's prior attitudes, beliefs,

and values and if they exemplify a personally relevant, involving issue. Researchers

Lindsey and Ah Yun (2003) are so certain of the impact of personal issue involvement

they propose "message effectiveness is *dependent* on the topic presented in the messages"

(p. 316).

Past research findings, however, are mixed regarding the effects involvement has

on the persuasiveness of message evidence (Baesler, 1997; Braverman, 2008; Reinard,

1988; Reinhart & Feeley, 2007). Braverman (2008) found a marginal interaction effect

between message evidence type and involvement on persuasion, such those who reported

higher involvement with the topic were more persuaded by the statistical message than

the narrative, whereas participants who reported a lower topic involvement were more

persuaded by the narrative rather than the statistical message (Braverman, 2008).

Braverman's (2008) findings are consistent with the type of processing that occurs based

on Petty and Cacioppo's (1986) Elaboration Likelihood Model (ELM). According to

ELM, when messages are composed of topics perceived as personally relevant and

meaningful to the reader, the reader will spend more time in thoughtful, in-depth,

cognitive processing and will rely on topic-relevant information when making a decision;

however if the topic of the message is not perceived as involving, then the reader will

rely on peripheral, non-relevant information (Braverman, 2008). Braverman (2008)

argues narratives, which are more emotional than statistical messages, poses a greater

amount of peripheral, rather than central, topic-relevant cues; thus, narratives should be

less convincing to individuals who want to scrutinize and process the information

carefully.

In contrast, Baesler (1997) reported message evidence effects do not differ significantly on persuasion for topics of moderately high involvement. Similarly, in a random-effects meta-analysis conducted by Reinhart and Feeley (2007), the topic of the study did not emerge as a moderator between message evidence and persuasion.

As a result of the mixed findings regarding the impact of involvement on message evidence and persuasion, a research question is proposed.

RQ1: Does involvement mediate the effect of message type (statistical vs. narrative) on perceived persuasion?

Perceived Message Credibility

Lindsey and Ah Yun (2003) argue while a number of researchers within the persuasion literature have studied the concept of credibility as a "source variable, that is, the degree to which an audience perceives a communicator to be credible" (pp. 309-310) it is also possible a *message* could be perceived as having greater credibility in spite of the source. The present study seeks to maintain the same source throughout all message types in order to empirically test whether certain message evidence (statistical vs. narrative) is perceived as more credible than the other.

Researchers Greene and Brinn (2003), suggest messages which contain verifiable facts are potentially more effective in creating change in readers than information which is perceived as more realistic and personal in nature. Such verifiability relies on message elements that are both precise and specific (Lindsey & Ah Yun, 2003). Arguably, it does not matter whether the audience actually chooses to verify the message, but instead that the message is "precise enough to be tested empirically by means independent of its source" (Lindsey & Ah Yun, 2003, p. 309).

Because statistical messages report detailed data, including frequencies, ratios, and probabilities, researchers theorize statistical messages will be perceived as more objective, verifiable, representative, and informative than narrative messages (Dickson, 1982; Feeley et al., 2006; Lindsey & Ah Yun, 2003; Reinard, 1988; Reinhart & Feeley, 2007). Kopfman et al. (1998) found empirical evidence that statistical messages can be perceived as more credible than narratives and speculate this finding may be attributed to statistical appeals using hard facts to create a verifiable message.

Given these findings, this study predicts:

H6: Those in the statistical conditions will view the messages as more credible than those in the narrative conditions.

Proposed Model

The above literature suggests persuasion as a result of message evidence type (statistical vs. narrative) can occur due to vividness, transportation, affect, involvement, and/or perceived message credibility. Given vivid messages appear to cause individuals to spend more time in thought, produce emotional responses, and are generally more available when judgments are made (Bell & Loftus, 1985), it is likely vividness will act as a mediator between message evidence and the audiences' attitudes, beliefs, and behavioral intention. Furthermore, according to Kazoleas (1993) and Taylor and Thompson (1982) the more characteristics (i.e., concrete language; illustration; etc.) manipulated to create a message, the greater effect vividness will have on the readers' judgments. Given this rationale, this study predicts:

H7a: The perceived persuasiveness of narrative messages will likely be mediated by vividness.

H7b: The perceived persuasiveness of statistical messages will likely be mediated by vividness.

H8: The perceived persuasiveness of visual images will likely be mediated by vividness.

Likewise, transportation has been found to influence persuasion through reducing negative cognitive responses, building strong connections with characters, and increasing affect to make the story appear more realistic (Green, 2006). Given individuals who become highly transported are more likely to align their attitudes toward the message content presented, than individuals who are not transported while reading a message (Braverman, 2008), it is expected transportation will mediate the relationship between message type and persuasion. This study posits:

H9a: The perceived persuasiveness of narrative messages will likely be mediated by transportation.

H9b: The perceived persuasiveness of statistical messages will likely be mediated by transportation.

In summary, the proposed models show message evidence and visual representation will lead to perceived persuasiveness (i.e., message evaluation; message attitude agreement; and behavioral intention), but only through the mediating variables of transportation and vividness.

Chapter 3

Methodology

The primary goal of this study was to examine the persuasive effects of presenting a social issue using different types of message evidence (statistical vs. narrative) coupled with or without a visual image. The other purpose was to explore how message type (statistical vs. narrative) impacted the variables vividness, transportation, affect, and credibility in order to examine if and why differences in persuasion occur.

Pilot Test

This study hinged on the successfulness of the four different messages. A pilot test was conducted to test if the messages were perceived as similar in credibility and if the participants could correctly identify message type (i.e., statistical vs. narrative), such that those in the narrative conditions should perceive "the message reads like a story" and contains a "character's story," whereas those reading the statistical message should perceive the message contained "facts and statistics" (Chang, 2008; Lee & Leets, 2002).

Eighty ($N = 80$) undergraduate students from an eastern university were randomly assigned to one of four message conditions (statistical message with image, $n = 19$; narrative with image, $n = 24$; statistical message, $n = 17$; or narrative $n = 20$). Participants in each condition were asked to read a story and to fill out a preliminary questionnaire.

A one-way analysis of variance (ANOVA) depicted significant difference between conditions for message condition on the manipulation check stating, "the message reads like a story," $F (3, 79) = 11.15, p < .001$; and for the manipulation check asking respondents to identify on a semantic differential scale whether the message contained "facts and statistics" or "a character's story," $F (3, 79) = 61.59, p < .001$.

Participants in all message conditions perceived the message as credible (statistical message $M = 5.63$, $SD = .75$; narrative $M = 5.13$, $SD = .90$; statistical message with image $M = 5.54$, $SD = 1.05$; narrative with image $M = 5.83$, $SD = .79$).

Participants

The main experiment employed a 2 (message type: statistical vs. narrative) x 2 (visual representation: image vs. no image) between-subjects design.

A total of 277 undergraduate students between the ages of 18 and 27 ($M = 20.36$, $SD = 1.31$) from an eastern university were recruited to participate in this study. With faculty approval, the students were awarded extra credit for their voluntary participation. The sample consisted of 74.5% females and 25.5% males. Most of the participants self-identified as Caucasian (81.8%), and the rest of the sample included African American (3.7%), Asian American (4.5%), Hispanic (2.2%), and Other (7.8%).

Experimental Materials

The topic chosen for this study is *fighting America's hunger*. Two experimental messages containing between 444-445 words were developed to promote the state of poverty and especially hunger in present-day America. The stimuli were composed using a number of non-fiction elements obtained from real-world statistics and narratives derived from online news stories, non-profit reports, and first-hand accounts.

In all conditions, the "source" of the message remained constant. Each message appeared with the header *Feeding America* and referenced the nation's leading domestic hunger-relief charity at the conclusion of the article. In addition, all message types had an identical introduction and conclusion, while the body of the message was manipulated to portray statistical or narrative information.

The narrative message was inspired by researcher Mariana Chilton's "Witnesses to Hunger" initiative (see Witness to Hunger, 2008). Specifically the narrative described one young woman, Barbara Izquierdo, a 21-year-old mother of two, who faces a daily battle against poverty. Izquierdo shares her own story, her past and current struggles, and her future hopes and dreams as she lives witnessing hunger on a daily basis (Arrillaga, 2009; Izquierdo, 2008). The narrative contained traditional story elements, including characters, suspense, and resolution. The message was designed to emphasize the reality of hunger and poverty; highlighting the immense struggles a person in a financial crisis must face without losing hope. The message urges the participants they can help by advocating, volunteering, or donating money to relief causes. An excerpt from the narrative message reads:

> She had no money, no formal high school education, and a disgraceful background. She grew up in a broken home without a father; a mother who only would like to see her fail; and a drug addict brother who stole anything he could to get what he needed (Izquierdo, 2008).

In contrast, the statistical message was "comprised of information that was numerical in nature" (Lindsey & Ah Yun, 2003, p. 311). The message was developed after researching a number of websites dedicated to hunger in America. The statistical message was modeled after a National Public Radio (NPR) segment on *The Causes behind Hunger in America*. It was integrated with statistics taken directly from feedingamerica.org and bread.org (Bread for the World, 2010; Feeding America, 2010; Valentine, 2005). The statistical message did not utilize characters or traditional story elements. It too encouraged participants to help by advocating, volunteering or donating money to organizations such as *Feeding America*. An excerpt reads:

The number of Americans receiving food stamps reached an all-time high last year, topping 30 million in September, October and November, even though the maximum benefit for a family of four - $588 – still falls $78 short of the cheapest possible government-established plan to feed a family that size (Feeding America, 2010).

In addition to message type, two conditions also required that visual representations be presented within the text. Two photographs were selected to represent the "current faces of poverty" in America. Images were taken from an extensive web-based search using key words such as: poverty, hunger, homelessness, childhood hunger, and American poverty. The images were selected because they represent a *realistic* portrayal of American individuals living in poverty. The first image represents the "silent" American citizen; it depicts a single mom, holding her young child. This image exemplifies the fact that nearly 30 percent of households headed by single women are poor (National Poverty Center, 2010). The second image represents a more "stereotypical" interpretation of poverty such that it depicts a young family of three, homeless, on the corner of a street begging for help. The photographs provide distinct, visual cues of how hunger and poverty realistically manifest itself today, virtually "in our own backyards." The images aimed to accurately represent the persuasive message context so as to add to its vividness, rather than distract or over-shadow the contexts' importance.

Please see Appendix C for stimulus materials.

Procedures

All experimental sessions were conducted in a classroom setting of four, upper-level undergraduate communication courses. Upon arrival, the researcher provided each

participant with a packet containing the stimulus material and a questionnaire. Each

participant was randomly assigned to one of four experimental conditions:

Condition 1: Narrative message only ($n = 68$).
Condition 2: Statistical message only ($n = 72$).
Condition 3: Narrative message with visual image ($n = 72$).
Condition 4: Statistical message with visual image ($n = 65$).

The participants were informed by the researcher they would be participating in a

study seeking opinions of young adults' attitudes on salient social and political issues of

present-day America so that they would not be sensitized to the specific issue and/or

message type. Following the cover story, the participants were asked to read and

complete the University's IRB consent form.

After giving consent, participants were instructed to begin the study where they

each encountered a second cover story indicating they were "randomly selected to read a

recently published article on poverty." Participants were subsequently presented the

stimulus material and were instructed to read the material at a normal pace before

proceeding to the remaining pages of the packet. Following the participants' exposure to

the stimuli, participants were asked to complete the questionnaire without referring back

to the stimuli material. The questionnaire included dependent measures, manipulation

measures, and demographic information.

Variables

The independent variables employed in the main experiment were message type

(statistical or narrative) and visual representation (image or no image).

The dependent measures employed were: cognition, affect, transportation,

vividness, perceived message credibility, involvement, and persuasiveness (message

evaluation, message attitude agreement, and behavioral intention).

Cognition. Immediately following the participants' exposure to the stimuli, subjects were asked to "list any thoughts and feelings that came to mind while reading the passage." Participants were subsequently instructed to look over their responses and place a + (positive), - (negative), or 0 (neutral) sign by each of their thoughts and feelings (Stitt & Nabi, 2009).

Past researchers have indicated thoughts emerging in response to message exposure can serve as determinants of persuasion (Green, 2006). It is expected individuals who produce more positive thoughts will be more persuaded by a message than individuals who produce a greater number of negative thoughts (Green, 2006). Furthermore, fewer negative thoughts are an important indicator of lowered resistance and reduced counter-arguing (Escalas, 2004; Escalas, 2007; Green, 2006; Stitt & Nabi, 2009), which is a result of transportation.

Participants in this study reading the narrative message produced, on average, slightly more total thoughts ($M = 4.45$) than those reading the statistical message ($M = 4.19$). Furthermore, the pattern of means indicated across all message conditions, more negative thoughts ($M = 2.58$ $_{narrative}$; $M = 2.42$ $_{statistical}$) were produced than positive thoughts ($M = 1.21$ $_{narrative}$; $M = 1.01$ $_{statistical}$). Please refer to Table 1 for mean number of total, positive, negative, and neutral thoughts across condition.

Affect. Emotional reactions to the message were measured using a 7-point response scale adopted from Shen and Dillard (2007). Participants were asked to indicate overall how the message made them feel where 1 = *none of this feeling* and 7 = *a great deal of this feeling*. Although the original scale was comprised of six dimensions, the current study was interested solely in the extent to which negative affect might emerge as

a result of the topic "hunger and poverty;" therefore, only three dimensions and their

corresponding items, including: *surprise* (surprised, startled, and astonished) ($\alpha = .88$);

fear (fearful, afraid, and scared) ($\alpha = .96$); and *sadness* (sad, dreary, and dismal) ($\alpha = .78$)

were employed.

Transportation. Transportation, conceptually defined as "an integrative melding

of attention, imagery and feelings" (Green & Brock, 2000, p. 702), was measured by

employing Green and Brock's (2000) 11-general item Transportation Scale. All items

were measured on a 7-point Likert-type scale anchored at (1) *strongly disagree* to (7)

strongly agree. Transportation consist of three factors (cognitive, emotional-affective,

and visual imagery), which were measured using the following items: While I was

reading the message, I could easily picture the events in it taking place; While I was

reading the message, I found my mind wandering; I was mentally involved in the story;

While I was reading the message, activity going on in the room around me was on my

mind; The message affected me emotionally; I found myself thinking of ways the

message could have turned out differently; I could picture myself in the scene of the

events described in the story; I found the events in the story to be relevant to my

everyday life; I wanted to learn how the story ended; The events in the story have

changed my life; After finishing the story, I found it easy to put it out of my mind ($\alpha = $

.74).

Vividness. Participants were asked to respond to four, 7-point semantic

differential scale items including: colorful/dull; concrete/abstract;

interesting/uninteresting; stimulating/boring (Baesler, 1997) ($\alpha = .82$).

Perceived message credibility. Participants were asked to rank the perceived credibility of the message using a set of five items taken directly from Lindsey and Ah Yun (2003). All items were measured on a 7-point Likert-type scale anchored at (1) *strongly disagree* to (7) *strongly agree*. The items included: The information presented in this message is credible; The message is reliable; The message is a believable one; The information presented in this message is trustworthy; The message has integrity (Lindsey & Ah Yun, 2003) (α = .94).

Involvement. Mixed findings in past persuasion literature has proposed an individual's attitudes toward the topic might act as a covariate, interacting with message evidence and degree of persuasiveness (Braverman, 2008); therefore, the current study measured and controlled for involvement. A modified version of Zaichkowsky (1985) Personal Involvement Inventory (PII) was employed to evaluate involvement. Participants were asked to respond to 15, 7-point semantic differential scale items including: unimportant/important; of no concern/of concern to me; irrelevant/relevant; useless/useful; worthless/valuable; trivial/fundamental; not beneficial/beneficial; doesn't matter/matters to me; not needed/needed; insignificant/significant; unexciting/exciting; unappealing/appealing; mundane/fascinating; nonessential/essential; undesirable/desirable (α = .94).

Perceived persuasiveness assessment. Three variables, including: message evaluation, message attitude agreement, and behavioral intention were collapsed in order to create a single persuasion measure for each participant (Braverman, 2008) (α = .94).

Message evaluation. Twelve items measured the participants' perceived effectiveness of the message arguments using a 7-point semantic differential scale.

Measurements and scale items were adopted from Dillard et al. (2007) and Stitt and Nabi (2009). Items included: not at all persuasive/very persuasive; not at all effective/very effective; not at all compelling/very compelling; not at all convincing/very convincing; not at all believable/very believable; not at all sensible/very sensible; weak/strong; forgettable/memorable; misleading/straightforward; not at all clear/very clear; not at all credible/very credible; not at all important/very important ($\alpha = .95$).

Message attitude agreement. Three, 7-point Likert-type scale items adopted from Shen and Dillard (2005) measured message attitude agreement. Items included: I support what the message was trying to accomplish; I totally agree with the position promoted in the message; I am favorable towards the main point of the message. Items were anchored at (1) *strongly disagree* to (7) *strongly agree*, hence higher values indicated participants perceived a more positive attitude toward the message ($\alpha = .93$).

Behavioral intention. Participants' behavioral intention was measured using three items on a 7-point Likert-type scale anchored at (1) *strongly disagree* to (7) *strongly agree*. Items included: I plan to act in ways that are compatible with the position prompted by the message; I am going to make an effort to do what the message urged me to do; I intend to behave in ways that are consistent with the message (Dillard et al., 2007; Shen & Dillard, 2005) ($\alpha = .91$).

Manipulation Measure

To ensure the participants read and devoted attention to the message, three open-ended recall questions and two multiple choice recognition questions were developed capturing the reader's understanding of the main points from within the short story. Recall questions included: The article described numerous challenges and difficult

choices an individual faces when he/she lives just above or below the poverty line. Please state one example mentioned in the article; The article mentioned a number of possibilities in which an individual could get involved to "fight hunger." Please state one example; What national, non-profit organization, fighting against hunger, was mentioned in the article?

Of the total sample ($N = 277$), 92.1% correctly named at least one choice or challenge poverty-stricken individuals in the article faced (i.e., choosing between food and utilities; choosing between food and healthcare; food stamps not lasting an entire month, etc.). A similar percentage (91.3%) of the total sample could provide at least one example proposed in the article to help fight hunger. Correct answers included: give financially, advocate for the hungry, start a food drive, visit the Feeding America website, and volunteer at a local shelter. Furthermore, of the total sample, 63.5% correctly named "Feeding America" as the non-profit organization mentioned in the article.

The multiple-choice recognition questions included: According to the article, please rate on a scale from (1) *very difficult* to (7) *very easy*, the level of difficulty it is for an individual to receive governmental assistance (i.e., food stamps; medical bills; etc.); According to this article, approximately how many Americans are currently suffering from poverty? (A. *45-54 million*; B. *35-44 million*; C. *35-34 million*; D. *10-24 million*).

The narrative and statistical messages were written to illustrate governmental assistance is difficult; thus correct responses were identified as any individual choosing a response at the mid-point four, of the 7-point scale, or below. Across all conditions, 79.6% correctly perceived government assistance as being challenging to obtain. Of the

sample, 66.4% correctly circled "B," indicating between 35 to 44 million Americans face poverty.

To conclude a successful manipulation of the independent variables, participants were asked three questions with 7-point, Likert-type measurement scales anchored at (1) *strongly disagree* to (7) *strongly agree*. Item one asked participants to indicate whether or not the message contained "facts and statistics." Item two asked participants to indicate if the message contained a "character's story." Item three measured the extent to which participants felt the message "read like a story" (Chang, 2008; Lee & Leets, 2002). It was expected individuals in the statistical evidence conditions would score high on item one and low on items two and three, whereas individuals in the narrative evidence conditions would score high on items two and three and low on item one.

Chapter 4

Results

This study sought to examine the persuasive effects of presenting a social issue using different types of messages (statistical vs. narrative) coupled with or without a visual image. It was predicted narrative messages would be more persuasive than statistical messages, regardless of whether an image was added. Furthermore, this study sought to examine how message type (statistical vs. narrative) impacted the variables vividness, transportation, affect, and credibility. It was expected statistical messages would be perceived as more credible than narrative messages; however narrative messages were predicted to arouse more negative emotions and lead to greater transportation. Effects of message type on persuasion were expected to be mediated by transportation and vividness. It was predicted vividness would be greater in narrative message conditions than in statistical message conditions and adding images could enhance such vividness; thus messages with images were expected to be perceived as more persuasive than messages without images.

Manipulation Check

The message type was tested on several questions that have been used in previous message evidence research (Chang, 2008; Lee & Leets, 2002). Those reading the narrative messages should score differently than those reading statistical messages.

After collecting data ($N = 277$), a one-way analysis of variance (ANOVA) depicted significant differences for the message condition on the manipulation check questions: "I think the message contains facts and statistics" $F(1, 276) = 34.29$, $p = .000$,

$\eta^2 = .11$; "I think the message contains a character's story" $F(1, 276) = 473.60$, $p = .000$,

$\eta^2 = .63$; and "The message reads like a story" $F(1, 276) = 368.70$, $p = .000$, $\eta^2 = .57$.

For the first manipulation question, "I think the message contains facts and statistics," those reading statistical messages scored significantly higher ($M = 6.07$, $SD = 1.18$) than those reading narrative messages ($M = 5.14$, $SD = 1.45$). The second manipulation question stated, "I think the message contains a character's story." Those reading narrative messages scored significantly higher ($M = 6.11$, $SD = 1.17$) than those reading statistical messages ($M = 2.71$, $SD = 1.43$). For the final manipulation check question, "The message reads like a story," those reading narrative messages scored significantly higher ($M = 5.90$, $SD = 1.16$) than those reading statistical messages ($M = 2.82$, $SD = 1.48$). The results indicate the manipulation checks for message type were successful.

Hypotheses Testing 1-6

To assess Hypotheses 1, 2, 3, 4, 5, and 6, a 2 (message type: narrative or statistical) x 2 (visual representation: image or no image) multivariate analysis of covariance (MANCOVA) was computed on the dependent variables persuasion, vividness, transportation, credibility, and affect (surprise, fear, and sadness). Involvement served as a covariate.

The omnibus results indicated significant differences for experimental condition **message type** Wilks' λ $F(10, 242) = 8.38$, $p = .000$, partial $\eta^2 = .26$. Subsequent univariate tests revealed significant differences for the independent variable message type (narrative or statistical) on the dependent variables: vividness, $F(1, 255) = 22.81$, $p = .000$, $\eta^2 = .08$; surprise, $F(1, 255) = 7.86$, $p = .005$, $\eta^2 = .03$; fear, $F(1, 255) = 4.76$, $p =$

.030, $\eta^2 = .02$; sadness, $F(1, 255) = 3.68$, $p = .050$, $\eta^2 = .01$; transportation, $F(1, 255) = 26.10$, $p = .000$, $\eta^2 = .09$; and credibility, $F(1, 255) = 5.51$, $p = .020$, $\eta^2 = .02$.

The omnibus test indicated significant differences for the **covariate of involvement** Wilks' λ $F(10, 242) = 27.70$, $p = .000$, partial $\eta^2 = .53$. Subsequent univariate tests revealed significant differences for the covariate, involvement, on the dependent variables: vividness, $F(1, 255) = 209.98$, $p = .000$, $\eta^2 = .46$; surprise, $F(1, 255) = 4.69$, $p = .031$, $\eta^2 = .02$; fear, $F(1, 255) = 12.65$, $p = .000$, $\eta^2 = .05$; sadness, $F(1, 255) = 16.60$, $p = .000$, $\eta^2 = .06$; transportation, $F(1, 255) = 50.89$, $p = .000$, $\eta^2 = .17$; credibility, $F(1, 255) = 26.90$, $p = .000$, $\eta^2 = .46$; and persuasion $F(1, 255) = 192.37$, $p = .001$, $\eta^2 = .43$. Those more highly involved felt more negative emotions.

The omnibus test indicated a significant interaction between message type (narrative or statistic) and visual representation (image or no image) Wilks' λ $F(10, 242) = 1.86$, $p = .051$, partial $\eta^2 = .07$. Subsequent univariate tests revealed significant differences for the dependent variable: vividness, $F(1, 255) = 7.69$, $p = .006$, $\eta^2 = .03$.

Hypothesis 1 predicted narrative messages would be more persuasive than statistical messages. The pattern of means shows narrative messages ($M = 5.20$, $SD = .94$) and statistical messages ($M = 5.20$, $SD = 1.02$) do not vary in perceived persuasiveness. Therefore, Hypothesis 1 was not supported. There were no differences in persuasion based on message type. Furthermore, while those receiving a message with an image ($M = 5.24$, $SD = .98$) were slightly more persuaded than those reading messages without images ($M = 5.15$, $SD = .98$), this difference was not statistically significant.

Hypothesis 2 predicted vividness would be greater in narrative message conditions than in statistical message conditions. The pattern of means shows those

reading narrative messages ($M = 4.88$, $SD = 1.10$) perceived more message vividness than those reading statistical messages ($M = 4.47$, $SD = 1.22$). When examining the pattern of means for all story conditions, those reading a narrative only message perceived more message vividness ($M = 4.92$, $SD = .94$), followed by those reading a narrative message with image ($M = 4.83$, $SD = 1.25$), statistical message with image ($M = 4.64$, $SD = 1.03$), and a statistical only message ($M = 4.31$, $SD = 1.36$). Therefore, Hypothesis 2 was supported. Those in the narrative conditions perceived the messages as more vivid regardless of presence of images, whereas those in the statistical message conditions perceived the message as more vivid when a visual image was present.

Hypothesis 3 predicted the presence of a visual image would impact perceived persuasiveness. Messages with an image ($M = 5.24$, $SD = .98$) were perceived as slightly more persuasive than those without an image ($M = 5.15$, $SD = .98$). Those reading a statistical message with image were the most persuaded ($M = 5.24$, $SD = .94$), followed by those reading a narrative message with image ($M = 5.23$, $SD = 1.02$), narrative only message ($M = 5.17$, $SD = .85$), and a statistical only message ($M = 5.13$, $SD = 1.10$). Hypothesis 3, however, was not supported because the presence of an image did not significantly impact how persuasive the message would be on the target audience.

Hypothesis 4 predicted those in the narrative conditions would experience more negative affect than those reading statistical messages. The subsequent univariate tests revealed significant differences for the emotions surprise, fear, and sadness. The pattern of means depicts those reading statistical messages experienced more surprise ($M = 3.90$, $SD = 1.58$) and fear ($M = 3.45$, $SD = 1.69$) than those reading narrative messages ($M = 3.46$ subprise, $SD = 1.32$ surprise; $M = 2.97$ fear, $SD = 1.63$ fear), whereas those reading narrative

messages experienced more sadness ($M = 4.62$, $SD = 1.26$) than those reading statistical messages ($M = 4.35$, $SD = 1.31$).

When examining the pattern of means for the emotion surprise, those reading a statistical only message experienced more surprise ($M = 4.00$, $SD = 1.61$) than those reading a statistical message with image ($M = 3.79$, $SD = 1.55$), a narrative only message ($M = 3.47$, $SD = 1.40$), or a narrative message with image ($M = 3.44$, $SD = 1.24$).

When examining the pattern of means for the emotion fear, those reading a statistical only message experienced more fear ($M = 3.45$, $SD = 1.61$) than those reading a statistical message with image ($M = 3.41$, $SD = 1.80$), a narrative only message ($M = 3.08$, $SD = 1.57$), or a narrative message with image ($M = 2.87$, $SD = 1.69$).

When examining the pattern of means for the emotion sadness, those reading a narrative message with image experienced more sadness ($M = 4.70$, $SD = 1.33$) than those reading a narrative only message ($M = 4.54$, $SD = 1.19$), a statistical message with image ($M = 4.36$, $SD = 1.35$), or a statistical only message ($M = 4.34$, $SD = 1.28$). Hypothesis 4 was partially supported. Those reading narratives did experience more negative affect, but only for the emotion of sadness. The pattern of means for the emotions surprise and fear depicted the opposite of what was predicted; though it is important to note that not a lot of emotion was elicited due to the means being on the low end of the 7-point scale.

Hypothesis 5 predicted narrative messages would lead to greater transportation than statistical messages. The pattern of means supports this prediction. Those reading narrative messages ($M = 4.39$, $SD = .80$) were more transported than those reading statistical messages ($M = 3.98$, $SD = .84$). Specifically, those reading a narrative message

with image indicated the highest levels of transportation ($M = 4.39$, $SD = .90$), followed by those reading a narrative only message ($M = 4.38$, $SD = .68$), a statistical only message ($M = 4.03$, $SD = .91$), or a statistical message with image ($M = 3.92$, $SD = .75$). Hypothesis 5 was supported. Narrative messages with or without an image led to participants being more transported than those reading statistical messages.

Hypothesis 6 predicted those reading statistical messages would view them as more credible than those reading narrative messages. Hypothesis 6 was supported. The pattern of means depicts those in the statistical condition ($M = 5.64$, $SD = 1.03$) did perceive the message as more credible than those reading a narrative message ($M = 5.29$, $SD = 1.18$). When examining the pattern of means for all story conditions, the statistical message with image emerged as most credible ($M = 5.81$, $SD = 1.02$), followed by the statistical only message ($M = 5.49$, $SD = 1.02$) and the narrative message with image ($M = 5.32$, $SD = 1.24$). The narrative only message ($M = 5.25$, $SD = 1.13$) was deemed least credible.

Please refer to Table 2 for descriptive statistics of the dependent variables by condition.

Research Question 1 and Hypotheses Testing 7-9

To examine Research Question 1 and Hypotheses 7 – 9 mediation analyses were conducted using macros developed for SPSS (Preacher & Hayes, 2004). The Sobel test results are reported (Preacher & Hayes, 2004).

Research Question 1 asked if involvement would mediate the persuasiveness of the message. The mediation analysis shows there was no significant relationship between the independent variable (message type) and the dependent variable (persuasion) ($\beta =$

.030, $p = .317$). This relationship was still not significant when controlling for the mediator of involvement ($\beta = -.107$, $p = .329$). Involvement does not mediate the persuasiveness of a narrative message. Further mediation analysis shows there was no significant relationship between the independent variable (message type) and the dependent variable (persuasion) ($\beta = .054$, $p = .892$). This relationship was still not significant when controlling for the mediator of involvement ($\beta = .048$, $p = .837$). Involvement does not mediate the persuasiveness of a statistical message.

Hypothesis 7a predicted narrative message effects on persuasion would be mediated by vividness. The mediation analysis shows there was no significant relationship between the independent variable (message type) and the dependent variable (persuasion) ($\beta = .030$, $p = .705$). This relationship was still not significant when controlling for the mediator of vividness ($\beta = -.040$, $p = .339$). Therefore, Hypothesis 7a was not supported. Vividness does not mediate the persuasiveness of a narrative message.

Hypothesis 7b predicted statistical message effects on persuasion would be mediated by vividness. The mediation analysis depicts no significant relationship between the independent variable (message type) and the dependent variable (persuasion) ($\beta = .054$, $p = .536$). This relationship was still not significant when controlling for the mediator of vividness ($\beta = .136$, $p = .418$). Therefore, Hypothesis 7b was not supported. Vividness did not mediate the persuasiveness of the statistical message.

Hypotheses 8 predicted vividness would mediate the impact the presence of images would have on persuasion. The Sobel test results are reported (Preacher & Hayes, 2004). For Hypothesis 8, the mediation analysis depicts no significant relationship

between the independent variable (visual representation) and the dependent variable (persuasion) (β = -.044, p = .473). This relationship was still not significant when controlling for the mediator of vividness (β = -.057, p = .986). Therefore, vividness does not mediate the relationship an image will have on persuasion, finding no support for Hypothesis 8.

Hypothesis 9 predicted the persuasiveness of messages would be mediated by the effect of transportation. The Sobel test results are reported (Preacher & Hayes, 2004). Hypothesis 9a predicted narrative message effects on persuasion would be mediated by transportation. The mediation analysis depicts no significant relationship between the independent variable (narrative message) and the dependent variable (persuasion) (β = .030, p = .705). This relationship was still not significant when controlling for the mediator of transportation (β = .006, p = .721). Therefore, Hypothesis 9a was not supported. The persuasiveness of narrative messages is not mediated by transportation.

Hypothesis 9b predicted statistical message effects on persuasion would be mediated by transportation. The mediation analysis depicts no significant relationship between the independent variable (statistical message) and the dependent variable (persuasion) (β = .054, p = .587). This relationship was still not significant when controlling for the mediator of transportation (β = -.064, p = .428). Therefore, Hypothesis 9b was not supported. Transportation did not mediate the persuasiveness of the statistical message.

Chapter 5

Discussion

The primary purpose of this study was to explore how information portrayed through different types of messages (narrative or statistic) and visual representations (image or no image) would affect perceived message persuasiveness.

Despite some researchers having uncovered empirical support to claim statistical messages to be more persuasive than narratives (Allen & Preiss, 1997; Baesler & Burgoon, 1994; Dickson, 1982; Greene & Brinn, 2003), while other researchers have found equally compelling evidence for the persuasiveness of narrative messages over statistical messages (Braverman, 2008; Kazoleas, 1993; Reinhart & Feeley, 2007), the results of the current study indicate when employing a pro-social, moderately involving topic, narratives are neither more or less persuasive than statistical messages (Hypothesis 1).

This finding supports Baesler's (1997) conclusion that story and statistical messages are equally influential in changing beliefs. Baesler's (1997) findings emerged when the topic was of moderately high involvement; however, the current study indicates no persuasive advantage for message type when the topic is of moderate involvement as well.

An additional goal of the current study was to theoretically expand the literature on vividness. Vividness has been operationalized as a language characteristic, direct experience, case-history information, and illustrations (i.e., photo/video). Taylor and Thompson (1982) surmise a lack of confirming or disconfirming the vividness hypothesis can be explained due to a lack of agreed upon conceptualization and operationalization of

what constitutes as "vividness." Prior vividness studies have focused on manipulating just one characteristic of vividness, such as the language (Baesler & Burgoon, 1994; Bell & Loftus, 1985) or the illustrations (Borgida, 1979); however, few studies have manipulated multiple characteristics of vividness within a single study. Kazoleas (1993) and Taylor and Thompson (1982) hypothesize as concrete, colorful, elements are added to a message, the message should be perceived as more vivid and thus will impact beliefs and attitudes. Therefore the current study manipulated multiple characteristics of vividness (i.e., language and visual image) and measured differences across message conditions with the aim to capture when and what characteristics impact the vividness of a message.

Because narratives approach reality from the perspective of a character (De Wit et al., 2008) and are often cited as being more emotional, colorful, engaging, and concrete than statistical messages (Baesler & Burgoon, 1994; Feeley et al., 2006) the current study predicted vividness would be greater in the narrative conditions than in the statistical conditions (Hypothesis 2). Consistent with this prediction, the pattern of means revealed a statistically significant difference between message type and vividness, such that those in the narrative condition perceived the message as more vivid than those reading a statistical message. The finding supports the presumption that as information becomes more concrete and detailed, vividness of the message will increase (Taylor & Thompson, 1982).

In accordance with this rationale, which assumes concreteness of information as a central mechanism to induce vividness (Taylor & Thompson, 1982), it was expected messages containing colorful, precise, and graphic photographs (i.e., messages with

visual images) would be perceived as more vivid than messages lacking such detailed, artistic appeal (i.e., messages without visual images). A significant interaction effect between message type (narrative or statistic) and visual representation (image or no image) emerged for the dependent variable vividness indicating while narratives were vivid with or without the inclusion of a visual image, the vividness of a statistical message was indeed dependent on the inclusion of a visual element.

Theoretically, greater amounts of vividness increase the amount of time individuals spend in thought toward the message and enhance message recall at the time judgments are made (Bell & Loftus, 1985; Taylor & Thompson, 1982). Researchers argue vivid information can positively impact attitudes and behavior (Bell & Loftus, 1985; Reyes et al., 1980); therefore, the current study predicted visual representation (image vs. no image) of a message would impact persuasion, such that messages with a visual image were expected to be more persuasive, due to greater vividness, than messages without an image (Hypothesis 3). The results revealed that while messages with images were slightly more persuasive than messages without images, this difference was not statistically significant. There is some justification in the literature to support this finding.

One explanation stems from Frey and Eagly (1993) who surmise when colorful language, emotionally engaging pictures, and stimulating metaphors are used together, vividness may undermine persuasion because the overly vivid elements distract the message recipient from systematically processing the message. In agreement with Frey and Eagly (1993), Niederdeppe et al. (2008) recognize visual images require attention

and cognitive resources to process; thus processing the imagery can consequently hinder resources needed to process the remaining *written* message.

A second explanation given by Taylor and Wood (1983) is information may only appear vivid and thus affect attitudes when it simultaneously competes with other, less vivid, information. Taylor and Wood (1983) hypothesize when an individual devotes his/her full attention to a message, as in a laboratory setting, the degree to which a message is "vivid" may have no effect; however, when an individual is exposed to conditions of selective attention, then vivid information may be processed more effectively than non-vivid information.

The results of the study are consistent with these explanations. Individuals reading the narrative messages reported the greatest vividness; however, narratives without an image were reported more vivid than narratives with an image. It is possible adding the visual images to the narrative message made the information overly vivid and caused the reader to divide his/her resources in order to process the message and the images. In contrast, while the messages containing statistical evidence were perceived as significantly less vivid, it is important to note the statistical message combined with an image was perceived as more vivid than the statistical message by itself. Although this experiment did not require selective attention (i.e., dividing attention between audio and visual) as cited by Taylor and Wood (1983), it did provide an environment in which vivid information (i.e., images) were presented with the non-vivid, pallid information of statistics. Because statistical messages are not as likely to maintain interest or involvement (Baesler & Burgoon, 1994), adding visual exemplars of the statistical

information appeared to enhance the vivid quality of the message, rather than distract readers by stealing away mental resources.

The current study further examined vividness as a mediating variable. Previous scholars (i.e., Baesler, 1997; Baesler & Burgoon, 1994; Bell & Loftus, 1985) proposed vividness can explain why differences in persuasion among narrative and statistical messages exist. Vivid information is cited to be more affective and memorable (Reinhart & Feeley, 2007) than non-vivid information. People processing vivid information spend more time in thought, which allows the information to become more accessible in one's memory when decisions must be made (Bell & Loftus, 1985; Feeley et al., 2006). Therefore, the current study expected the persuasive effects of message type would be mediated by vividness (Hypothesis 7) and the persuasive effects of images would be mediated by vividness (Hypothesis 8). A mediation analysis indicated vividness did not mediate effects of message type or visual images on persuasion.

The lack of vividness as a significant predictor of persuasion is not surprising due to this study finding no difference in persuasion across experimental conditions. Furthermore, finding no empirical support for the impact of vividness on persuasion is not new (i.e., Taylor & Thompson, 1982; Taylor & Wood, 1983). According to Taylor and Wood (1983), vivid information does not consistently lead to greater persuasion; however, vivid information has been found to impact memory consistently, such that vividly presented information is more available and easily recalled when judgments must be made. It is possible the *effects* of vividness could be a better predictor of the relationship between message type (statistical vs. narrative) and persuasion. While the current study provides important insight regarding what characteristics (i.e., images and

language) enhance or reduce vividness, future research on the vividness effect should examine more stringent models to explore not only which characteristics (i.e., language or images) are more vivid, but what specific effects of these characteristics (i.e., message recall, affect, imageability, etc.) lead to greater persuasion.

A final goal of the current study was to investigate how messages (statistical vs. narratives) uniquely impacted the variables transportation (Braverman, 2008; Escalas, 2004 Green, 2006), message credibility (Lindsey & Ah Yun, 2003), involvement (Braverman, 2008; Maheswaran & Meyers-Levy, 1990), affect, and cognition (Kopfman et al., 1998). Recent scholars, including Lindsey and Ah Yun (2003) and Reinhart and Feeley (2007) have challenged academics to move beyond considering which message type leads to greater persuasion and instead they propose new research should examine *how* and *why* differences between statistical and narrative messages exist.

Transportation is one frequently cited difference between narrative and statistical message effects and is often identified as a means to persuasion (Escalas, 2004; Green, 2006; Green, 2008). Transportation is when a reader feels "lost in a story" because he/she allows for a "melding of attention, imagery, and feelings," while processing the message (Green & Brock, 2000, p. 701).

Consistent with transportation theory, this study found narrative messages led to greater transportation than statistical messages (Hypothesis 5); however affect, which can occur via transportation (Escalas, 2004; Green, 2006) and has been cited as "a core component of narrative impact" (Green, 2006, p. 168), was not significantly greater for those reading narrative messages (Hypothesis 4). The results of the current study indicate, when controlling for involvement, the opposite of what was predicted was true.

Although participants exposed to the narrative did experience more sadness, those in the statistical conditions experienced greater surprise and fear. This finding is in direct contrast to previous literature. Researchers Stitt and Nabi (2009) found narrative messages produced greater belief change and affect when compared to "expository" messages; furthermore, the researchers claim transportation was associated with increased positive and negative affective arousal.

While this study found *statistical* messages produced greater negative affect in readers, it is important to note the affect experienced in all conditions was relatively small. Based on this result, one explanation for a lack of emotion experienced could be due to the narrative message conditions not utilizing "emotionally-appealing," language to depict the reality of poverty in America. Another explanation can be derived from Greene and Brinn (2003). Their research on understanding how message type can persuade individuals to make positive health decisions by decreasing risky behavior suggest individuals exposed to a narrative message may find it easy to disassociate themselves from the message, assuming the issues which the character faces in the story could not happen to them; whereas the reality of the possibility of becoming a statistic can make a greater impact on the reader.

It is possible that similar to Greene and Brinn (2003), individuals exposed to narratives in the study were not emotionally empathetic toward the character, a young mother of two struggling to pay bills and put food on the table, because the participants were college-educated, affluent, and likely could not relate to the young mother's circumstances or choices. However, individuals in this study exposed to the alarming statistics that 36 million adults and children struggle with hunger (Feeding America,

2010) may have experienced more affect (i.e., fear and surprise), imagining themselves or someone they know "becoming a statistic."

In addition to measuring affect, this study employed a traditional thought-listing procedure used in prior transportation studies (i.e., Stitt & Nabi, 2009), which divided thoughts into positive, negative, and neutral categories. While fewer negative thoughts serve as an important indicator of lowered resistance and reduced counter-arguing (Escalas, 2004; Escalas, 2007; Green 2006), the thoughts participants listed in this study were generally more global, emotional reactions to poverty and hunger, rather than belief-related comments. Participants wrote thoughts such as "Sadness," "How could this happen in this country," and "Realized hunger is still a big issue," which indicates although participants were reacting critically to the message, participants listed more negative than positive thoughts. This finding is not surprising due to the nature of the topic, which emphasized the reality of hunger and poverty in America. Despite negative affect and cognitive thoughts, participants reading the messages evaluated the message positively.   This might be explained by Escalas (2004) who posited "if the negative events being simulated could be lessened or resolved" (p. 38), individuals could become persuaded. In the current study, the message recommends a number of ways an individual can join the cause to fight against hunger; therefore, it is plausible negative cognitions and emotions surrounding poverty likely motivated readers to still react favorably toward message. Future research should examine how and when negative cognitions, particularly as a result of transportation, could actually bolster persuasion.

Message credibility was also measured in the current study and predicted to be greater for those viewing statistical messages than those viewing narratives (Hypothesis

6). While the perceived message credibility was relatively high across all conditions, results of this study revealed individuals did perceive the statistical message as significantly more credible than narrative messages. This finding is consistent with prior literature which posits messages that contain characteristics, such as frequencies, ratios, and probabilities, could lead readers to perceive the message as having greater credibility in spite of the source (Lindsey & Ah Yun, 2003). Because past research has revealed credibility correlates positively with persuasion (Lindsey & Ah Yun, 2003; Reinard, 1988), the finding that *message characteristics* themselves (i.e., frequencies, probabilities, percentages, etc.), can enhance credibility can have important implications for strategic communicators across message topics.

The current study further examined if transportation and involvement would mediate the relationship between message type (statistical vs. narrative) on persuasion. However, due to a lack of persuasive advantage for one message type over the other, transportation (Hypothesis 9) and involvement (Research Question 1) did not emerge as mediators.

Because persuasion by way of transportation is attributed to a number of transportation effects including reduced negative cognitive responses, increased affective responses, creating character relationships, and making narratives appear realistic and concrete (Green, 2006), it is possible one of transportation's effects, and not transportation itself, is the greater mediating mechanism for producing persuasive effects.

For example, Escalas (2004) found transportation led to strong affective responses and reduced levels of critical cognition, which further led to changes in advertisement attitudes and brand evaluations. Future studies should examine which

effects of transportation (i.e., affect; reduced counterarguing; character attachment; perceived realism; etc.) are most important for leading to narrative persuasion. Based on this study, simply because an individual was transported into the message doesn't mean the message was any more or less persuasive than those not transported (i.e., statistical evidence); thus it is imperative future researchers investigate the nuance consequences of transportation and how persuasion is impacted.

Implications

The results from the current study have practical implications for strategic communicators and theoretical implications for academics attempting to gain a better understanding of the nuanced variables which might impact the persuasive effects of message evidence type.

Adding to the mixed findings surrounding the persuasive effects of message type, this study found no difference in persuasion between narrative and statistical messages. While both messages did positively impact the reader's evaluation and agreement with the message and his/her behavioral intentions, neither message was found to be significantly persuasive. This finding contrasts previous research, showing a persuasive advantage of one message type over the other (i.e., Allen & Preiss, 1997; Baesler & Burgoon, 1994; (Braverman, 2008; Reinhart & Feeley, 2007).

Although a persuasive advantage was not found for narrative or statistical messages, results of this study indicate based on significant differences between the independent variable message type and the dependent variables vividness, affect (surprise, fear, and sadness), transportation, and credibility, persuasion could potentially occur through unique means for each message (statistical vs. narrative). For example, the

58

current study found statistical messages were perceived more credible than narratives despite the use of the same source; thus it is likely it was the message characteristics themselves (i.e., the use of hard, verifiable data) made this finding emerge. Is it possible readers of messages hold different types of messages to different standards, such that statistical messages might be rated on their credibility while narrative messages might be rated on their ability to capture the imagination or "transport" readers into the story? If so, then strategic communicators should focus on bolstering the source and message credibility of statistical messages, whereas as inducing characteristics of transportation, including affect and character connections, might become more important for those composing narratives.

To date, prior research on the complexity of narratives, comprised of a plot, characters, strong emotions, and/or vivid images have left researchers to question what "ingredients are necessary to create a persuasive…transporting and influential" story (Green, 2008, p. 48). The current study found narratives led to significantly more transportation than statistical messages; however transportation did not mediate the relationship between message evidence and persuasion. Additionally, the results of this study indicated those reading narratives experienced more affect only for the emotion sadness, whereas those reading statistical messages experienced significantly more fear and surprise.

According to Green (2006), transportation can lead to reduction in negative cognitive responses toward the story, greater affect, increased connections with story characters, among other effects. The question remains, which of these transportation effects or combination of effects leads to greater persuasion? It is important for future

research to investigate what the most important factors of narrative transportation are. Such research will give strategic communicators valuable insight when creating narrative messages. Based on results, communicators will be able to focus on strengthening character development, making the story more realistic, and/or emotional, in order to bolster persuasive effects.

This study further examined the effect of vividness and found narrative only messages produced the greatest amount of vividness, followed by narrative messages with visual images. A goal of the current study was to explore a more holistic representation of the vividness construct (i.e., vivid message vs. vivid presentation). It appears adding visual illustrations to an already vivid message, such as a narrative, does not increase vividness, but can actually decrease vividness. As cited previously, this may be attributed to the burden readers felt in dividing cognitive resources to process both the message and the visual images (Frey & Eagly, 1993; Niederdeppe et al., 2008).

Although little difference of vividness emerged within the narrative conditions, it appears adding an illustrative photograph to pallid, statistical information does influence its vivid quality. Strategic communicators must be aware the expected "vividness effect" may occur only under certain conditions. Messages created to combat social issues, such as hunger and poverty, should utilize pictures to exemplify pallid statistics, but should consider refraining from overly vivid images if the message is relaying a character's testimony. The vivid photographs of individuals enduring pain and suffering may make the dull, hard facts more concrete; however, communicators must be very careful when making his/her selection of a photograph so as to not distort the reader's perceptions or encourage stereotyping of the phenomenon in question (Gilliam, 2006).

In summary, the overall results of this study, which found no difference between message type and visual representations on persuasion, are still quite useful to government and communication practitioners providing strategic messages to the public. Message type, whether narratives provided from a single perspective or statistics intended to capture the severity of the problem, can impact the reader's evaluation and agreement with the message and his/her behavioral intentions with or without the use of visual images. Thus, it is recommended strategic communicators focus on bolstering specific aspects of their written message in order to increase its persuasive effects. Specifically, it requires communicators to add images and enhance credibility to pallid statistical messages, while increasing affective language, character attachment, vividness, and transportation to induce narrative message effects.

Limitations and Future Research

There are a number of limitations to the research methods employed in this study. First, this study's use of a convenience sample composed of undergraduate students, who were mostly white and women, may have affected the responses to persuasion across message type. As students privileged enough to attend college the sample may have found it difficult to be empathetic toward the circumstances of a young mother of two children who didn't finish high school. Even the statistics on poverty and hunger presented in the message may have seemed extreme for this sample attending a university in rural Pennsylvania. It is possible such realities of poverty and hunger, among other social issues, are not of grave concern to young undergraduate students; thus future studies may consider examining the effects of message evidence employing social issue topics using a more economically, educationally, politically, and age-diverse sample.

A further limitation that concerns the topic chosen for this study is that respondents may have answered questions in such a way to make themselves look good (social desirability) or in a ways which they expected the researcher wanted to hear (demand characteristics). Poverty and hunger, despite whether or not respondents think about the issue on a daily basis, is a sensitive topic and it is considered taboo to not be concerned about people in America, or elsewhere, going hungry. It is possible the reason why statistical and narrative messages did not significantly differ on persuasion is because respondents felt obliged to answer in ways which showed their attitude and behavior was in agreement with the message, which required respondents to acknowledge that hunger was a national problem and therefore, giving of one's time and resources was a worthy solution. Future studies may want to consider employing a before-after experimental design so that more detailed opinions about poverty and hunger could be measured a few weeks prior to respondents being given the treatment. Additionally, a control group should be employed in the future so that not only can pre and post-test measures be examined to see if belief changes occurred, but attitude and behavioral intentions can also be compared to individuals who are not exposed to any treatment condition.

A third limitation of this study is the medium in which the messages were employed. Across all conditions the message evidence (statistical or narrative) and visual representations (image or no image) were depicted solely on paper; however, a more ecologically valid way to test message effects would be to employ messages and images using different mediums, including the radio, television, and the Web. By creating multi-

media messages, researchers may be able to gain a better understanding of the specific circumstances and conditions when vividness and transportation occur and are enhanced.

According to the theory of transportation, mental imagery serves as a key component to transportation, however, "it remains an open question whether it is important for that imagery to be self-generated (as in print) versus provided by the medium (as in film)" (Green et al., 2008, p. 516).   While results of the current study indicate narratives with or without visual images lead to transportation, future studies should consider if this finding is robust across mediums and individual differences. Furthermore, the results of the current study indicate visual images may not increase vividness in narrative message; however, they certainly increase vividness in statistical messages. Future research should examine if these findings hold true and/or are even bolstered utilizing different mediums in order to further understand what conditions are optimal for the vividness effect to occur.

Affect, which has been cited as an outcome of both transportation (Escalas, 2004) and vividness (Taylor & Thompson, 1982) should be explored in greater detail. In particular what discrete emotions (positive and/or negative) are needed to induce persuasion and how might transportation and/or vividness bolster these specific emotions?

Finally, much of the current persuasion literature on message evidence employs messages in the context of a news story, advertisement, or pamphlet (i.e., De Wit et al., 2008; Escalas, 2004; Lindsey & Ah Yun, 2003); however as more companies are turning to new means of marketing communication, it becomes increasingly important for

researchers to examine how messages (statistical vs. narratives) on blogs and similar social media sites might impact persuasion differently than traditional press releases.

Conclusion

Message type, although simple yet perplexing, is at the heart of academic research regarding persuasion. Inferences based solely on reading a short news story accompanied with or without visual images occur daily in the lives of individuals living in the 21st century. While this study found message type (statistical vs. narrative) impacted the variables vividness, transportation, affect, and credibility, future researchers must seek to examine which nuanced tactics within each message type might bolster persuasion effects. Researchers should continually raise more questions including: (1) Would a combination of statistical and narrative messages be most effective? (2) Does message length affect the persuasiveness of message type? (3) Why and what factors enhance and/or reduce message effectiveness? and (4) Does medium affect message persuasiveness? With these questions, among others, a plethora of research is left to be uncovered to understand the persuasive complexity of the narrative versus statistic message.

References

Allen, M., & Preiss, R. W. (1997). Comparing the persuasiveness of narrative and statistical evidence using meta-analysis. *Communication Research Reports, 14*(2), 125-131.

Arrillaga, P. (2009, March 6). Researcher creates "witnesses to hunger" through images, stories. *Missourian*. Retrieved from http://www.columbiamissourian.com/stories /2009/03/04/witness-hunger-headline-goes-here/

Baesler, E. J. (1997). Persuasive effects of story and statistical evidence. *Argumentation & Advocacy, 33*(4), 170-175.

Baesler, E. J., & Burgoon, J. K. (1994). The temporal effects of story and statistical evidence on belief change. *Communication Research, 21*(5), 582-602.

Bell, B. E., & Loftus, E. F. (1985). Vivid persuasion in the courtroom. *Journal of Personality Assessment, 49*(6), 659-664.

Block, L. G., & Keller, P. A. (1997). Effects of self-efficacy and vividness on the persuasiveness of health communications. *Journal of Consumer Psychology, 6*(1), 31-54.

Borgida, E. (1979). Character proof and the fireside induction. *Law and Human Behavior, 3*(3), 189-202.

Bower, G. H. (1970). Imagery as a relational organizer in associative learning. *Journal of Verbal Learning and Verbal Behavior, 9*(3), 529-576.

Braverman, J. (2008). Testimonials versus informational persuasive messages: The moderating effect of delivery mode and personal involvement. *Communication Research, 35*(5), 666-695.

Bread for the World. (2010). *The faces of hunger: U.S. hunger*. Retrieved from

http://www.bread.org

Brosius, H., & Bathelt, A. (1994). The utility of exemplars in persuasive

communications. *Communication Research, 21*(1), 48-78.

Busselle, R., & Bilandzic, H. (2008). Fictionality and perceived realism in experiencing

stories: A model of narrative comprehension and engagement. *Communication

Theory, 18*(2), 255-280.

Chang, C. (2008). Increasing mental health literacy via narrative advertising. *Journal of

Health Communication, 13*(1), 37-55.

Chang, C.T., & Lee, Y. K. (2010). Effects of message framing, vividness congruency and

statistical framing on responses to charity advertising. *International Journal of

Advertising, 29*(2), 195-220.

Cox, D., & Cox, A. D. (2001). Communicating the consequences of early detection: The

role of evidence and framing. *The Journal of Marketing, 65*(3), 91-103.

Dahlstrom, M. F. (2009, May). *The strength of causality on narrative persuasion in the

face of contradictory belief structures*. Paper presented at the annual meeting of

the International Communication Association, Chicago, IL.

Das, E., Kerkhof, P., & Kuiper, J. (2008). Improving the effectiveness of fundraising

messages: The impact of charity goal attainment, message framing, and evidence

on persuasion. *Journal of Applied Communication Research, 36*(2), 161-175.

De Wit, J. B. F., Das, E., & Vet, R. (2008). What works best: Objective statistics or

personal testimonial? An assessment of the persuasive effects of different types of

message evidence on risk perception. *Health Psychology, 27*(1), 110-115.

Dickson, P. R. (1982). The impact of enriching case and statistical information on

    consumer judgments. *Journal of Consumer Research, 8*(4), 398-406.

Dillard, J. P., Shen, L., & Vail, R. G. (2007). Does perceived message effectiveness cause

    persuasion or vice versa? 17 consistent answers. *Human Communication*

    Research, 33(4), 467-488.

Employment Policies Institute. (2002). *Measuring poverty in america. Science or*

    politics? Retrieved from http://epionline.org/studies/epi_poverty_04-2002.pdf

Escalas, J. E. (2004). Imagine yourself in the product: Mental simulation, narrative

    transportation, and persuasion. *Journal of Advertising, 33*(2), 37-48.

Escalas, J. E. (2007). Self-referencing and persuasion: Narrative transportation versus

    analytical elaboration. *Journal of Consumer Research, 33*(4), 421-429.

Feeding America. (2010). *Hunger fact sheet*. Retrieved from

    http://feedingamerica.org/newsroom/hunger-fact-sheet.aspx

Feeley, T. H., Marshall, H. M., & Reinhart, A. M. (2006). Reactions to narrative and

    statistical written messages promoting organ donation. *Communications Reports,*

    19(2), 89-100.

Frey, K. P., & Eagly, A. H. (1993). Vividness can undermine the persuasiveness of

    messages. *Journal of Personality and Social Psychology, 65*(1), 32-44.

Gilliam, F. D., Jr. (2006, October). Vivid examples. What they mean and why you should

    be careful using them. *FrameWorks Institute*. Retrieved from

    http://www.frameworksinstitute.org/ezine33html

Gray, J. B. (2009). The power of storytelling: Using narrative in the healthcare context.

    Journal of Communication in Healthcare, 2(3), 258-273.

Green, M. C. (2006). Narratives and cancer communication. *Journal of Communication, 56*(Suppl. 1), 163-183.

Green, M. C. (2008). Research challenges in narrative persuasion. *Information Design Journal, 16*(1), 47-52.

Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology, 79*(5), 701-721.

Green, M. C., & Brock, T. C. (2002). In the mind's eye: Transportation-imagery model of narrative persuasion. In M. C. green, J. J. Strange, & T. C. Brock (Eds.), *Narrative impact: Social and cognitive foundations* (pp. 315-341). Mahwah, NJ: Lawrence Erlbaum Associates.

Green, M. C., Kass, S., Carrey, J., Herzig, B., Feeney, R., & Sabini, J. (2008). Transportation across media: Repeated exposure to print and film. *Media Psychology, 11*(4), 512-539.

Greene, K., & Brinn, L. S. (2003). Messages influencing college women's tanning bed use: Statistical versus narrative evidence format and a self-assessment to increase perceived susceptibility. *Journal of Health Communication, 8*(5), 443-461.

Griskevicius, V., Shiota, M. N., & Neufeld, S. L. (2010). Influence of different positive emotions on persuasion processing: A functional evolutionary approach. *Emotion, 10*(2), 190-206.

Gross, D. (2008, June 12). The coming charity crisis. How the struggling economy is hurting donations. *Newsweek*. Retrieved from http://www.newsweek.com/id/141161

Hinyard, L. J., Kreuter, M. W. (2007). Using narrative communication as a tool for health

    behavior change: A conceptual, theoretical, and empirical overview. *Health*

    Education & Behavior, 34(5), 777-792.

Igartua, J. J. (2010). Identification with characters and narrative persuasion through

    fictional feature films. *Communications, 35*(4), 347-373.

Iyengar, S. (1989). How citizens think about national issues: A matter of responsibility.

    American Journal of Political Science, 33(4), 878-900.

Iyengar, S. (1991). *Is anyone responsible? How television frames political issues.*

    Chicago: University of Chicago Press.

Izquierdo, B. (2008). *Strong*. Retrieved from http://www.witnessestohunger.org/Mothers-

    Children/68

Kazoleas, D. C. (1993). A comparison of the persuasive effectiveness of qualitative

    versus quantitative evidence: A test of explanatory hypotheses. *Communication*

    Quarterly, 41(1), 40-50.

Kopfman, J. E., Smith, S. W., Ah Yun, J. K., & Hodges, A. (1998). Affective and

    cognitive reactions to narrative versus statistical evidence organ donation

    messages. *Journal of Applied Communication Research, 26*(3), 279-300.

Lee, E., & Leets, L. (2002). Persuasive storytelling by hate groups online: Examining its

    effects on adolescents. *American Behavioral Scientist, 45*(6), 927-957.

Lindsey, L. L. M., & Ah Yun, K. (2003). Examining the persuasive effect of statistical

    messages: A test of mediating relationships. *Communication Studies, 54*(3), 306-

    321.

Maheswaran, D., & Meyers-Levy, J. (1990). The influence of message framing and issue involvement. *Journal of Marketing Research, 27*(3), 361-367.

Matthes, J. (2008, May). *The effects of episodic and thematic framing revisited: Exploring the role of attributional styles.* Paper presented at the annual meeting of the International Communication Association, Quebec, Canada.

McCroskey, J. C. (1969). A summary of experimental research on the effects of evidence in persuasive communication. *Quarterly Journal of Speech, 55*(2), 169-176.

Nabi, R. L. (2002). Discrete emotions and persuasion. In J. P. Dillard & M. Pfau (Eds.), *The persuasion handbook: Developments in theory and practice* (pp. 289-308). Thousand Oaks, California: Sage Publications, Inc.

Nan, X., Puig Abril, E., Binder, A. R., Nevar, P. M., & Rojas, H. (2007, May). *Issue responsiveness and negative affect in the framing of poverty: An experiment of gains versus losses.* Paper presented at the annual meeting of the International Communication Association, San Francisco, CA.

National Poverty Center. (2010). *Poverty in the united states: Frequently asked questions.* Retrieved from http://www.npc.umich.edu/poverty/

Niederdeppe, J., Bu, Q. L., Borah, P., Kindig, D. A., & Robert, S. A. (2008). Message design strategies to raise public awareness of social determinants of health and population health disparities. *The Milbank Quarterly, 86*(3), 481-513.

Nisbett, R., & Ross, L. (1980). *Human inference: Strategies and shortcomings of social judgment.* Englewood Cliffs, NJ: Prentice-Hall.

Perloff, R. M. (2003). *The dynamics of persuasion: Communication and attitudes in the 21st century* (4th ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York: Springer-Verlag.

Polyorat, K., Alden, D. L., & Kim, E. S. (2007). Impact of narrative versus factual print ad copy on product evaluation: The mediating role of ad message involvement. *Psychology & Marketing, 24*(6), 539-554.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*(4), 717-731.

Reinard, J. C. (1988). The empirical study of the persuasive effects of evidence: The status after fifty years of research. *Human Communication Research, 15*(1), 3-59.

Reinhart, A. M., & Feeley, T. H. (2007, November). *Comparing the persuasive effects of narrative versus statistical messages: A meta-analytic review*. Paper presented at the annual meeting of the NCA 93rd Annual Convention, Chicago, IL.

Reyes, R. M., Thompson, W. L., & Bower, G. H. (1980). Judgmental biases resulting from differing availabilities of arguments. *Journal of Personality and Social Psychology, 39*(1), 2-12.

Scott, S., & Roberts, F. (2009, June 23). First lady michelle obama issues call to service to nation's volunteer leaders. *Corporation for National & Community Service*. Retrieved from http://www.nationalservice.gov/about/newsroom/releases_ detail.asp?tbl_pr_id=1383

Shen, L., & Dillard, J. P. (2005). Psychometric properties of the hong psychological reactance scale. *Journal of Personality Assessment, 85*(1), 74-81.

Shen, L., & Dillard, J. P. (2007). The influence of behavioral inhibition/approach systems and message framing on the processing of persuasive health messages. *Communication Research, 34*(4), 433-467.

Sipes, C. A. (2010). *Examining the effects of message type and framing on transportation, attitudes, and behavioral intentions.* Unpublished doctoral dissertation, Pennsylvania State University, University Park.

Slater, M. D., & Rouner, D. (2002). Entertainment-education and elaboration likelihood: Understanding the processing of narrative persuasion. *Communication Theory, 12*(2), 173-191.

Stitt, C. R., & Nabi, R. (2009, May). *The persuasive impact of narratives: A comparison across message types and modalities*. Paper presented at the annual meeting of the International Communication Association, New York City, New York.

Taylor, S. E., & Thompson, S. C. (1982). Stalking the elusive "vividness" effect. *Psychological Review, 89*(2), 155-181.

Taylor, S. E., & Wood, J. V. (1983). The vividness effect: Making a mountain out of a molehill. *Advances in Consumer Research, 10*(1), 540-542.

Valentine, V. (2005, November 22). Q & A: The causes behind hunger in america. *National Public Radio*. Retrieved from http://www.npr.org/templates/story/story.php?storyId=5021812

Witnesses to Hunger. (2008). *Witnesses to hunger is about participation and action*. Retrieved from http://www.witnessestohunger.org/About-This-Project/58/

Zaichkowsky, J. L. (1985). Measuring the involvement construct. *The Journal of Consumer Research*, *12*(3), 341-352.

Zillmann, D. (1999). Exemplification theory: Judging the whole by some of its parts.

Media Psychology, 1(1), 69-94.

Zillmann, D. (2006). Exemplification effects in the promotion of safety and health.

Journal of Communication, 56(Suppl. 1), 221-237.

APPENDIX A

TABLES

Table 1
Mean Number of Thoughts by Condition

| | Narrative | | Statistical | |
	Image	*No Image*	*Image*	*No Image*
Total Thoughts	4.17	4.75	4.17	4.07
Negative Thoughts	2.46	2.70	2.47	2.38
Positive Thoughts	1.07	1.40	1.13	0.92
Neutral Thoughts	0.58	0.68	0.66	0.78

Note: Participants were asked to "list any thoughts and feelings that came to mind while reading the passage." Following the thought-listing exercise, participants were instructed to look over their responses and place a + (positive), - (negative), or 0 (neutral) sign by each of their thoughts and feelings (Stitt & Nabi, 2009).

Table 2

Descriptive Statistics for Dependent Variables by Condition

| | Narrative | | Statistical | |
	Image	*No Image*	*Image*	*No Image*
Surprise	3.44(1.24)	3.47(1.40)	3.79(1.55)	4.00(1.61)
Fear	2.87(1.69)	3.08(1.57)	3.44(1.80)	3.45(1.61)
Sadness	4.70(1.33)	4.54(1.19)	4.36(1.35)	4.34(1.28)
Transportation	4.38(0.68)	4.39(0.90)	3.92(0.75) [B,C]	4.03(0.91) [A]
Credibility	5.32(1.24)	5.25(1.13)	5.81(1.02)[D,E]	5.49(1.02)
Involvement	4.60(1.27)	4.48(1.17)	4.55(1.21)	4.68(1.15)
Vividness	4.83(1.25)	4.92(0.94)	4.64(1.03)	4.31(1.36)[F, G]
Perceived Persuasion	5.23(1.02)	5.17(0.85)	5.24(0.94)	5.13(1.10)

Note: Means and standard deviations (listed in parentheses) are listed for dependent variables. Affect was measured using a 7-point Likert-type scale employed from Shen and Dillard (2007) anchored at 1 = none of this feeling and 7 = a great deal of this feeling. Transportation was measured using Green and Brock's (2000) 11-general item Transportation Scale. Vividness was measured using four, 7-point semantic differential scale items (Baesler, 1997). Perceived message credibility was measured using 5 items on a 7-point Likert-type scale (Lindsey & Ah Yun, 2003). Involvement was measured using 15, 7-point semantic differential scale items adopted from Zaichkowsky's (1985) Personal Involvement Inventory (PII). Perceived persuasiveness was composed of message evaluation, message attitude agreement, and behavioral intention (Braverman,

2008). Message evaluation was measured using a 7-point semantic differential scale

adopted form Dillard et al. (2007) and Stitt and Nabi (2009). Message attitude agreement

was measured using three 7-point Likert-type scale items adopted from Shen and Dillard

(2005). Behavioral intention was also measured using three 7-point Likert-type scale

items (Dillard et al., 2007; Shen & Dillard, 2005).

a = statistical only when compared to narrative with image, p < .05 level

b = statistical with image compared to narrative with image, p < .05 level

c = statistical with image compared to narrative, p < .05 level

d = statistical with image compared to narrative, p < .05 level

e = statistical with image compared to narrative with image, p < .05 level

f = statistical compared with narrative, p < .05 level

g = statistical compared with narrative with image, p < .05 level

APPENDIX B

FIGURES

Figure 1
Conceptual Model
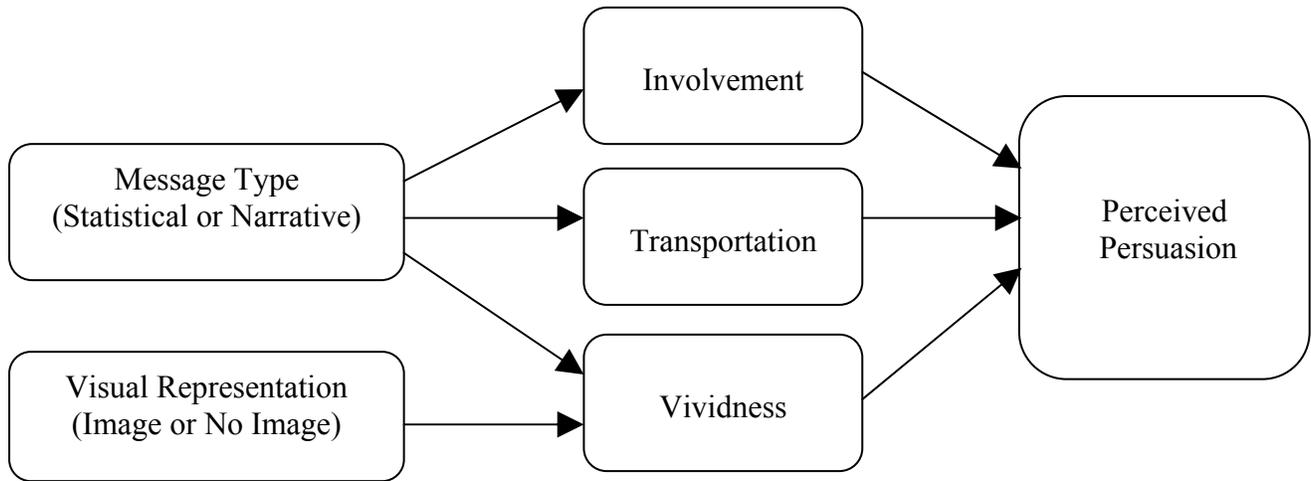
Note: The conceptual model illustrates Research Question 1and Hypotheses 7 through 9.

APPENDIX C

STIMULUS MESSAGES

The Changing Face of Modern Hunger in America

By PAULINE ARRILLAGA
Friday, March 21, 2010

PHILADELPHIA – The very word, *hunger*, means something different in 2010 in America. The numbers are well documented on governmental statistics and survey results. Even before the economy tanked, some 36 million adults and children struggled with hunger. Today the numbers continue to rise.

What does the face of 36 million adults look like? Barbara Izquierdo, a 21-year-old mother of two, speaks out as a witness to the troubling reality she and her children are faced with daily.

Barbara's Story
It is the middle of March. It is snowing outside. Barbara hears two infants crying, so she thinks of how she can soothe them. Barbara goes downstairs and takes the pots of water that were boiling on the stove and carries them up the stairs so she can mix it with the cold water in order to give her restless babies a bath.

Barbara then feeds her children the only thing she has available, which is a can of chef Boyardee, the same thing they eat everyday because it is all Barbara can afford. As for Barbara, she finds herself staring at pizzeria menus to take away her hunger pains. This is Barbara's reality.

She has no money, no formal high school education, and a disgraceful background. She grew up in a broken home without a father; a mother who only would like to see her fail, and a drug addict brother who stole anything he could to get what he needed.

She dreamt of a big home, a career, a college education, and a car. She would go to colleges and explain how she was of "low income" but had high expectations for herself. However, the admissions counselors informed her she could not pay tuition with hope, dreams, and expectations. Her next stop – the public assistance office who would inform her she was ineligible for assistance because she had a job so she could provide food, pay rent, pay bills, clothe herself and two children, and pay medical bills.

What if you were Barbara? Would you let your limited income limit your ambition or persistence? Barbara is more than a statistic. She is just like you. The only difference is that you were brought into different lifestyles.

Taking a Stand
Every single day, individuals, like Barbara, are living just above (or below) the poverty line. They are the silent citizens of the food insecure nation - America. Please consider taking a stand to help end this national struggle. If you can't help financially, consider advocating for the hungry; start a food drive; or volunteer at your local shelter. Go to www.feedingamerica.org to find out how you can help America to not go hungry one more day!

FEEDING AMERICA™

The Changing Face of Modern Hunger in America

By PAULINE ARRILLAGA
Friday, March 21, 2010

PHILADELPHIA – The very word, *hunger*, means something different in 2010 in America. The numbers are well documented on governmental statistics and survey results. Even before the economy tanked, some 36 million adults and children struggled with hunger. Today, the numbers continue to rise.

The American Community Survey reports 14.3 percent of the U.S. population had an income below the poverty level in 2009, which for a family of four is approximately $21,756.00. There were 43.6 million Americans who were living in poverty in 2009 according to the U.S. Census Bureau, which was the highest number in 51 years. In 2009, 29.9 percent of households headed by single women were poor, while 16.9 percent of households headed by single men and 5.8 percent of married-couple households lived in poverty.

A big part of hunger relates to the uncertainties of daily life. This reality forces many families to make tradeoffs between food and other expenses. In fact, 72% of individuals and families struggling are compelled to choose between paying for their food and paying for utilities; and 68% have to choose between paying for food and paying for medicine or medical care. Thus, many Americans turn to the government for assistance.

The number of Americans receiving food stamps reached an all-time high last year, topping 30 million in September, October and November, even though the maximum benefit for a family of four - $588 – still falls $78 short of the cheapest possible government-established plan to feed a family that size. Researchers at Cornell University predict at least half of all Americans between the ages of 20-65 will face the decision to seek out the Federal Supplemental Nutrition Assistance Program. Of those that are eligible to use food stamps/program services, only 30% are successful in qualifying; while of that group, only 15% of recipients will report that their food stamp allotment lasts through the end of each month.

Despite the widespread national hunger problems, the White House and Agriculture Department officials say the president's goal remains, as one put it, "fighting hunger is a problem that still seems quite manageable." While Congress successfully increased food stamp benefits this year by $20 billion, many have found government assistance is not enough…

Taking a Stand
Every single day, there are individuals living just above (or below) the poverty line. They are the silent citizens of the food insecure nation - America. Please consider taking a stand to help end this national struggle. If you can't help financially, consider advocating for the hungry; start a food drive; or volunteer at your local shelter. Go to www.feedingamerica.org to find out how you can help America to not go hungry one more day!

The Changing Face of Modern Hunger in America

By PAULINE ARRILLAGA
Friday, March 21, 2010

PHILADELPHIA – The very word, *hunger*, means something different in 2010 in America. The numbers are well documented on governmental statistics and survey results. Even before the economy tanked, some 36 million adults and children struggled with hunger. Today the numbers continue to rise.

What does the face of 36 million adults look like? Barbara Izquierdo, a 21-year-old mother of two, speaks out as a witness to the troubling reality she and her children are faced with daily.

Barbara's Story

It is the middle of March. It is snowing outside. Barbara hears two infants crying, so she thinks of how she can soothe them. Barbara goes downstairs and takes the pots of water that were boiling on the stove and carries them up the stairs so she can mix it with the cold water in order to give her restless babies a bath.

Barbara then feeds her children the only thing she has available, which is a can of chef Boyardee, the same thing they eat everyday because it is all Barbara can afford. As for Barbara, she finds herself staring at pizzeria menus to take away her hunger pains. This is Barbara's reality.

She has no money, no formal high school education, and a disgraceful background. She grew up in a broken home without a father; a mother who only would like to see her fail, and a drug addict brother who stole anything he could to get what he needed.

She dreamt of a big home, a career, a college education, and a car. She would go to colleges and explain how she was of "low income" but had high expectations for herself. However, the admissions counselors informed her she could not pay tuition with hope, dreams, and expectations. Her next stop – the public assistance office who would inform her she was ineligible for assistance because she had a job so she could provide food, pay rent, pay bills, clothe herself and two children, and pay medical bills.

What if you were Barbara? Would you let your limited income limit your ambition or persistence? Barbara is more than a statistic. She is just like you. The only difference is that you were brought into different lifestyles.

Taking a Stand

Every single day, individuals, like Barbara, are living just above (or below) the poverty line. They are the silent citizens of the food insecure nation - America. Please consider taking a stand to help end this national struggle. If you can't help financially, consider advocating for the hungry; start a food drive; or volunteer at your local shelter. Go to www.feedingamerica.org to find out how you can help America to not go hungry one more day!

The Changing Face of Modern Hunger in America

By PAULINE ARRILLAGA
Friday, March 21, 2010

PHILADELPHIA – The very word, *hunger*, means something different in 2010 in America. The numbers are well documented on governmental statistics and survey results. Even before the economy tanked, some 36 million adults and children struggled with hunger. Today, the numbers continue to rise.

The American Community Survey reports 14.3 percent of the U.S. population had an income below the poverty level in 2009, which for a family of four is approximately $21,756.00. There were 43.6 million Americans who were living in poverty in 2009 according to the U.S. Census Bureau, which was the highest number in 51 years. In 2009, 29.9 percent of households headed by single women were poor, while 16.9 percent of households headed by single men and 5.8 percent of married-couple households lived in poverty.

A big part of hunger relates to the uncertainties of daily life. This reality forces many families to make tradeoffs between food and other expenses. In fact, 72% of individuals and families struggling are compelled to choose between paying for their food and paying for utilities; and 68% have to choose between paying for food and paying for medicine or medical care. Thus, many Americans turn to the government for assistance.

The number of Americans receiving food stamps reached an all-time high last year, topping 30 million in September, October and November, even though the maximum benefit for a family of four - $588 – still falls $78 short of the cheapest possible government-established plan to feed a family that size. Researchers at Cornell University predict at least half of all Americans between the ages of 20-65 will face the decision to seek out the Federal Supplemental Nutrition Assistance Program. Of those that are eligible to use food stamps/program services, only 30% are successful in qualifying; while of that group, only 15% of recipients will report that their food stamp allotment lasts through the end of each month.

Despite the widespread national hunger problems, the White House and Agriculture Department officials say the president's goal remains, as one put it, "fighting hunger is a problem that still seems quite manageable." While Congress successfully increased food stamp benefits this year by $20 billion, many have found government assistance is not enough…

Taking a Stand
Every single day, there are individuals living just above (or below) the poverty line. They are the silent citizens of the food insecure nation - America. Please consider taking a stand to help end this national struggle. If you can't help financially, consider advocating for the hungry; start a food drive; or volunteer at your local shelter. Go to www.feedingamerica.org to find out how you can help America to not go hungry one more day!

APPENDIX D

QUESTIONNAIRE

You have been randomly selected to read a recently published article on poverty. You will be asked to read the story and complete a questionnaire. Read this story at a normal pace. When you have finished reading the story, continue on to the questionnaire. Please **DO NOT** refer back to the story after you have finished reading.

When completing the questionnaire, please respond to all of the items; do not leave any blank. In addition, respond to each item as if it were the only item. Do not worry about being "consistent" in your responses. We will gather and report the data for the entire group with no reference to individual persons. Your anonymity is guaranteed and all of the information that you provide will be confidential.

When you have finished the story and questionnaire, please take all materials to the researcher.

Thank you for your participation. Your input is very valuable.

We are interested in what you were thinking while reading the social issue message. **Please list all the thoughts and feelings that came to mind regarding this story.** You may use single words, phrases, or short sentences. Please ignore spelling, grammar, and punctuation. **There are no right or wrong answers.**

Please place only one idea or thought in each box.

You do not have to fill in all of the boxes.

When you have finished listing your thoughts and feelings, please go back and place a plus (+), minus (-), or neutral (0) in the appropriate boxes.

You may then proceed with the next set of questions.

Thoughts	Positive (+)	Negative (-)	Neutral (0)

Reactions to the Story: For the following items, please circle only ONE number; be as accurate and honest as you can be; do not leave any items blank; and respond to each item as if it were the only item

How did the message make you feel?

1 = None of this feeling ……………………………… 7 = A great deal of this feeling

Surprised	1	2	3	4	5	6	7
Startled	1	2	3	4	5	6	7
Astonished	1	2	3	4	5	6	7
Fearful	1	2	3	4	5	6	7
Afraid	1	2	3	4	5	6	7
Scared	1	2	3	4	5	6	7
Sad	1	2	3	4	5	6	7
Dreary	1	2	3	4	5	6	7
Dismal	1	2	3	4	5	6	7

While reading the message,

I could easily picture the events in it taking place.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

I found my mind wandering.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

Activity going on in the room around me was on my mind.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

I was mentally involved in the story.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

The message affected me emotionally.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

While reading the message,

      I found myself thinking of ways the message could have turned out differently.

              Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

      I could picture myself in the scene of the events described in the story.

              Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

      I found the events in the story to be relevant to my everyday life.

              Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

      I wanted to learn how the story ended.

              Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

      The events in the story have changed my life.

              Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

After finishing the story,

      I found it easy to put it out of my mind.

              Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

The article described numerous challenges and difficult choices an individual faces when he/she lives just above or below the poverty line. Please state one example mentioned in the article:

_____

The article mentioned a number of possibilities in which an individual could get involved in order to "fight hunger." Please state one example:

_____

What national, non-profit organization, fighting against hunger, was mentioned in the article?

_____

According to the article, please rate on a scale from 1-7, the level of difficulty it is for an individual to receive governmental-assistance (i.e., food stamps; medical bills; etc.).

Very Difficult   1   2   3   4   5   6   7   Very Easy

According to the article, approximately how many Americans are currently suffering from hunger? (Please Circle One)
   A. 45-54 Million Americans
   B. 35-44 Million Americans
   C. 25-34 Million Americans
   D. 10-24 Million Americans

Overall, after reading the message I perceive…

The information presented in the message is credible.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

The message is reliable.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

That the message is a believable one.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

The information presented in the message is trustworthy.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

That the message has integrity.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

I think the message contains FACTS and STATISTICS

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

I think the message contains a CHARACTER'S STORY

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

The message reads like a story.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

Overall, I perceive the topic of the message I just viewed as …

Unimportant	1	2	3	4	5	6	7	Important
Of no concern	1	2	3	4	5	6	7	Of concern to me
Irrelevant	1	2	3	4	5	6	7	Relevant
Useless	1	2	3	4	5	6	7	Useful
Worthless	1	2	3	4	5	6	7	Valuable
Trivial	1	2	3	4	5	6	7	Fundamental
Not beneficial	1	2	3	4	5	6	7	Beneficial
Doesn't matter	1	2	3	4	5	6	7	Matters to me
Not needed	1	2	3	4	5	6	7	Needed
Insignificant	1	2	3	4	5	6	7	Significant
Unexciting	1	2	3	4	5	6	7	Exciting
Unappealing	1	2	3	4	5	6	7	Appealing
Mundane	1	2	3	4	5	6	7	Fascinating
Nonessential	1	2	3	4	5	6	7	Essential
Undesirable	1	2	3	4	5	6	7	Desirable

The message I just read was…

Dull	1	2	3	4	5	6	7	Colorful
Abstract	1	2	3	4	5	6	7	Concrete
Uninteresting	1	2	3	4	5	6	7	Interesting
Boring	1	2	3	4	5	6	7	Stimulating

After reading the message,

I support what the message was trying to accomplish.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

I totally agree with the position promoted in the message.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

I am favorable towards the main point of the message.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

The arguments presented in the message were…

Not at all persuasive	1	2	3	4	5	6	7	Very persuasive
Not at all effective	1	2	3	4	5	6	7	Very effective
Not at all convincing	1	2	3	4	5	6	7	Very convincing
Not at all compelling	1	2	3	4	5	6	7	Very compelling
Not at all clear	1	2	3	4	5	6	7	Very clear
Not at all sensible	1	2	3	4	5	6	7	Very Sensible
Forgettable	1	2	3	4	5	6	7	Memorable
Not at all believable	1	2	3	4	5	6	7	Very Believable
Not at all credible	1	2	3	4	5	6	7	Very Credible
Weak	1	2	3	4	5	6	7	Strong
Misleading	1	2	3	4	5	6	7	Straightforward
Not at all important	1	2	3	4	5	6	7	Very important

After reading the message,

I plan to act in ways that are compatible with the position promoted in the message.
Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

I intend to behave in ways that are consistent with the message.
Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

I am going to make an effort to do what the message urged me to do.
Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

Please Circle your Gender.

1. Male   2. Female

Please indicate (circle) your ethnic background.

1. African American
2. Asian American
3. Caucasian
4. Hispanic
5. Other

Your age. _____