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An Investigation of the Persuasive Effects of Rhetorical Questions, Message Framing, and the ELM in Promoting Responsible Cell Phone Usage

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by

Robert James Glenn III

A Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

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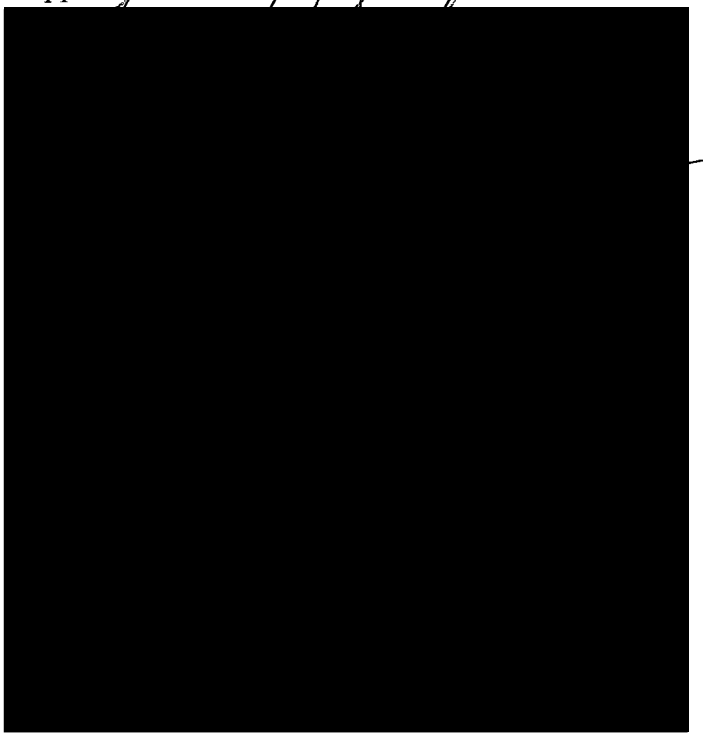

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AN INVESTIGATION OF THE PERSUASIVE EFFECTS OF RHETORICAL QUESTIONS, MESSAGE FRAMING, AND THE ELM IN PROMOTING RESPONSIBLE CELL PHONE USAGE

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ABSTRACT

AN INVESTIGATION OF THE PERSUASIVE EFFECTS

OF RHETORICAL QUESTIONS, MESSAGE FRAMING, AND THE ELM

IN PROMOTING RESPONSIBLE CELL PHONE USAGE

by Robert James Glenn, III

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This study evaluated persuasive messages that advocate support for a ban against cell phones while driving using Petty and Cacioppo's Elaboration Likelihood Model of persuasion as its theoretical framework. Seven hypotheses were tested using a 2 x 2 x 2 factorial design assessing the influence of need for cognition (high vs. low) in tandem with the variables of message framing (gain vs. loss statements) and message form (questions vs. statements) upon assessments of elaboration (ME), cognition message value (CMV), message effectiveness ratings (MEF), and attitude toward the prescribed behavior (ATPB).

A significant main effect was found for message framing as positively framed messages produced more positive ratings for CMV, the degree to which individuals found the advocacy to be intellectually stimulating and worthwhile as vehicles for persuasion.

A pair of significant two way interactions were detected as: (1) High need for cognition individuals registered a stronger commitment toward the prescribed behavior ("don't use a cell phone while driving") when exposed to negatively framed messages and (2) Low cognition receivers exposed to negatively framed messages registered a greater willingness to adopt the targeted behavior, future intent not to use a cell phone while driving. This latter result partially contradicted the original hypothesis.

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CHAPTER I

INTRODUCTION

Lawyers engage in rude utterances, impairing their clients cause, preachers don't sermonize well and thus confuse their audiences and great tediousness occurs as spoken oratory is often not well ordered. Alas, proper instruction in the rhetorical arts can cure all of these ills if offered to those who desire it.

Leonard Cox, *Rhethoryke*, 1529

The origins of public persuasion as a field of academic study date to classic antiquity when rhetoric was viewed as a powerful means to educate the masses, to promote social harmony, and to provide citizens with a greater knowledge of public affairs. During the past 2400 years, the study of persuasion has evolved to include language and psychological variables that are routinely analyzed to assess the effectiveness of persuasive messages (O'Keefe, 2002).

In 5 B.C., Corax and Tisias provided legal advice and are credited with authoring one of the first documents detailing the intricacies of judicial rhetoric. During that era, citizens were often required to represent themselves in the Athenian courts as these cases involved issues pertaining to property ownership and civic taxation convened before a magistrate. Later in that century, the judicial decision-making apparatus evolved and juries of common citizens were appointed to determine the course of justice. Those who were called before the courts to represent themselves often required significant assistance in order to research, compose, and present effective presentations (Bizzell & Herzberg, 1990).

A number of Greek scholars are recognized as pillars of the rhetorical tradition. Plato authored a number of important treatises assessing the state of government and the courts during his time including *The Gorgias, The Apology, and The Republic.* Prominent citizens were encouraged to seek training in rhetorical skills and presentation.

These early works came to represent a critical scholarly foundation from which the rhetorical tradition evolved and flourished.

In *The Apology*, Plato expressed a highly unflattering view of rhetoric and legal rhetoric, in particular, while condemning the Sophists results driven pedagogical methods as illegitimate (Bizzell & Herzberg, 1990). Plato believed an elite class of individuals, characterized as *philosopher kings*, should be charged with rendering comparatively uneducated legions of common citizens.

According to Woodward and Denton (2004), Aristotle believed strongly in the power of average citizens to arrive at well considered decisions concerning important social issues. Aristotle founded an academy to teach rhetoric to the Athenian elite. In his classic text, the *Rhetoric,* the great scholar outlines the core philosophy that effective persuasion hinges upon a clear understanding of the artistic proofs. Aristotle contended three "artistic proofs" must be employed effectively by the advocate to put the audience in the right emotional frame of mind including: emotional appeals (pathos), present cogent arguments (logos), and convey strong character and competence (ethos). Like Plato, Aristotle was concerned with the overemphasis and potential abuse of emotional appeals and consistently encouraged students to make ethos and logos the central components of their presentations.

As the rhetorical traditions of Athens began to fade, Roman scholars Quintilian and Cicero analyzed and translated the work of Plato and Aristotle from Greek to Latin while adding a few flourishes of their own. Quintilian, a Roman legal counsel, expanded upon the standards required to enhance source credibility and is best remembered for the classic admonition: "The ideal rhetorical situation involves a good man speaking well" (Larson, 2004). Quintilian outlined proper methods for

developing legal briefs and presentations. The most significant of these tomes, *Institutio Oratoria*, provided a copiously detailed guidebook concerning effective persuasion and the methods citizens should employ to persuade audiences in various settings and contexts. The work was designed for young students undergoing rigorous training in the arts and sciences. Students of rhetoric often performed declamations featuring either original, self developed speeches or dramatic reenactments of an address delivered by an important historical figure from that era (Cooper, 1960).

Cicero studied and reviewed many early Greek texts and published a compendium of his works. In this treatise, the Greek scholar outlined the canons of rhetoric which include: (1) invention-the process of discovering valid arguments, (2) arrangement-the proper order of arguments (3) style-varying levels of semantic and word choice are highlighted, (4) memory-the speakers' mental grasp of the material, and (5) delivery-elements of the voice and body as part of the persuasive event or action (Seiter & Gass, 2004). Persuasion is outlined in a contemporary context as "a conscious attempt by one individual or group to change the attitudes, beliefs, or the behavior of another individual or group of individuals through the transmission of some message" (Bettinghaus & Cody, 1987, p.12).

During the past 60 years, the continued use of persuasion to educate has prompted an increasing volume of research concerning the effects of acquisition and changes in attitudes. An extensive body of social science research has examined the significant influence of a wide variety of communication variables upon the process of persuasion. Past communication studies have focused upon four general categories of message variables including: (1) source variables-speaker credibility,

speaker's appearance including attractiveness and likability, majority and minority status, and delivery rate, (2) message variables-issue relevance, conclusion drawing, use of rhetorical questions, argument quality, argument quantity, message framing, fear appeals, one sided vs. two sided arguments, (3) receiver variables-attitude accessibility, issue knowledge, age, gender, race, varied personality and skill levels along a continuum including intelligence, self esteem, self monitoring, and need for cognition, and (4) context variables-distraction, forewarning, message modality, communication setting, and reiteration of message components (Petty & Wegener, 1991).

This contemporary research has helped scholars analyze and refine the essential workings of a number of important theoretical constructs concerning attitude change including Heider's (1946) Balance Theory, Osgood and Tannenbaum's (1955) Congruity Theory, Festinger's Theory of Cognitive Dissonance (1957), Sherif and Hovland's (1961) Social Judgment Theory, McGuire's (1965) Inoculation Theory, and Ajzen and Fishbein's (1973, 1975) Theory of Reasoned Action (as cited in Perloff, 1993).

One of the most influential theories of contemporary persuasion was developed by Petty and Cacioppo (1984) and is designed to clarify the role of involvement and cognitive style in attitude change. The elaboration likelihood model (ELM) has been employed to evaluate persuasion across several contexts including the types of influence generated through political campaigns (Cacioppo, Petty, Kao, & Rodriguez, 1986), public health campaigns (Petty, Harkins, & Williams, 1980), commercial advertising (Petty, Cacioppo, & Schumann, 1983; Petty & Cacioppo, 1986; Haugtvedt, Schumann, Schneier, & Warren, 1994), public service

announcements promoting safe living choices, legislative proposals, and public policy initiatives (Petty & Cacioppo, 1990; Haugtvedt & Wegener, 1994), personal life scripts (Petty, Cacioppo, & Sidera, 1982), and elements of group influence (Areni, Ferrell, & Wilcox, 2000).

The use of rhetorical questions and message framing represent significant persuasive strategies which have received much scholarly attention in past decades. Contemporary scholars have examined the impact of rhetorical questions across a variety of contexts including public awareness campaigns (Roskos-Ewoldsen, 2003), newspaper editorials (Mothersbaugh, Huhmann, & Franke, 2002), and assessments of consumer product campaigns (Ahluwalia & Burnkrant, 2004). Similarly, message framing statements emphasizing elements of gain and loss have been recognized for their significant roles in the persuasive processes interrelated to public health initiatives (Maheswaran & Meyers-Levy, 1990; Donovan & Jalleh, 2000), commercial advertising (Young & Buda, 1999), and video-based health education programs (Withers, Twigg, Wertheim, & Paxton, 2002).

All of these persuasive elements will be incorporated to investigate the role public service campaigns play in reducing the dangers associated with cell phone use while driving an automobile. Last year a total of 12,000 Americans sustained serious injuries and over 2600 died in vehicle accidents involving drivers using a cell phone according to the National Safety Council (2009, June 17). Driving while operating a cellular device is banned in only a few states, chief among them New York, and as the percentage of cell phone users continues to climb so will the volume and intensity of debate concerning their use. Many users suggest hands-free devices could reduce the risks of talking while driving, but several recent studies contradict this

assumption. This study will assess which specific message elements can best promote significant changes in driver's attitudes and behaviors related to cell phone use while traveling on our nation's roadways. In addition, this study will identify the impact of cognitive style upon reported levels of elaboration, message evaluation, cognitive message value, and willingness to embrace the prescribed attitude toward the behavioral change.

Purpose

The purpose of this dissertation is to contribute to a fuller understanding of persuasion and the ELM by assessing the effects of rhetorical questions and message framing as persuasive strategies in a public awareness campaign. The messages presented for evaluation will feature three differing elements including message frames (gain and loss), message forms (rhetorical question vs. declarative statements), and need for cognition levels (high vs. low) related to a proposal to discourage use of a cell phone while driving an automobile.

This research will seek to broaden our current understanding of the link between message construction and the attitude-behavior continuum and expand upon earlier works employing the use of rhetorical questions as a message cue. The study will serve to identify whether rhetorical questions and message frames function as central or peripheral route heuristics in relation to core characteristics of targeted audiences. It is also anticipated the study will provide informative data concerning attitudes concerning a growing social problem in America, cell phone misuse and abuse by drivers on our nation's highways. More saliently, this dissertation is intended to contribute to a fuller understanding of persuasion by analyzing changes and core characteristics of the attitudinal and cognitive perceptions of cell phone

users through the lens of a persuasive message campaign.

The purpose of this chapter is to review and critique major, contemporary, and pertinent research involving the Elaboration Likelihood Model and selected studies relating to the utilization of message framing and rhetorical question forms as mechanisms for evaluating attitudinal development, persuasive influence, and expressed behavioral outcomes. Accordingly, this dissertation is divided into four chapters: (1) Introduction-Literature Review, (2) Methodology, (3) Results, and concluding with (4) Discussion and Conclusions.

Literature Review

This literature review will feature an examination of research in four major areas including the workings of: (1) the elaboration likelihood model, (2) rhetorical questions, (3) message framing and, (4) the stimulus issue: a proposal to ban cell phone use while driving.

The review of ELM studies will include a discussion of its major characteristics (Cohen, 1957; Petty & Cacioppo, 1977; Petty, Cacioppo, & Goldman, 1981; Cacioppo, Petty, & Morris, 1983; Petty & Cacioppo, 1984; Petty & Cacioppo, 1986; Haugtvedt, Schumann, Schneier, & Warren, 1994; Duthler & Palmgreen, 2003), its applied use in advertising and public affairs (Cacioppo, Petty, Kao, & Rodriguez, 1986; Haugtvedt & Petty, 1992), the role of various dispositional factors (Eagly, 1974; Petty & Cacioppo, 1984; Cacioppo & Petty, 1980), situational factors (Festinger & Macoby, 1964; Osterhouse & Brock, 1970, Keating & Brock, 1974; Petty, Wells, & Brock, 1976; Petty & Brock, 1981; Harkins & Petty, 1981, 1987; Moore & Reardon, 1987), message processing variables (Petty, Harkins, & Williams, 1980; Petty, Cacioppo, & Sidera, 1982; Baker & Petty, 1994; Areni, Ferrell, & Wilcox, 2000) , and message construction elements (Wright, 1973, 1974; Chaiken, 1980; Petty & Cacioppo, 1981; Arora, 1985; Petty & Cacioppo, 1986).

The review of rhetorical question research focuses upon its role as an inducing and distracting element in argument presentation and its value in changing audience attitudes concerning controversial commercial and social issues (Zillman, 1972; Petty, Cacioppo, & Heesaker, 1981; Burnkrant & Howard, 1984; Munch & Swasy, 1985; Munch & Swasy, 1988; Howard, 1997; Mothersbaugh, Huhmann, & Franke, 2002; Areni, 2003; Roskos-Ewoldsen, 2003; Ahluwalia & Burnkrant, 2004;

Blankenship & Craig, 2006).

This review of message framing research will examine its use in the areas of advertising, health education, public safety, and education (Maheswaran & Meyers-Levy, 1990; Homer & Yoon, 1992; Young & Buda, 1999; Donovan & Jalleh, 2000; Withers, Twigg, Wertheim, & Paxton, 2002).

Finally, this section will identify core issues in the use and abuse of cell phones while driving an automobile. Several major studies will be highlighted in this section including those conducted by Britt (2005), Fischer (2005), *Insurance Education Foundation* (2004), Richards and Corcoran (2002), *Seattle Post-Intelligencer Online* (2005, May 4), *Smart Motorist Online* (2004, May 5), and the *Transportation Ministry of Canada Online* (2001, December).

The Elaboration Likelihood Model

Petty and Cacioppo (1977) developed the Elaboration Likelihood Model of persuasion (ELM) as a tool for evaluating the influence of conscious versus unconscious thought upon the process of attitude cultivation and transformation, while building upon previous persuasion and attitude change research. The ELM is founded upon the notion receivers typically follow one of two basic processing paths (central vs. peripheral) while adopting changes in attitude and when faced with various forms of persuasion. The five stages of message processing include: (1) attention to the message, (2) understanding of the message content, (3) evaluation of the message, (4) integration of the message with past experiences or related attitudes, and (5) attitude change or reinforcement. It is the degree of individual elaboration (high vs. low) that determines the processing route message receivers select while responding to a particular type of persuasive message. Unlike other

models of persuasion, the ELM does not incorporate the assumption that receivers link easily accessed old information with new information.

In contrast, ELM researchers contend individuals who seek to cogently analyze and cognitively elaborate upon persuasive messages are categorized as central route thinkers. Central route thinkers focus upon issue relevant cognitive activity such as argument quality, quality evidence, and the use of effective reasoning when processing a persuasive message. Central route processors characteristically exhibit both the ability and motivation to generate focused cognitively centered judgments concerning the persuasive messages they analyze.

A high involvement message is characterized as salient to a person's goals, values, groups, possessions, and outcomes (Haugtvedt & Petty, 1992). The personal relevance of an issue is often measured along a continuum reflective of Abraham Maslow's hierarchy of primary and secondary needs. Primary needs typically center upon survival and life preservation issues (e.g., "buckle your infant in a child safety seat to protect them in case of accident") while secondary needs normally focus upon ego and self fulfillment needs such as self concept and self actualization (e.g., "successful people deserve the best and that is why you should carry the American Express Gold Card") (Perloff, 1993). Involvement is manipulated by product or issue relevance, the modality employed, and the vehicle in which it is featured. For instance, a public health message featured in *Prevention Magazine* would seemingly carry additional weight with those exhibiting high levels of interest concerning issues related to personal health, safety, and personal protection (Petty & Cacioppo, 1986; Dillard & Pfau, 2002).

Message recipients must possess the ability to understand the message

content without being overwhelmed by forms of distraction or interference. Interest in a particular subject correspondingly increases involvement by subjects in the argument processing process (Petty, Cacioppo, Strathman, & Priester, 1994). High elaboration occurs when individuals are both motivated and able to fully focus upon the message presented. Petty and Cacioppo (1984) explain that when high elaboration occurs, people respond favorably to persuasive messages which "cause changes in position to persist over time, resist counter persuasion, and predict future behavior–the triple-crown of interpersonal influence" (p. 24). When high elaboration respondents possess strong opinions concerning a specific issue and are exposed to counter-attitudinal messages they may display a strong resistant response as they produce counter-arguments at a higher level during exposure to a target message (Cacioppo, Marshall-Goodell, Tassinary, & Petty 1992).

Cialdini, Petty, and Cacioppo (1981) describe peripheral responses as triggered by six emotional cues including (1) reciprocity-an exchange of benefits, (2) consistency-a balanced regulation of beliefs, (3) social proof-the bandwagon effect, (4) liking-an affinity for others, (5) authority-belief in those who are viewed as important, and (6) scarcity-wherein attitude objects are viewed as rare or hard to access. Central route cues may intermingle with non-issue relevant cues and combine to trigger an emotional response which will place the subject in a peripheral route state for a limited period of time (Harkins & Petty, 1987).

In contrast, peripheral route message processors focus upon non-issue relevant concerns including: source attractiveness, source credibility, non-verbal cues, message length, and obvious symbols of prestige (Cacioppo, Petty, & Morris, 1983; Petty, Cacioppo, Strathman & Priester, 1994). Peripheral route processors

typically engage in low level or instinctual message elaboration because they characteristically lack the motivation, interest, or ability to fully focus upon the persuasive appeals presented. Too high a level of involvement can cause processing to become biased and, as a result, a self-protecting or ego-defensive response may emerge. The peripheral processing route typically incorporates the presence of a favorable cue which alters a receiver's mood directly or delivers a clue concerning the nature of the appropriate attitude to be embraced (p. 1033). In addition, when a message is in line with the processors prevailing attitudes toward a low-involving issue they are more likely to choose the less effortful pathway to follow and thus choose to engage in peripheral route processing (Cacioppo, Petty, Kao, & Rodriguez, 1986).

Because peripheral route processors focus upon non-issue relevant message content their attitudes are typically less accessible, persistent, resistant to counter-advocacy, and predictive of behavior than those exhibited by central route processors (Dillard & Pfau, 2002). In the case of peripheral route persuasion, individuals may exhibit tentative attitude consolidation and possible future elaboration. However, if a particular peripheral cue is rejected then the subject will simply revert back to embracing their initial attitude (Donovan & Jalleh, 2000; Dotson & Hyatt, 2000).

There are three potential outcomes which may occur in response to exposure to persuasive messages including (1) acceptance-positive attitude change, (2) rejection-no attitude change, and (3) a boomerang effect-counter-attitudinal change (Hamilton, Hunter, & Boster, 1993).

Individuals who possess the ability to process, high cognition style, or high levels of involvement generally follow a central route approach toward attitude

cultivation. Low elaboration typically occurs when individuals lack the motivation and/or ability to fully attend to the messages generated. In the low elaboration condition subjects are more likely to focus upon peripheral route cues.

For centuries scholars have argued that source credibility is an important variable in the evaluation of persuasive messages. Researchers historically characterize credibility along a continuum of four dimensions including: (1) normative-identification perceptions such as group membership, (2) qualification-expertness-training, ability, and experience, (3) safety-trustworthiness-honesty, lack of self interest, and (4) compliance-dynamism-vigor, strength, and power (O'Keefe, 2002). Within the context of the ELM, receivers seek to identify and assess the role of source credibility across a variety of contexts associated with their knowledge of the subject, involvement, attention, and ability to process key elements of persuasive stimuli (Petty & Cacioppo, 1984). Situational factors of credibility influence whether individuals favor expert, peer, or socially attractive sources when attempting to make personal decisions. Cultural factors of credibility are linked to socially accepted barometers of personal prestige or success including professional, financial, or status markers (e.g., driving a new foreign sports car is often viewed as a sign of wealth and affluence). These credibility measures are key elements in persuasion and ELM research because they can serve as either a peripheral or central route cue depending upon how they are framed when featured within varying types of advocacy.

Previously, models of attitude change presumed targets of persuasion directed a uniform level of attention to all arguments and argument sources. Petty and Cacioppo (1984) examined early research concerning the influence of cognition upon self persuasion and identified significant, attitudinal differences based upon a variety

of variables including involvement, educational level, need for cognition, forewarning, and message content.

One of the key early foundations for Petty and Cacioppo's Elaboration Likelihood Model, the concept of need for cognition, was forged in a seminal study by Cohen (1957). The ELM is centered upon the notion that individuals who vary in their desire to engage in effortful cognition will also differ markedly in their evaluation of persuasive messages. Cohen determined individuals who derived a substantial amount of satisfaction while engaging in complex, intellectual activities generally fell within the high need for cognition range. In contrast, low NFC subjects included those who reported far less affinity for complex and analytically centered tasks.

Thirty-five undergraduates were asked to report their attitudes concerning the implementation of a stricter scoring procedure for grading on the curve. One month later, they were asked to listen to a confederate, identified as a faculty member, speak in support of the policy change. Roughly half of the original participant pool heard the speaker present an address organized in solution-problem order, while the other group heard a version featuring a problem-solution pattern of argument order. High NFC respondents demonstrated only a mild negative response to the shift in presentational order in contrast to their low NFC counterparts who registered strong negativity toward the solution-problem order message version. Cohen perceived this discrepancy occurred because high NFC individuals were more attuned to elaborating upon the overall message content rather than focusing upon tangential issues, such as the particular organizational pattern employed by the message source (1957, p. 117).

People who register high NFC levels typically experience a high degree of enjoyment and satisfaction while engaged in intensive thought concerning issues of personal relevance. High NFC's are more likely to seek out additional information and support as they cultivate attitudes concerning relevant products, issues, and activities. Low NFC's do not gain a high level of satisfaction from engaging in extensive thought and are more likely to focus upon comparatively superficial cues in constructing attitudes which guide their daily decision-making.

Petty and Cacioppo (1977) examined the role of persuasive forewarning within the context of issue involvement. Study participants listened to a taped message advocating the implementation of a comprehensive exam to be completed by college seniors as a condition for their graduation from the University. An equivalent percentage of subjects were placed in one of four conditions: (1) high involvement, the test will be implemented this year, forewarning presented, the editorial is designed to persuade you to consider a major change in the college policy, (2) low involvement, the test will be implemented next year, forewarning presented, (3) high involvement, no forewarning, the tape is a journalism project, and (4) low involvement, no forewarning. The researchers found when forewarnings were generated in low involvement conditions no salient attitude change occurred. Under high involvement conditions the forewarning heightened resistance to the message and compelled them to generate a larger volume of self-reported, negative thoughts concerning the taped appeal. Overall, the study validated the powerful influence of forewarning when audiences encounter issues of personal importance, such as raising college tuition and implementing senior exams.

Petty, Cacioppo, and Goldman (1981) studied the interaction between issues

of personal relevance and the manner in which individuals construct socially correct attitudes. Participants listened to four audio-taped messages which varied in variables for: (1) audience involvement (high vs. low), (2) argument strength (weak vs. strong), and (3) source expertise (expert vs. non-expert). Strong arguments were defined as "logically sound, defensible, and compelling," while weak arguments were characterized as "open to refutation and skepticism" (p. 23). The message proposed a university-wide policy requiring college seniors to take comprehensive exams. One version stated the exam would be put into place within the year at their home institution (high involvement), while the second stated the policy change would occur within a ten-year time frame (low involvement).

Accordingly, the argument strength variable was manipulated so the objective use of qualified data and statistics were included in the strong argument condition. In contrast, the weak argument message forms typically incorporated subjective statements, quotations, and personal opinion. Each of the message versions featured eight arguments supporting the concept of implementing senior exams. Half of the participants were informed a local high school class prepared the report they were about to hear (low source expertise condition), while the other half were advised the report was prepared by the prestigious Carnegie Commission on Higher Education (high source expertise condition).

The results confirmed the researcher's primary hypothesis that high involvement respondents would pay greater attention to the strength or arguments in evaluating the message. Low involvement receptors registered greater reliance upon the expertise of the source in assessing the audio-taped appeal. The researchers contend high involvement respondents follow a central route to persuasion for two

major reasons: (1) high involvement audiences seek to construct socially correct attitudes concerning subjects of relevance to them; and (2) researchers theorized a heightened sense of topic relevance would encourage participants to pay more attention and seek to employ prior knowledge they possessed in evaluating the salience of persuasive messages. Conversely, low involvement participants embraced a more apathetic approach and sought a less cognitively stressful route to assessing the quality of persuasive messages.

Cacioppo, Petty, and Morris (1983) conducted a pair of experiments assessing the influence of message quality and source credibility upon the persuasion process. An initial pool of 572 participants was whittled down to 114 after surveys were completed concerning a series of university issues including two employed in the pair of experiments. The final grouping featured pairs of individuals who possessed similar attitudes concerning the message stimuli, the implementation of a senior comprehensive exam and a proposal to raise student tuition, and widely contrasting cognition styles (high NFC vs. low NFC). Experiment two featured a campus issue, raising campus tuition, wherein respondents exhibited a high level of consensus, against the tuition hike, regardless of their need for cognition profiles. The results validated earlier findings concerning the view that high need for cognition readers: (1) recalled more primary arguments, both strong and weak, (2) distinguished more clearly between strong and weak versions of the argument forms presented, (3) were more attentive to strong arguments while assessing communicator competence, and (4) acknowledged engaging in more cognitive effort than low NFC respondents (Cohen, 1957).

Petty, Cacioppo, and Schumann (1983) sought to identify the role of

involvement based upon the prominence of groups purported to endorse a particular product, a fictional razor brand, nicknamed the "Edge." Participants placed in the high involvement condition were told they would receive a complimentary gift in exchange for their involvement and the product would soon be available in their home area. Low involvement respondents were not offered a gift and informed the razor would available in the distant future only in far away markets. Argument strength (weak vs. strong) was manipulated such that strong arguments conveyed specific benefits of the razor's performance (e.g., "the Edge was scientifically designed") while the weak claims focused on external, superficial characteristics of the product (e.g., "the Edge floats in water with minimum rust"). The messages also contained a peripheral cue, endorser attractiveness, wherein advertisements alternately featured either prominent celebrities (high attractiveness) or average citizens (low attractiveness) as product promoters.

Overall, the data confirmed high involvement receivers were more strongly influenced by the strong arguments message version and paid little attention to the variable of source attractiveness. High involvement pool members exhibited stronger recall of the highlighted products brand name. Low-involvement participants were more likely to adopt a peripheral route in processing the messages presented. As a result, the celebrity endorser variable generated significant influence upon low involvement respondents who possessed far less motivation to think in depth concerning the product. Three other conclusions were gleaned from the results of the study including: (1) high involvement respondents were more critical in their evaluation of the products featured than their low involvement counterparts, (2) a plurality of individuals rated the product more positively when exposed to the ads

featuring celebrities, and (3) respondents universally registered more product approval when the messages contained relevant (strong) arguments.

Petty and Cacioppo (1984) conducted a study examining the role of message quantity evaluated within the context of varying levels of involvement and cognition styles. These experiments involved alternating the personal relevance of the issue with the quantity and quality of arguments presented to participants registering divergent levels of cognition.

A pool consisting of 168 undergraduate students from a large mid-western university participated in the study. Each respondent was required to read and evaluate a series of statements concerning a possible tuition increase. The issue positions and supporting arguments packages represented either a low involvement condition (supporting a tuition increase at a distant university) or a high involvement condition (supporting a tuition increase at the student's home institution). The study results confirmed increasing the quantity of arguments positively impacted the scope of persuasive influence within the low involvement condition. However, when faced with a highly involving topic, a higher percentage of respondents rejected the persuasive appeal when a larger quantity of supporting arguments (six weak vs. three strong arguments) accompanied it in contrast to those messages featuring a trio of quality arguments.

The research team concluded, in low involvement environs, argument quantity served predominantly as a peripheral (non-issue relevant) message cue while in high involvement situations argument quality served as a central route (issue relevant) cue. This study preceded the ultimate development and refinement of the ELM model as a theoretical foundation for better understanding the process of

attitude construction and interpersonal influence.

In order to more fully explore the influence of elaboration upon behavioral scripts, Petty and Cacioppo (1984) conducted a second study wherein they varied the message components of source and argument quality. The experimenters again crafted two audio-taped messages supporting a proposal to raise university tuition rates. One version of the message featured eight weak arguments against the proposal, while the other contained eight strong arguments in favor of the proposal. Results from this experiment confirmed high need for cognition subjects were more often influenced by the quality arguments version of the message.

Another experiment by Petty, Cacioppo, Kao, and Rodriguez (1986) evaluated the real world implications of cognitive elaboration within the electoral context of the 1984 Presidential election. In the project's first phase, over 200 students completed the need for cognition scales and an opinion survey concerning their preferences in the 1984 contest between the two major party candidates for President (Republican Ronald Reagan vs. Democrat Walter Mondale). The second phase involved contacting over 100 respondents up to three days after the 1984 election in order to assess their voting behavior and issue preferences eight weeks after phase one was completed. Respondents were not informed of the link between phase one and phase two of the study. Phone interviewers successfully contacted over 100 participants representing an approximately equal division between high and low need for cognition styles. Survey results confirmed several key hypotheses including a belief that high NFC processors: (1) engaged in more extensive thought about issues related to the candidates, than most low NFC respondents, (2) exhibited a higher degree of confidence in their choice, (3) demonstrated a greater knowledge

of the candidates they purported to support, and (4) displayed greater consistency in their voting behaviors when contrasted with pre-election attitudes gathered during phase one of the study. These results are valuable as they suggest individuals embracing a central route, high elaboration, approach to message processing were more likely to maintain attitudes more representative of subsequent behavior (Cacioppo, Petty, Kao, & Rodriguez, 1986).

Haugtvedt and Petty (1992) conducted a pair of experiments involving relatively modest participant pools to evaluate the duration and resistance potential of attitudes developed within a controlled laboratory environment. Earlier studies by Petty and Cacioppo (1986) focused upon the process of attitude development in direct relation to cognition and elaboration levels. High need for cognition participants willingly engage in more elaboration and demonstrate consistent focus upon issue relevant content when exposed to varied persuasive message forms.

This study sought to build upon earlier findings by exposing viewers to television advertisements for a relatively low involvement product, the "Messenger" answering machine. The research team wished to evaluate the durability of attitudes over time. All respondents completed scales registering their need for cognition level prior to viewing a series of eleven advertisements, including one featuring the targeted product, spliced within the framework of a television program on the American Indian. Participants were exposed to advertisements at the two, fifteen, twenty-eight, and thirty-seven minute marks during the program. The message stimulus contained strong arguments (central cue) and emotive triggers such as music (peripheral cue) in order to induce positive thoughts concerning the product. Two days after viewing the program, respondents were recalled and asked to complete

another series of rating scales concerning the advertisements viewed during the initial session. Results confirmed high NFC viewers exhibited greater recall and positive attitudes toward the product than their low NFC counterparts.

The second experiment required respondents to read a series of articles and to evaluate their level of agreement with a fictional *New England Journal of Medicine* essay highlighting the results of a research study which found a certain food additive to be unsafe. Again participants were exposed to a number of articles juxtaposed around the featured message and asked to record their thoughts concerning the articles and to evaluate the essay. The messages were presented to subjects on a computer screen while situated in individual cubicles. A few days later, upon their return, the group viewed an oppositional message claiming the food additive was actually safe. Participants were then asked to register their perceptions of the advertisements again. The data revealed high NFC individuals demonstrated the greatest levels of recall and resistance to counter-arguments. Overall, these results confirmed Petty and Cacioppo's (1984) earlier findings concerning the durability of attitudes generated by individuals who preferred engaging in intensive thought when exposed to various forms of persuasion.

Haugtvedt, Schumann, Scheier, and Warren (1994) applied ELM precepts to print advertisements for ink pens, the mythical "Omega 3." Low involvement receivers attended more closely to the cosmetic descriptions of the pen rather than claims concerning the quality of its workings. High involvement individuals focused more upon the workings and quality of the pen's performance, rather than its exterior appearance. Overall, they found High NFC respondents demonstrated greater resistance to counter-persuasion than Low NFC participants. These results were

consistent with previous studies using the ELM to assess attitudes concerning product placement and promotion.

A second study explored the influence of the reported opinions of others upon individuals registering contrasting NFC levels. High NFC attitudes were less influenced by the reported opinions of others and more impacted by issue relevant arguments. Low NFC's were more greatly influenced by the featured opinions of others rather than by argument quality. Central route audiences gave more credence to quality arguments rather than peripheral route cues, such as the reported opinions of others.

Duthler and Palmgreen (2003) extended application of the ELM to persuasive messages presented in an online format. There are two major criticisms of the ELM and the researchers sought to accomplish two goals with the study: (1) clarify whether Low NFC audiences focus predominantly upon peripheral cues or are able to process both forms simultaneously; and (2) what kinds of message content would exclusively constitute a peripheral cue.

The study involved 120 participants who viewed one of six versions of a persuasive message again employing the college exam scenario. Half of all respondents were told a college exit exam would be required at their college within the next year (high involvement condition), while the other half were informed the requirement would be instituted in the future at a distant university (low involvement condition). Individuals were asked to visit a college website and review the messages contained therein. Three independent variables were manipulated in the study including involvement (high vs. low), argument strength (strong vs. weak), and peripheral cue complexity (high vs. low). The latter variable was conceptualized as

websites featuring graphics (clip art, animation) for the high peripheral cue complexity condition while the low peripheral cue condition featured websites featuring text only content.

Study results confirmed strong arguments were perceived as more effective, produced stronger levels of agreement, and generated more positive thoughts concerning the proposal than weak arguments. The three interaction hypotheses produced the following results: (1) The interaction hypothesis between issue involvement and message effectiveness was not validated as low involvement participants joined high involvement participants in uniformly rating weaker arguments as less effective than strong arguments and generating more negative thoughts when exposed to weak argument versions of the message; (2) The interaction hypotheses between involvement and peripheral cue complexity produced mixed results as low involvement participants rated messages in the low PCC condition less favorably and registered fewer favorable thoughts concerning the issue than those in the high PCC condition. The second element of the hypotheses was validated as high involvement participants rated arguments more highly in the high PCC context and registered fewer favorable thoughts toward the low PCC message version; (3) The three way interaction between issue involvement, message strength, and peripheral cue complexity was also only partially supported as strong arguments were viewed as more credible across involvement conditions, while low involvement subjects surprisingly rated weak arguments much less favorably in the high PCC condition than those exposed to the low PCC context. Low involvement participants registered stronger levels of agreement only when exposed to strong arguments in the high PCC condition, while also generating only slightly more favorable thoughts in

the high PCC condition than those in the low PCC state. These results confirmed there was no significant difference across all conditions.

Overall, the results confirmed peripheral cues could be recalibrated to operate in tandem with central route cues instead of in conflict with them. Thus, the first goal of the study, to redefine peripheral route cues, was accomplished. Conversely, the second area of inquiry, enhancing processing enhancement by manipulating peripheral cue quality, did not receive validation. Instead, it appears that high peripheral cue context increased message acceptance for low involvement participants and attention to the message for all processors regardless of involvement level.

Dispositional Factors

Intelligence. Petty and Cacioppo (1984) employed a set of verbal intelligence scales to assess an established relationship between general intellectual ability and the comparative levels of the need for cognition variable. At that time they found no strong correlation between intellectual capability and NFC style. A 1986 study, by the same research team, concerning the ELM also identified a strong correlation between verbal intelligence scores and those exhibiting a high need for cognition. There was an especially strong relationship between the verbal intelligence measure of message recall and those falling within the high NFC continuum. These results supported the view individuals possessing higher levels of verbal intelligence were more likely to voluntarily seek to expand their knowledge of unfamiliar vocabulary. This desire to gain linguistic clarification appears to enhance high NFC's ability to more effectively process persuasive message content.

Gender. Cacioppo and Petty (1980) analyzed characteristics of evaluation

within the context of gender-specific messages. The study sought to examine the role of gender influenced prior knowledge when male and female respondents, alternately, encountered statements reflecting various degrees of accuracy. Earlier studies by Eagly (1974, 1978) examined the impact of persuasion in relation to gender wherein female respondents performed the role of "peacekeepers" and males that of "dominant leader" when exposed to varying message forms.

Participants were organized into gender specific groupings and asked to review thirty-six photographs, each featuring four evaluative statements on the back of each shot. Eighteen of the photographs featured action shots of football tackles, while another eighteen contained photographs of fashion models adorned in different clothing styles. The football action photographs represented a predominantly male stimulus because it was presumed men would possess a greater prior knowledge of this topic area than women. One of the four evaluative statements listed on each photograph was incorrect and it was expected to trigger counter-arguing and resistance among those respondents possessing prior knowledge of the themes depicted (football players vs. women's fashions). Photographs were distributed in varied cycles to restrict the potential for biases to emerge due to the placement of the images.

Both genders registered salient levels of disagreement when asked to validate inaccurate statements, which reflected their ability and motivation to generate counterarguments. Males were far less willing than females to reflect unbridled agreement with accurate evaluation statements, which validates earlier results compiled by Eagly (1974) concerning gender-influenced attitudinal differences in message processing. As expected, men exhibited a stronger degree of resistance to

the male oriented stimuli (football tackle photographs) and women registered higher levels of opposition to inaccurate statements contained in the female oriented stimuli (fashion model photographs). Petty and Cacioppo (1980) concluded both genders followed a central route of message processing when inaccurate content is presented, while shifting to a peripheral pathway when exposed to more accurate messages.

Interestingly, more recent studies of argument cognition found no significant relationship existed between attitudinal influence and the gender of the primary source featured in the highlighted message. Freiden (1984) exposed participants to a series of advertisements featuring different types of spokespersons varying in gender and status. The study analyzed the influence of these variables upon participant perceptions of the product quality, message claims, and intention to buy the featured product. Researchers found gender did not significantly influence respondent attitudes toward the product or their intention to buy the product.

Situational Factors

External Distractions. The influence of distraction upon the persuasion process was addressed in a collection of research studies conducted during the sixties and seventies. Researchers theorized that distracting recipients while they attempted to focus upon communication content should diminish the influence of a persuasive appeal. Festinger and Macoby (1964) detailed the nature of counter-arguing as a process by which individuals are "very actively, inside their own minds, reviewing and derogating the points the communicator makes...we can imagine that there is really an argument going on, one side being vocal and the other sub-vocal" (p. 12).

Osterhouse and Brock (1970) found producing distracting stimuli which required respondents to calculate them verbally while triggering flashing lights. The

distractions increased processor acceptance of oppositional argumentation while reducing their generation of counter-arguments. Researchers concluded counter-argumentation occurs at a sub-vocal level enhanced by the vocal articulation of thoughts.

Keating and Brock (1974) replicated Osterhouse and Brock's study and found greater agreement when respondents engaged in the manual condition, which involved extinguishing a light by pulling a lever as they simultaneously listened to a taped speech. Those who were asked to verbally identify (vocal condition) the number of light flashes exhibited lower levels of counter-argumentation and higher levels of agreement with the tuition increase proposal in contrast to manual condition subjects. The presentation featured a speaker arguing in favor of raising tuition at the individual's home institution, a proposal which a majority were vehemently against. However, the highest levels of distraction arose when respondents were required to count the flashes and turn off the light sources (vocal-manual condition) simultaneously. Message recipients performing in this high distraction condition evidenced higher levels of yielding to counter-attitudinal advocacy and significantly lower degrees of counter-argumentation.

Petty, Wells and Brock (1976) and Petty and Brock (1981) initiated a battery of studies centering upon the role of distraction upon cognitive elaboration. In the 1981 experiment, students listened to one of two versions of a taped message which proposed a 50-percent cut in college tuition, a notion which pretests revealed a vast majority of respondents favored. One version featured weak arguments supporting the concept of tuition reduction, while the other contained strong arguments. Participants were instructed to monitor the positions of lighted X's displayed at

varying speeds, minimal or moderate distraction levels, while listening to various message types. Those operating within the high distraction environment were less positively influenced by strong arguments and more prone to register agreement when weak arguments were presented. The distracting stimuli did not influence the number of arguments, across message conditions, respondents recalled hearing while attending to the message. The results suggest the use of distraction would be a particularly effective method for diminishing the audience ability to evaluate effectively the relative merits of especially weak argument forms.

Message Processing Variables

Multiple Sources. A pair of studies analyzed the influence of multiple sources upon the quality of information processing (Harkins & Petty, 1981, 1987). The 1981 study found evidence distinct arguments presented by multiple sources received more intense focus than those conveyed by a single source. When three strong arguments were presented by multiple sources they were rated more favorably than the trio of arguments presented by a lone source. Conversely, multiple sources previewing weak arguments were also rated far more unfavorably within the multiple-sources condition than when presented by a single source. Harkins and Petty (1981) contend this multiple source effect occurs because audiences "gear up" in anticipation of processing each new source. Additionally, they suggest message elaboration is more likely when audiences are motivated to evaluate propositional arguments presented by plural sources.

Harkins and Petty (1987) later analyzed the influence of multiple sources when participants were informed that the individuals presenting those arguments were part of a committee. Researchers conducted three experiments to assess the moderating role of perceived conformity in the evaluation of persuasive messages. Individuals were asked

to evaluate arguments supporting a senior exam at their home institution, a stimulus used in previous ELM studies (Petty & Cacioppo,1977, 1979, 1981). The respondent pool for the battery of experiments consisted of undergraduate students from a large university located in the northeast. Experiment one revealed that when multiple sources were characterized as belonging to a committee the persuasive advantage of plural advocates was greatly diminished. The results of experiment two suggested, however, that diminishment of the multiple source effect occurred only when respondents were informed prior to hearing the advocacy that the message sources were members of a committee. In contrast, when the committee admonition followed the message no discounting effect was evident.

Experiment three juxtaposed the variable of similarity within the committee conditions by suggesting to respondents that some multiple message sources were similar in attitude, while others retained dissimilar views on the subject of senior comprehensive examinations. The results suggest multiple sources identified as dissimilar members of a committee maintain a persuasive advantage when they feature strong arguments. Conversely, multiple sources identified as members of a committee sharing unified views of the issue lost the added influence gained from the multiple sources effect. In sum, the most important finding of this study is the conclusion audiences engage in greater degrees of elaboration when exposed to messages featuring multiple sources and strong arguments in support of the target issue.

Moore and Reardon (1987) reviewed the influence of multiple sources on attitude development. Respondents were exposed to a set of print messages varying in argument quality (strong vs. weak) and source quantity (single vs. multiple). The

study found that regardless of argument quality messages featuring multiple sources were viewed as more credible by a plurality of respondents. Participants recorded thoughts and attitudes toward the products featured were most strongly impacted by multiple source messages.

Group Diffusion. Petty, Harkins and Williams (1980) examined the role of social inhibition upon the process of message cognition. Researchers conducted two experiments to assess which form of task differentiation audiences favored when asked to complete an activity either individually or as a member of a large group (one person vs. a fifteen-person committee). In the first experiment, evaluators viewed the videotaped performance of a confederate identified to participants as a therapist, portrayed in both good and bad performance versions by a graduate student from the researcher's home institution. The therapist was engaged in a counseling session with a "patient" who expressed a severe phobia of injections. The good "therapist" version exhibited the counselor in animated, warm, and nurturing conversation with the patient. In contrast, the bad therapist version depicted the counselor as rude, disinterested, and dismissive of the patient. Afterward, processors rated the therapist's performance, next they evaluated their own efforts in analyzing the taped message, and finally they recorded their thoughts concerning the therapist and labeled each as either positive or negative in tone.

Experiment two again featured three versions of the senior comprehensive exam (strong arguments, weak arguments, very weak arguments) stimulus employed in previous studies (Petty & Cacioppo, 1977, 1979, 1984). The concept of "social loafing" was evaluated as individuals were alternately placed in individual or collective clusters to evaluate the arguments presented.

For this experiment, researchers sought to test the information-processing hypothesis as it related to individual effort in elaborating when participants were given the primary responsibility for evaluating messages. Results confirmed those placed in the individual condition engaged in a greater degree of elaboration and effort in evaluating the messages, while rating the very weak and weak messages more critically, than respondents in the group condition. In addition, group cluster respondents recorded far fewer thoughts concerning the messages than did individuals. There are significant real world implications for these results given the nature of juries and their pivotal role in our judicial system. The presence of "social loafing" could negatively influence the quality of judgments produced by juries and other decision-making bodies as individuals may feel less responsibility to earnestly contribute while functioning as part of a group.

Self Schema Influences. Petty, Cacioppo, and Sidera (1982) studied the influence of self-schema based linguistic forms upon attitude induced message evaluation. The study focused upon attempts to identify whether "top-down" or "bottom-up" processing would predominate when self-schema based arguments (religious vs. legalistic orientation) were presented for evaluation. "Top down" message processing is the biased evaluation of information caused by strong identification with elements of an individuals self-schema. In contrast, "bottom-up" message processing involves an honest and unbiased interpretation of the arguments and data presented. A "self-schema" is a method for organizing information in long-term memory in order to maintain or strengthen an individual's self construct. According to Lord, Ross, and Lepper (1979), the "self-schema" serves as a guide to

fill in or strengthen the arguments presented, which in turn adds potency to the persuasive impact of the message.

Sixty-three introductory psychology students evaluated over 248 trait based adjectives in order to identify those which most accurately described the attitudinal characteristics of religious and legalistic individuals. Respondents evaluated thirty statements, ten of which were pre-tested to reflect religious self schema, legalistic self schema, and non-schematic orientations. After participants reviewed the list of arguments, they were then asked to rate the general persuasiveness of each statement on a seven-point scale ranging from very persuasive to non-persuasive. Each individual was then asked to listen to one of four messages and record their thoughts concerning proposals to outlaw abortion and legalize capital punishment. Overall, the data provided strong support for the influence of "top down" message processing, especially in response to the capital punishment editorial. Clearly, individuals are more likely to adopt an egocentric approach to message processing when they sense their self-schema is reflected within the argument content presented.

Majority vs. Minority Influences. Baker and Petty (1994) conducted three interrelated experiments intended to identify the role of source position (majority vs. minority) in the perceptions of varying persuasive message forms. A predominant influence in Western culture is the prevailing acceptance of majority opinion in the decision-making process. Researchers exposed respondents to persuasive messages which varied in source characterization and the attitudinal position presented (pro-attitudinal-agreement with participant's view vs. counter-attitudinal-disagreement with participant's view) and message quality (strong vs. weak). Baker

and Petty sought to identify the role of these variables as central and peripheral route cues influencing the overall quality of message processing.

Participants evaluated a set of messages promoting a two-year community service requirement for college students in exchange for maintaining university tuition rates. In the first two experiments, individuals completed an attitude survey concerning the community service-tuition proposal and then review an article concerning the stimulus issue. The results of experiment one revealed high NFC respondents engaged in more issue relevant thinking when exposed to majority source messages containing strong arguments than those featuring weaker arguments. In contrast, minority source messages were not scrutinized as extensively, while counter-attitudinal messages containing strong arguments were rated more favorably than those containing weak arguments.

Experiment two offered four message versions designed to assess the role of expectancy violation, a majority message supporting a counter-attitudinal position, and a threat to the respondent's notion of balance in argument acceptance and validation. Individuals in both experiments employed argument strength as a central route cue while determining the validity of the various message forms. Conversely, the concept of attitudinal balance, a majority supporting a pro-attitudinal position, served as a peripheral route cue for those exposed to imbalanced message forms. Across all four message forms, the concept of argument quality served as a mediating variable when subjects sought to identify which attitudinal position they should favor. Individuals were less inclined to support position statements riddled with weak arguments and engaged in more issue relevant thinking while processing messages containing strong arguments. A path analysis confirmed audiences

generated more positive thoughts when they encountered minority supported, pro-attitudinal messages supported with strong arguments.

Researchers conducted a third micro-level study of eighty respondents in order to test the influence of threat and surprise upon the quality of message processing in balanced and unbalanced argument conditions. Results confirmed increased levels of surprise and curiosity among those exposed to incongruent headlines concerning the tuition increase proposal. There was no salient correlation across the dimension of threat. Finally, the role of argument quality as a central route cue predominates when audiences engage in enhanced elaboration concerning the content and validity of varying types of persuasive appeals.

A more recent ELM study by Areni, Ferrell, and Wilcox (2000), produced data suggesting both low and high elaboration individuals are more positively influenced toward the majority position when exposed to messages referencing the reported consensus opinions of others prior to evaluating target messages. Low NFCs were more likely to focus upon the consensus opinion as a peripheral cue while rating the featured messages presented for analysis. High NFC's were less influenced by the consensus cue and more likely to attribute their ratings to the relative quality of the arguments presented.

Message Construction Elements

Cognition Value. Harrington, Lane, Donohew, and Zimmerman (2006) designed a message framework to extend the Activation Model of Information Exposure (AMIE) developed by Donohew, Lorch, and Palmgreen (1998) and Slater's (1999) stages of change message framework. Their application extends the AMIE rubric to messages which specifically target audiences classified as either high in

need for cognition or who seek high stimulus sensation. In this instance, they sought to create a taxonomy which would provide predictive categorizations concerning the attitudinal outcomes generated when specific audiences were exposed to specific message form types.

Researchers theorized high NFC individuals would exhibit higher levels of message processing and more positive levels of message evaluation when presented with high cognition value messages. High cognition value (HCV) messages were conceptualized as those featuring strong arguments, logical message framing, and content from high credibility message sources. Conversely, low cognition value (LCV) messages were categorized as those featuring weak arguments, illogical message framing, and content from message sources lacking in credibility or authority.

Researchers presumed high sensation seekers (HSS) would exhibit higher levels of message processing and more positive levels of message evaluation when exposed to high sensation value messages. High sensation value (HSV) messages were categorized as those containing novel, unusual, and creative content including colorful graphics, narrative content, and provocative message framing. Conversely, low sensation value (LSV) messages were those featuring such non-novel elements as black and white graphics, factual content, and predictable message framing.

With these categorizations in mind, researchers concluded that High NFC/ High SS individuals would exhibit optimal levels of message attentiveness, elaboration, and evaluation, when exposed to HCV/HSV and LSV/HCV message forms. High NFC/Low SS audiences would respond most favorably to LSV/HCV and HSV/HCV message forms. Concurrently, it was predicted Low NFC/High SS

receptors would respond favorably only to HSV/LCV message forms. Finally, Low NFC/Low SS message receptors would demonstrate a positive response only when matched with LCV/LSV messages.

This extension of the AMIE to health message campaigns designed to promote smarter lifestyle choices and save lives presumes the persuasive process begins with attention, followed by processing or elaboration, and concluding with message evaluation. Consequently, if a particular message form is low in sensation value or is not matched with a high SS audience then a high level of processing will not occur which can produce unfavorable message evaluation outcomes. Similarly, if a particular message form is low in cognition value or is not matched with a low NFC audience then little processing will occur and unfavorable message outcomes will again be produced.

Modality. Persuasive messages may trigger varied emotional responses among listeners and viewers in direct relation to their willingness to engage in effortful thought. When individuals exhibit high levels of elaboration, affect cues typically reinforce pleasant moods, such as relaxing images or music, and create positive biasing in support of the attitudinal direction posited in the message. In the context of high elaboration, the pleasant affect serves as an argument cue when it is relevant to the message. Conversely, an emotional trigger such as source attractiveness may serve as a peripheral cue for those enacting moderate levels of elaboration when confronted with a relatively ambiguous message. When messages are perceived as difficult to process low to moderate NFC's individuals tend to rely on highly accessible cues, such as mood triggering images or sounds, to more easily process the message. Finally, low elaboration observers tend to be easily swayed by

affect based cues. Positive affect cues generate a bias in favor of the advocated position, while negative cues reinforce a negative bias against the highlighted attitude.

Early research studies by Wright (1973, 1974) and Chaiken, (1980) found audience members responded more favorably to message variables featured in print modalities when contrasted with audio advertisements for soybean products. Readers of the booklets registered greater cognitive elaboration when informed the product would be available in their home area soon (high involvement condition) in contrast to individuals who were told the product would not be available in their area anytime soon (low involvement condition). Low involvement processors focused more frequently upon source components presented in the advertisements, such as a spokesperson or agency pictured in the advertisement.

Arora (1985) found published advertisements functioned more effectively, as an experimental modality, than television in terms of creating high involvement conditions for studying the effects of cognitive elaboration in assessing the products or issues presented. Petty and Cacioppo (1981) contend written messages provide audiences with greater opportunities for elaboration than audio messages because processing occurs at the subjects' own pace. However, video and audio messages can also work well to insure a greater level of clarity for those possessing low levels of literacy. Similarly, audiences are more familiar and comfortable with brief persuasive messages which contain easy to process visual and script elements. However, television is categorized as a low involvement medium where the medium is active, while the receiver typically adopts a passive approach as they process the many messages featured in commercial programs.

Petty and Cacioppo (1986) sought to assess the impact of elaboration upon the evaluation of print advertisements featured in popular magazines. Researchers developed six mock magazine ads and three independent variables were deployed within the study: (1) product involvement (high vs. low), (2) argument quality (weak vs. strong), and (3) image attractiveness (attractive couple vs. comparatively unattractive couple featured in the ad).

The study involved two sets of experiments featuring an attractive couple in the first series and depicting prominent sports celebrities (attractive) vs. ordinary citizens (unattractive) in second series. Measures of message and source related comments revealed high involvement individuals were more frequently influenced by elements of message quality, while low involvement individuals were consistently influenced by non-product related components of the advertisement.

High involvement participants were advised they would receive a sample of the product and it would soon be available in their area. In contrast, low involvement participants were told they would receive a product sample completely unrelated to the one featured or that it would be available later in a distant market. Pre-testing of the mock advertising samples identified a clear distinction between photos featuring an attractive and, comparatively, unattractive couple for the purposes of variance across the six products promoted in the advertisements. Finally, argument strength was varied across both strong and weak message versions.

In the first experiment, researchers found that the attractive source, strong argument condition produced the highest levels of attitude change for high involvement individuals. However, low involvement, high NFCs did not respond

favorably to the high quality arguments in assessing their affinity for the various products featured which was inconsistent with results from previous ELM studies.

The second experiment highlighted the influence of central route processing as respondents in the high involvement condition were more strongly persuaded by high quality arguments with little regard for product endorser characteristics (attractive-celebrity jocks vs. unattractive-ordinary citizens). Pool members from the low involvement, peripheral route grouping cultivated attitudes based upon the attractiveness of product endorsers while paying minimal attention to the quality of the arguments presented in the various ads. Central route, high involvement audiences also registered a more significant intention to purchase the products featured than individuals classified as peripheral route processors.

Rhetorical Questions

A rhetorical question is an interrogatory which is asked merely for effect with no answer or response expected. The answer to the statement may be obvious or implied and is used to make a point or present an argument. As a communication variable in studies of persuasion, rhetorical questions are typically framed to stimulate thought or gain consensus concerning a particular attitudinal perspective (Larson, 2004).

The first persuasion study to highlight the role and influence of rhetorical questions was conducted by Zillman (1972). Zillman determined concession oriented rhetorical questions successfully promoted agreement from processors possessing either a favorable or neutral attitude toward the target issue, that soccer should become an accepted American pastime. In contrast, those in opposition were

more likely to exhibit antipathy toward arguments, for the proposition, featuring rhetorical question forms.

Petty, Cacciopo, and Heesaker (1981) concluded peripheral route (low involvement) message recipients registered higher levels of source validation and agreement when rhetorical questions were employed as an opening heading for a persuasive message form. The placement of questions before or after arguments, regardless of their relative quality (strong or weak), consistently promoted increased levels of agreement with the central claims presented in a particular message. Rhetorical questions have also been found to promote learning, aid message recall, and increase curiosity because they encourage message receivers to focus more closely upon the content immediately following rhetorical headings. The use of personal pronouns within the text of rhetorical questions further increases their persuasive potency across varying message forms. For low involvement receivers, rhetorical questions often serve as a form of operant conditioning, a cue which triggers heightened message acceptance and reduced levels of counter-arguing, by those following a peripheral route of message evaluation. Rhetorical questions also narrow a receiver's focus which increases their willingness to accept even counter-attitudinal argument claims when involvement levels in the issues addressed were relatively low.

Burnkrant and Howard (1984) examined the influence of introductory rhetorical questions in generating cognitive elaboration and attitude cultivation. This study replicated the involvement parameters (high vs. low) employed by Petty, Cacioppo, and Heesacker (1981) in experiments pertaining to the ELM and rhetorical question use designed to encourage counter-argumentation and enhance elaboration.

Approximately 160 undergraduate students were asked to review a collection of five print advertisements which varied in (1) the placement of rhetorical questions, as an opener for the advertisement copy, (2) argument strength (strong vs. weak), and (3) level of involvement (high vs. low). Earlier studies detected a significant impact when rhetorical questions were used as an opener in product advertisements, persuasive essays, and mock trial presentations. Involvement conditions were manipulated by employing the comprehensive exam script employed in previous ELM studies.

The research team found the use of rhetorical questions (e.g., "Don't you agree instituting senior exams is a sound idea?") produced higher levels of elaboration among those exposed to the high involvement messages. Rhetorical questions produced a greater quantity of elaboration, which resulted in processors generating a larger quantity of thoughts concerning the proposal across both strong and weak argument dimensions. In contrast, the declarative message versions yielded more elaboration and favorable attitude change within only the weak argument condition.

Munch and Swasy (1985) sought to replicate elements of Petty, Cacioppo, and Heesacker's (1981) ELM study which evaluated the effects of involvement, message form (rhetorical questions vs. declarative), and argument quality. Again, the comprehensive exam scenario was employed to trigger the independent variable of involvement (high vs. low). Researchers juxtaposed the coding of cognitive, thought listing responses before measuring participant attitudes toward the exam proposal and they also required coders to differentiate between source and message related thought listings. Rhetorical question forms were repeated three times in four

of the audio-taped message forms, while declarative statement versions were featured three times in the other four message versions. This sequence required respondents to list their thoughts concerning source and message forms before registering their attitudes and this clearly produced a more source oriented elaboration focus.

Argument quality produced a strong main effect for both high and low involvement respondents within the strong argument condition perpetuating greater support for the exam proposal. Rhetorical questions were found to increase attitudinal consensus in the strong argument condition while weakening agreement in the weak argument version.

Overall, high involvement respondents were less supportive of the exam, a difference from previous results, and they characterized rhetorical question speakers (message source) as exerting too much pressure and interrupting their ability to effectively process key messages. Low involvement individuals demonstrated a great deal more negative source elaboration, during the thought listing process, while engaging in comparatively little issue relevant elaboration. The most effective message condition featured the strong argument, declarative statement forms. Rhetorical question forms did not dissuade respondents from accepting the proposal, but did adversely influence their evaluation of the message source.

Munch and Swasy (1988) sought to expand upon their initial findings and access the influence of multiple rhetorical question forms upon receiver attitudes and argument recall. The variables integrated within the study included argument strength (strong vs. weak), message form (rhetorical questions vs. summarizing statements), and frequency of summarization statements as three distinct sets (four, eight, and twelve statements) of rhetoricals and declaratives situated within the eight

minute advertising message promoting the purchase of a Kodak camera product. Participants were asked to listen to an audio advertisement for the camera and then asked to rate the product and their willingness to purchase it after hearing one of the messages.

The resulting data confirmed increased use of rhetorical questions would diminish respondents recall ability and this processing barrier strengthened in the strong argument condition as the number of rhetorical statements increased in frequency of use from four to eight to twelve. In contrast, there was no substantive decrease upon argument recall when weak arguments were presented in increasing quantity. High involvement respondents were markedly more distracted by increasing utilization of rhetorical question forms than low involvement individuals. Optimum levels of message acceptance and reported intent to purchase the featured product were evident within the strong arguments condition when combined with a lower quantity of summarization statements (four vs. twelve). The vast majority of thought listing responses focused upon evaluations of the message source, but the results did not replicate the boomerang effects, suggesting the source was overly pushy, found in previous rhetorical question studies.

Mothersbaugh, Huhmann, and Franke (2002) sought to identify the individual and integrative effects of employing a variety of rhetorical figures of speech within the framework of product advertising. First, researchers analyzed the use of various trope and linguistic schemes forms contained within 14 different magazines and weekly periodicals including *Ebony, Business Week,* and *Glamour.* A pool of respondents were then asked to review a collection of linguistic forms contained in several product advertisements, including rhetorical questions, and evaluate which

grammatical figures they recalled most vividly. These preliminary elements of the study were then used as the foundation for constructing a series of mock advertisements for two commonly used products, razors and ink pens. The use of rhetorical question forms was juxtaposed among a collection of five arguments, one set of arguments was classified as strong and the other as weak. 215 students from a large pan-pacific university reviewed a collection of mock print ads mingled with three magazine articles concerning various contemporary news items, listed their thoughts about the message content, and indicated their interest in purchasing the featured products.

Rhetorical questions were predominantly classified by participants as distracting because they interrupted their ability to effectively recall and list comments pertinent to message content and argument valence. Rhetorical forms increased the salience of strong arguments when independently featured, but demonstrated less potency when combined with other tropes or when contrasted with combinatory scheme forms. In particular, when various trope forms, including rhetorical questions, were employed in the headline of the featured advertisements respondents registered greater levels of recall and agreement with the product claims contained within the print messages.

Areni (2003) integrated a marketing perspective with the general concept of argument quality as a variable in relation to the workings of the ELM. Areni classified arguments based upon the degree of logical validity contained in major claims for various types of advertised products. An argument could contain two strong preliminary premises and still be false within the context of its major premise, thus some strong arguments could be viewed as salient while exhibiting elements of

invalid logical structure. The overall soundness of varying argument claims were framed using syllogistic reasoning and the jurisprudence model of argument, the construct of claim, data, and warrant based justification (Benoit, Hample, & Benoit, 1992). Areni sought to describe a process and cultivate a theoretical explanation concerning how message recipients classified arguments as correspondingly weak or strong in tone. Participant's ratings were contingent upon the manner in which those persuasive messages were framed. One level of argument analysis is described as selective scrutiny wherein, based upon the receiver's expertise, an individual engages in a self generated process of propositional evaluation employing various implicit elements of syllogistic reasoning. The researcher contends arguments may also be processed on a secondary level of assessment when accompanied by warrant statements linked by connectives and that respondents will exhibit higher levels of message comprehension when warrants are employed.

Specifically, after a comprehensive review of previous research involving various grammatical forms, Areni concluded rhetorical questions produced more argument related thinking among low involvement participants and that argument quality was viewed as higher when rhetorical questions were employed. Conversely, across a wide array of studies, high involvement participants viewed rhetorical statements as a distracting influence which hindered their ability to process messages clearly and recall argument content. Similarly, they also consistently rated arguments containing tag and rhetorical questions as weaker than those featuring declaratives or other linguistic forms. When response opportunity and expertise were high, rhetorical questions were viewed as an obtrusive element which impaired message recall, diminished their rating of argument quality, and negatively impacted

their attitude toward the product promoted. In sum, when researchers seek to cultivate strong arguments they would be advised to employ the use of connectives, qualifiers, rebuttals, and warrant statements which further validate the truth of the essential claims presented in product advertisements and a variety of other persuasive message forms.

Ahluwalia and Burnkrant (2004) examined the use of rhetorical questions in high salience and low salience contexts. Rhetorical questions in the high salience versions were placed as the heading to an advertisement for athletic shoes, alternately low salience rhetoricals were embedded in between paragraphs detailing the virtues of the fictional Avanti "low shock" running shoe. All participants completed a survey intended to measure their relative awareness of persuasion tactics and then, based upon their representative scores, individuals were correspondingly placed in either high (High PK) persuasion knowledge or low persuasion knowledge (Low PK) consumer pools. In the first experiment, respondents were asked to read advertising copy for the product and then complete a series of items where they rated the credibility of the corporate agent (Avanti Athletic Wear), the message source, the product itself, and various stylistic elements within the advertisement including rhetorical questions, the tone of the advocacy, and the graphics quality.

High PK participants exposed to a negative corporate image message, prior to viewing the ads, recorded greater focus upon qualities of the message source and higher degrees of skepticism concerning the product attributes. Specifically, rhetorical questions were viewed as a source of inordinate pressure which contributed to lower levels of agreement among this group. High PK's exposed to a positive corporate image statement registered greater affinity for the message source and

evaluated the rhetorical question forms as more open and low pressure in tone. Low PK respondents focused more consistently upon message content, essentially ignoring the influence of rhetorical questions.

A second experiment replicated most of the conditions from the initial study and added the use of negatively comparative versus non-comparative advertisement claims to engender the source evaluation variable. The comparative message version suggested Avanti shoes were less healthy for those suffering from arthritis and that Mizuno shoes were the healthier choice for active walkers and runners. A second non-comparative version of the ad promoted the Mizuno shoe's attributes without referencing any competing products.

Researchers hypothesized the comparative message version incorporating heavy, multiple use of rhetorical statements would induce more negative, source-oriented elaboration by high PK respondents and trigger a less favorable assessment of the corporation (Mizuno) and their product (running shoes). This primary hypothesis was confirmed as readers registered a much less positive assessment of comparative product ads featuring multiple, up to five, rhetorical statements which they described qualitatively as bad in mood and angry in tone. In contrast, respondents exposed to non-comparative message versions, featuring only a rhetorical question heading, consistently rated the product and the advertisement as more desirable and credible. The study also employed recall as an attitudinal measure and found respondents remembered a greater proportion of message content when rhetorical statements were simply featured once as the featured heading for the advertisement rather than featured more extensively throughout a message. Past results confirm fewer question forms typically produce higher levels of overall recall.

Roskos-Ewoldsen (2003) examined the role rhetorical questions played in enhancing elaboration. Nearly twenty percent of all print advertisements feature the deployment of various rhetorical question forms. However, the effectiveness of rhetorical questions is highly controversial and intricately linked to the context in which they are employed. Individuals who lack the motivation to actively process persuasive content, in depth, are more likely to embrace rhetorical questions and other figures of speech, such as tag questions, as a shortcut to message cognition and validation when paired with strong, high quality arguments. In contrast, message processors who are highly motivated and prepared to process persuasive content are more likely to view rhetorical questions as an obtrusive barrier to message comprehension and evaluation. These individuals viewed rhetorical questions as a barrier to their ability to efficiently process messages and engage in evaluation of the claims presented therein. Respondents also reported that they viewed rhetorical questions as reflecting a multilayered tone of hostility, conflict, low confidence, and anger. They also registered overall lower levels of message recall when rhetoricals were featured in persuasive message content.

More recently, Blankenship and Craig (2006) examined the role of rhetorical questions in stimulating counter-persuasion in response to various persuasive message forms. The research team conducted two studies with 115 respondents who were asked to rate editorials pertaining to the benefits of nuclear power. This issue was selected as the stimulus for these experiments because it was rated as moderate in terms of involvement. The study employed a 2 x 2 between participants design featuring four message versions varying in argument quality (strong vs. weak) and message form (rhetorical question vs. statements). Each message featured three

paragraphs which concluded with either a rhetorical question or a declarative statement form. In addition, each paragraph represented an argument which varied in quality. Strong argument messages typically involve logical, sound, defensible and compelling claims while weak argument forms lack similar cogency and are more prone to refutation.

Respondents were asked to review the message, complete a series of items rating the message, and then engage in two narrative response activities. The first activity required individuals to record any thoughts they experienced while reviewing the message, then self rate their statements as for (+), against (-), or not relevant (0) to the proposal to promote nuclear power as an energy source. The second task required they generate counterarguments in support of nuclear power in response to counter-advocacy arguing against the value of nuclear power.

Results from experiment one validated past research findings in which rhetorical questions and strong argument versions stimulated greater levels of message processing while producing salient results in relation to levels of counter-arguing. Respondents in the rhetorical question condition generated a greater quantity and quality of counter-argumentation in contrast to those in the control message condition. These results also mirror the inoculation effect, measured by levels of counter-advocacy, identified in earlier research studies of attitude maintenance and preservation (McGuire, 1962, 1969).

Experiment two involved 66 participants who again reviewed a persuasive message authored by an "engineer" advocating the value of nuclear power, which contained only the strong message condition while still featuring the message form manipulation (rhetorical question vs. declarative statement). Respondents reviewed

the message, completed a series of dependent measures, and then were required to review a second essay, arguing against the value of nuclear power, and then asked to again register their attitudes concerning the target issue.

The study found, as in experiment one, rhetorical questions stimulated greater message processing and, unique to experiment two, formidable levels of attitudinal resistance to counter-persuasion. Post-attack attitudes for nuclear power were much higher in the rhetorical question condition and higher than pre-attack attitudes as well. The key finding in this study was the identified value of rhetorical questions, when placed at the end of paragraphs within a persuasive message in promoting higher levels of message processing. Attitudes developed using messages containing rhetorical questions were stronger and more resistant to counter-advocacy than those containing declarative message forms.

Message Framing

Message framing refers to persuasive communication emphasizing either the relative benefits or costs associated with adapting pro-social behaviors. Positively framed messages feature gain statements which underscore the advantages of embracing a particular attitude or course of behavioral action. Conversely, negatively framed messages feature loss statements underscoring the relative disadvantages of adhering to a particular attitude or course of action (O'Keefe, 2002).

Homer and Yoon (1992) sought to identify the relationships between cognitive and affective responses and individual attitudes toward specific brands, brand messages, and their intention to purchase the featured product. They juxtaposed positively and negatively framed advertisements featuring gains or losses the individual might experience if they bought (positive frame) or failed to buy

(negative frame) the product. The Dual Mediation Hypothesis suggests attitudes towards the ad influence brand attitudes directly and indirectly through emotional and cognitive influences. In turn, the research team wanted to assess the impact of respondent affective reactions to the contrasting message styles (positive framing vs. negative framing).

The experiment involved the presentation of print advertisements which varied little in their general appearance and content. Researchers found strong evidence that affect based responses played a larger role in mediating attitudes toward the messages themselves and the brands featured than cognitively based responses in both presentational conditions, print or broadcast. Brand related thoughts were more evident when negatively framed advertisements were presented. Negatively framed versions also correspondingly triggered negative emotions which, in turn, generated positive emotional and cognitive responses to the product and their intention to purchase the item. Overall, the results established strong evidence negatively framed messages represent an extremely powerful and influential vehicle conveying significant influences upon consumer attitudes.

Maheswaran and Meyers-Levy (1990) evaluated the influence of message framing in the development of well-crafted public health messages. The concept of prospect theory conceptualizes receivers are risk averse and thus gains are maximized during exposure to positively framed messages. In contrast, audiences are risk seeking, as losses are feared, when processing negatively framed messages. For the purposes of this study, two public service messages were developed to encourage processors to focus upon the dangers associated with coronary artery disease. Each participant reviewed a booklet containing three pages each featuring,

respectively, a persuasive appeal, information about the negative influence of cholesterol, and the benefits of taking a diagnostic blood test. Involvement was manipulated by varying the opening statement in the stimulus presentation and suggesting coronary artery disease is a condition which alternately affects individuals who are "under 25" (high involvement for the college students) or those "aged 65 and older" (low involvement).

Several major arguments were presented to encourage individuals to seek an assessment of their heart health. In turn, the phrasing was alternated to characterize the positive and negatively framed messages (e.g., by taking/not taking this blood test, you can/cannot find out your current cholesterol level). Those in the high involvement category responded most favorably to negatively framed messages, while low involvement individuals registered a more positive response when exposed to positively framed messages. Information integration was more pronounced in the high involvement condition as respondents sought to more fully scrutinize the claims presented in the negatively framed messages. This response pattern confirms the central route of cognitive processing at work in this experiment. Conversely, the positively framed message served as an easier to process appeal and thus low involvement subjects focused predominantly upon peripheral cue elements such as source credibility and argument quantity.

Young and Buda (1999) evaluated the influence of need for cognition in the processing of positively and negatively framed advertisements. The project was intended to identify which message framing construction approach would resonate most positively with consumers. 160 undergraduate students from marketing classes at a large northeastern university served as participants in the study. An initial panel

of 240 students completed the NCI (Need for Cognition Instrument) and those exhibiting extreme end scores continued as participants in the study. Individuals were given a packet and asked to review advertisements for a brand of stereo system. Respondents were then placed in clusters varying in tone (positive vs. negative), source credibility (expert vs. non-expert), and their respective need for cognition levels (high vs. low). After reading the advertisements, subjects were then asked to assess the products attractiveness, their willingness to purchase the product, and their views concerning the product's viability.

The credibility and message framing variables were classified as peripheral route cues that would, based upon past research results, more strongly influence low NFC consumers' judgments in evaluating the targeted products. Low NFC respondents rated the product less favorably within the low source credibility and negative message framing conditions. Researchers contend the use of negatively framed messages may be quite disturbing to low NFC processors who are typically anticipating a more traditional form of positively framed appeal.

In contrast, high NFC participants responded more favorably when the product promoter utilized a negatively framed message style (e.g., preventing a loss rather than experiencing a gain from acquiring the product) thus demonstrating low reactivity to message framing. Similarly, high NFC respondents did not rate the high credibility source message more highly than the one featuring a low credibility source. The results suggest advertisers should carefully identify the consumer profile they hope to successfully connect with and then craft messages reflecting close alignment with audience expectations pertaining to argument quality, argument quantity, source credibility, and directional framing, the assessed net gain or loss

from purchase of the product.

Donovan and Jalleh (2000) extended the analysis of message framing to persuasive appeals promoting infant health immunization. Researchers sought to expand application of Prospect Theory to a more subject relevant issue and to reevaluate several of the assumptions generated by Maheswaran and Meyers-Levy's (1990) study of message framing. Prospect theory presumes individuals who are risk seeking anticipate possible loss and are thus more open to negatively framed messages focusing upon the avoidance of threats (loss) to their health and well being (e.g., not knowing your blood pressure range puts you at risk for stroke and heart disease). Conversely, individuals who anticipate benefits from initiating a specific behavior are identified as risk averse and are more likely to respond to positively framed messages (e.g., you will enjoy longer life by walking three times a week). The results of several earlier message framing studies involving public health issues, including those focusing upon breast self examination, mammography screening, exercise, and smoking confirmed negatively framed messages were highly effective. While a collection of other studies involving the promotion of ideal lifestyle behaviors, such as exercising to promote self esteem or encouraging parents to use car seat restraints for their children, found positively framed messages were more effective.

The research team sought to reevaluate the use of Petty and Cacioppo's (1977) elaboration likelihood model of persuasion within the context of message framing and targeted audience involvement. The 1998 study found high involvement individuals registered greater attitude change when exposed to negatively framed

(loss focused) messages, while those in the low involvement condition were more significantly influenced by positively framed (gain focused) messages.

Donovan and Jalleh (2000) disagreed with those results suggesting instead that high involvement subjects' attitudes should not be mediated by message framing. Participants for their study were 100 women, aged 18-45, partitioned between those expecting to give birth within the next twelve months or who were already caring for a child (high involvement) and those who did not expect to assume that role in the immediate future (low involvement). Seventy-six percent within the high involvement cluster were 45 years of age or younger, while only fifty-one percent of the low involvement cluster was age 45 or younger.

Respondents were approached at a shopping mall and asked to review a booklet containing information concerning a new form of infant immunization, complete a survey concerning the quality of the presentation, and indicate their willingness to seek more information regarding the immunization program. Individuals were alternately exposed to either a positively framed (e.g., over 90% of the children who receive this vaccine do not encounter after effects) or negatively framed (e.g., studies show that 10% of the children who receive this vaccine may encounter after effects) version of the orienting message.

The results confirmed hypothesis one was significant as mediating effects for framing among high involvement, central route, message recipients were identified. Hypothesis two was also supported when low involvement processors registered stronger levels of attitude change when exposed to positively framed message versions. The data also confirmed positively framed messages produced more favorable attitudes and intentions to seek more information concerning the

immunization program. Interestingly, these results contradicted a key element of prospect theory which contends respondents are more likely to consent to engage in potentially risk inducing behaviors when negatively framed messages are employed. However, the results confirm high involvement individuals were more likely to act upon their behavioral intentions to seek more information which is consistent with the preponderance of past ELM research results.

Withers, Twigg, Wetheim, and Paxton (2002) sought to apply parameters of the ELM to a program designed to prevent eating disorders among middle school aged females. The experiment exposed over 100 participants to a prevention-focused videotape featuring content aligned with ELM principles related to the generation of central and peripheral route messages. All study pool members completed the need for cognition scale and were subsequently exposed to three persuasive treatments designed to encourage respondents to avoid fad dieting and cultivate a more positive body image. During the initial exposure, participants viewed a video highlighting the dangers of eating disorders and encouraging healthy lifestyle choices. Thirty days later the group was brought in again to view a second video and have their weight and basic measurements recorded. During the final intervention, two weeks later, participants filled out a survey measuring their attitudes regarding body image, weight loss, and proper diet in light of their exposure to the preventive video presentations in treatments one and two.

Overall, high NFC participants reported greater positive changes in their attitudes toward weight loss from test one to test two. Low NFCs were not specifically targeted for post-exposure assessment because researchers were seeking to test the programs' efficacy in communicating a persuasive health centered

message to a highly vulnerable target audience, middle school age girls. Intervention subjects made small, but significant, positive steps in drive for thinness, intention to diet, and enhanced scores on body factor knowledge.

Overall, message framing studies confirm high NFC audiences consistently respond more favorably than low NFC processors to negatively framed messages featuring strong arguments, logical structure, and high quality evidence. In contrast, low NFC individuals tend to respond more favorably to positively framed messages regardless of the level of argument or supporting evidence presented. More importantly, the greater the potential loss, such as experiencing a reduced quality of life or premature death, the more likely high involvement message receivers were willing to embrace the persuasive influence of the potent threat element embodied within negatively framed messages.

The Experimental Stimulus

The volume of cell phone ownership and use in the United States has exploded during the past half decade from 104 million users in 2000 to over 266 million Americans who own and utilize the devices for both personal and business use (*BYU Universe,* 2005, June 13). According to Richard Wicker, a New England area district manager for Verizon Wireless, "the penetration of cell phones in this country is phenomenal as both the average use per minute and the number of devices has grown dramatically." (*Cellular Telecommunication & Internet Association Semi-annual Report*, 2003, p. 3)

Cell phones provide users, of all ages, with a highly versatile form of communication. In the Post-Columbine era, even some elementary age children are now provided with the use of a cell phone by their parents to carry with them while

attending school and participating in various extracurricular activities. Cell phones have become extremely popular with teens and young adults because they provide them with a greater sense of autonomy, control, and the appearance of maturity along with an instant connection to the outside world and a wide variety of entertainment forms. As one 12 year old cell phone user observed "Life was really dull before cell phones came along" (Hoak, 2005, p. 2).

Americans love to multitask and these highly versatile and portable devices allow them to drive and manage business affairs, call for assistance, stay in contact with family members, report emergencies, convey general information concerning our daily activities and report dangerous drivers to the proper authorities. A rapidly growing percentage of cellular device users are also engaging in text messaging while driving. In addition, a growing percentage of cell phone users are now casting aside their land based phone lines in favor of cellular units in order to reduce monthly expenses and streamline their service options.

Unfortunately, along with the host of benefits engendered by cell phone ownership, there is a significant problem which occurs when a substantial percentage of users employ them while driving. According to a survey conducted by Atchley and Dressel (2004) cell phone users pose a unique risk on our nation's roadways because of the device's omnipotent hold on the attention of both callers and listeners. The operation of radios/music players and the consumption of food and beverages clearly represent potentially dangerous distractions for drivers as well. But it is the unique threat to public safety created by using a cell phone while driving that is viewed by many experts as much more dangerous than other distracting behavior. Fischer (2005) cautioned that "It's having your mind taken away from the road. As

people who drive a standard-or stick shift-car know, you can drive a car with one hand, but when you start talking, it's not the actual holding onto the object that's important it's the planning of the conversation which takes away resources from attending to the road" (p. 9).

A number of major studies have been conducted to assess the risks posed by cell phone use on the nation's roadways. A study of driver response times revealed the risk of an accident was four times greater when motorists attempted to utilize a cell phone while driving (Redelmeier & Tibshirani, 1997, February 13). Their study tracked the driving and cell phone use habits of 699 participants for a 13 month period. In 2002, researchers at a prominent northeastern university used the previous study projections as a basis to conduct a statistical analysis of all automobile accidents in North America caused by driver inattention and estimated one in twenty traffic accidents, 6.5%, nationwide, involved a driver talking on a cell phone. They also projected 2,600 global traffic deaths a year were directly caused by drivers operating a cell phone. They estimated the overall annual economic costs of driver cell phone use to be 43 billion dollars a year in lost lives and medical costs for those injured in accidents (*CBS News Online*, 2002, December 2). Accident research experts anticipate the number of fatalities attributed to cell phone misuse to skyrocket as the ownership and use of the devices continues to expand.

A study by Lissy, Cohen, Park, and Graham (2000) examined the impact of cell phone use upon driver reactions in an experimental setting using automotive simulators and found 20-year old study participants exhibited the equivalent reaction time of a 70-year old while driving and talking on a cell phone. Strayer, Drews, and Crouch (2003) observed that "drivers on a cell phone look, but don't see,

potential obstacles because they're distracted by the conversation and once drivers on cell phones hit the brakes, it takes them longer to get back into the normal flow of traffic-the net result is a form of inattention blindness" (p. 39).

The study also confirmed 12 out of 24 students talking on a hands free cell phone unit missed their intended highway exit, a rate 12 times higher than drivers who were alone and uninvolved in side conversations. The data also confirmed cell phone users demonstrated less competence behind the wheel than intoxicated motorists with blood alcohol levels exceeding .08, the legal limit for a DUI arrest in many states (*Insurance Education Foundation,* 2004). Indeed, it was the act of dialing that represented the most dangerous element involved with cell phone use while driving. A study by the National Highway Safety Council (2009) found that accidents, near misses, and distraction-inducing events occurred most frequently while drivers were attempting to dial a number while using a cellular device (p. 2).

A more recent collection of studies underscores the parallel dangers created by text messaging while driving. Individuals who text while driving lose even more focus than those who simply phone home, because of the task's highly addictive nature and the higher level of distraction caused by the concurrent use of both hands and vision to operate the devices. One user admitted "being able to answer emails at any time is incredibly addicting" and that he had "routinely driven with my knees, head down, clicking away with both thumbs while driving at full speed down a busy highway" (Kelly, *Arizona Daily Star*, 2008, May 27, p. 1). Wisconsin State Senator Alan Lasee (R-De Pere), author of a bill to ban text messaging, contends text messaging is a significant threat to public safety because "you have to take your eyes and your hands off the road to send or read a message which makes their use

extremely dangerous" (*Journal-Sentinel Online*, 2008, July 5, p. 2).

The negative influence of cell phone conversations and texting were found to dissipate only after drivers disengaged from their use for a full fifteen minutes. The director of Ford Motor Company's driving simulator research team concluded extended conversations while driving greatly impair the ability of motorists to react to fast moving changes on the roadway effectively (Plungis, *Detroit News-Auto Insider Online*, 2005, June 9).

A study by Britt (2005) also found hands free cell phone use promoted dangerously distracted driving patterns. The process of identifying incoming phone numbers and answering a call were found to be two of the most dangerous activities cell phone immersed drivers could engage in. Britt concludes that "both younger and older adults showed deficits in performance as they made more errors in detecting important changes in traffic flow and they took longer to react to those changes" (p. 4).

Critics of cell phone restrictions emphasize just as many accidents occur when drivers lean down or redirect their vision away from the road. Several studies demonstrate a number of other distractions represent a greater reported cause of automobile accidents than cell phone use including eating, smoking, adjusting radio/ cd/dvd units, engaging in grooming behaviors, and interacting with riders in the vehicle (Kuwana, 2004). In addition, studies of traffic accident causes underscored that out of 1.2 million crashes the majority of accidents were caused by five unsafe driving behaviors: (1) Failure to reduce speed (34%), (2) Running a traffic signal (10%), (3) Speeding (5%), (4) Following too closely (4%), and (5) Failure to yield to oncoming traffic (4%) (*Smart Motorist Online,* 2004, May 5).

Those who use cell phones while driving suggest cell calls can be made safely if six common sense guidelines are followed including: (1) knowing how your phone works before you get in the car, (2) using memory automated dialing whenever possible, (3) avoiding use while in heavy traffic or severe weather situations, (4) limiting social calls, (5) avoid dialing at a red light or stop sign, and (6) resisting the urge to take notes or look up numbers while the vehicle is in operation (*Transportation Ministry of Canada Online*, 2001, December).

However, a comprehensive study by Strayer, Drews, and Johnston (2003) concluded: "These data extend our earlier observations of impaired detection and reaction to traffic signals and sluggish reaction to brake lights when participants are engaged in cell phone conversations. We suggest that even when participants are directing their gaze at objects in the driving environment that they may fail to fully 'see' them because their attention is directed elsewhere. Our confirmation of cell phone induced inattention blindness further extends several simulated demonstrations of apparent failures of visual attention within the driving domain" (p. 117).

The unfiltered emotional content of a cell phone call can also represent a more potent distraction than within vehicle conversations with passengers, because riders often alert drivers to potentially dangerous road hazards ahead. Cell phone use, unlike other potential distractions, is also much more highly visible to other motorists who can clearly see the units in active use by drivers who are behaving badly. One traffic officer observed "you don't see very many people with a CD player jammed up to their ear, but with a cell phone it's up there and it's visible above the window, and everyone can see what they're doing" (Richards & Corcoran, 2002, p. 2). A joint study organized by researchers at a large southeastern university

and the National Highway Traffic Safety Administration (NHTSA) used auto simulators and found hands free use of a cell phone "degraded both driving performance and vehicle control and led to numerous near misses and accidents" (Plungis, *Detroit News-Auto Insider Online*, 2005, June 9). Another study concluded any speech based interaction while driving, hands free or not, can cause up to a 30% reduction in reaction time (*Autobytel.com*, 2008, November 6).

McCartt and Geary (2004) project over 800,000 drivers are engaged in cell phone conversations daily and this represents a significant danger to those sharing the roads with these highly distracted motorists. Any form of distraction while operating a motor vehicle can be deadly and the ever growing popularity of cell phones has attracted the attention of lawmakers in a number of states. In January 2004, New York became the first state to ban the hand held use of cell phones, while still permitting drivers to use hands free phone headsets. Later that year, five other state legislatures also stepped forward to enact New York style bans against cell phone use in vehicles, among those were New Jersey, Washington D.C., and Maine. New Jersey recently upgraded their cell phone ban to be enforced as a primary offense, which means drivers may be ticketed merely for using a cell phone while a vehicle is in operation (Horan, Lewis, & Cranston, 2008). Forty two nations across five continents have also enacted various legal restrictions or outright bans, as Australia did, against using cell phones while operating a motor vehicle.

Thirty five other states are in the process of considering imposing stiffer penalties and fines for individuals involved in accidents or cited for dangerous driving while using cellular units in a moving vehicle. Almost all of the current state laws exempt drivers from fine or punishment if they can prove the call was made for

emergency purposes. In the nation's capital, a number of congressional representatives are preparing to introduce a proposal which would require states to ban all cell phone use by drivers or potentially risk losing their share of Federal Highway appropriations in those years when they failed to demonstrably enforce the law (*Insurance Education Online*, 2004, September).

A number of employers have instituted complete cell phone bans upon their employees while driving company vehicles in order to stave off potential lawsuits. One employers group recommended businesses develop a cell phone policy requiring employees to pull off the road before conducting business on a cellular phone. Several unsuccessful lawsuits have been filed against the major manufacturers of cell phones including Cingular Wireless, Nokia, and Verizon. However, the industry is not wholly immune from future legal troubles as a number of attorneys are preparing to file multi-million dollar lawsuits based upon the legal theory that, like cigarette and alcohol distributors, cell phone makers are equally culpable for death and injuries caused when they do not fully disclose the magnitude of risk to drivers who attempt to use these products while on the road (*Insurance Information Institute Website,* 2005, October).

Five states, ranging from Arizona to Massachusetts, have also banned cell phone use by school bus drivers as a two-pronged mechanism they hope will both limit risks to students and encourage drivers to serve as professional role models while behind the wheel. Nationwide, a recent survey confirmed a majority (57%) of those polled backed the notion of a ban which still allowed drivers to initiate calls in an emergency situation (*Seattle Post-Intelligencer Online*, 2005, May 4).

Many licensed drivers enthusiastically support stronger restrictions upon cell

phone use and texting, especially when they routinely report delays and observe dangerous driving behaviors by those who abuse their use on a daily basis. A study evaluating the social value of state level bans on cell phone use in the states of New York, New Jersey, Connecticut, and California found that these restrictions are projected to save an average of 300 lives and billions of dollars in health care costs every year. Moreover, the eight states which banned text messaging while driving, including Washington, New Jersey, Minnesota, and California, have experienced significant decreases in mortality associated with prohibiting their use (*National Safety Council Website,* 2009, June 17).

Younger drivers, aged 15-28, are more likely to engage in cell phone use and texting while driving than any other age group. Steve Chambers, President of the Mobile and Consumer Services Division of cell phone provider Nuance, observed: "Over a trillion messages were sent worldwide last year and the number of text messages is expected to explode to two trillion in 2008. Increasingly, these messages are being sent by drivers who put themselves and others at risk by taking their eyes off the road and hands off the wheel to manually enter text on their cell phone keypad. In fact, the number one killer of American teens on the road today isn't alcohol-related accidents; it's distracted driving with over 45 percent of teens reading or sending messages while driving" (Kenner, 2007).

A recent survey found approximately 40% of all drivers and specifically, 46% of teens, admit to text messaging while driving an automobile. The study also concluded that younger cell phone users are four to five times more likely to be in a car accident than non-users (Knowles, *Speakout.com,* 2000, June 15). The costs associated with this reckless behavior is skyrocketing as drivers in both the U.S. and

the UK were recently sentenced to prison for causing fatal accidents while texting and driving (*London Times Online*, 2007, July 21; Santo, *Real Tech News*, 2005, November 26).

Consequently, 17 states and the District of Columbia have recently enacted new laws targeting newly licensed drivers who use cellular devices while piloting a vehicle. These legal bans against new driver use of cell phones typically involve immediate loss of the fledgling driver's license for any ticketed offense involving the use of a cell phone including speeding, reckless driving, or any type of on-road mishap (Tatone, 2008, February 21).

The state characterizes driving a motor vehicle as a privilege not a right. Operating a cell phone, while driving a vehicle, represents a significant danger to all motorists. Such reckless behavior does not represent a vital form of free expression, especially when the device can easily be employed once the user stops driving and talking simultaneously. In this research study we will attempt to assess the varied roles cognition style (high vs. low), message forms (rhetorical questions vs. declarative statements), and message frames (gain vs. loss) play in promoting the cultivation of attitudes supportive of responsible cell phone use.

Critique of Literature

There are several key disparities within the body of ELM research. First, it is not always clear what function heuristic cues play in the contrasting realms of central and peripheral processing. Several critics of the ELM, including Hamilton, Hunter, and Boster (1993) contend the model is founded upon an overly simplistic view of the attitude development process. Contrarians strongly contend it is not abundantly clear what characteristics clearly differentiate strong arguments from weak

arguments. Mongeau and Stiff (1993) suggest the variable of argument quality is actually assessing the ability of subjects to engage in message comprehension because no standard exists to clearly qualify message quality. The researchers conclude that the ELM reflects a theoretical contradiction in generating different predictions of attitude cultivation based upon the degree of individual involvement with the attitude object presented. They feel individual cognition is the key element in determining the direction and duration of attitude change, rather than the message quality variable operating in isolation.

Other ELM critics, among them Ajzen and Fishbein (1980), contend peripheral route audiences may not possess a present disposition toward the policy or issue presented and thus the notion of ambivalence is not fully addressed by parameters of the ELM. These critics are also concerned with the dearth of research focus pertaining to key components of persuasive message construction. The ELM also does not account for a receiver's linkage of old information with more recently acquired data.

Finally, others suggest content cues may serve alternately as both peripheral and central route cues, such as source attractiveness or source credibility, depending upon the context of the message. For instance, a well known athlete promoting a health beverage might represent a central cue for the health-focused and as a peripheral cue for those who liked that particular player. Lee, Lord, and Sauer (1995) cite the American Dairy Council's highly successful "Got Milk" advertisements as a campaign which takes a low-involvement product, milk, and blends it with a high-involvement issue, preventing calcium deficiency.

The Elaboration Likelihood Model of persuasion (ELM) provides public advocates with a solid foundation upon which to develop effective messages for promoting socially desirable behavior, including discouraging young people from using drugs or taking up smoking. Cultivating persuasive messages containing peripheral route cues, such as the use of a celebrity or attractive peer relevant spokespersons, could produce a more enduring effect upon impressionable, low involvement audiences.

There are others who criticize the ELM and suggest the peripheral route condition is an attitude formation process rather than one centered upon attitude change. Other scholars question the lack of a clear standard for demarcating weak from strong arguments in a contextual sense. These critics suggest the ELM should address the actual construction of messages rather than just audience perceptions of various message forms. Despite these concerns, the ELM is still a viable theory with which to establish and evaluate attitude changes across a wide array of media including print, broadcast, and online based message forms. No previous study has examined the controversy over safe and proper use of cell phones and so this research will break new ground and also expand our understanding of the operant role of heuristic cues in the public persuasion process.

Through the study of rhetorical question forms, as a variable, a number of significant areas of inquiry will also be addressed. This study will go beyond previous research pertaining to rhetorical questions and will focus upon a contemporary public policy issue, cell phone use while driving, which will extend the concepts of cognitive effort and attitude development. The issue of mood enactment will also be addressed through incorporation of the message framing variable within

the messages. ELM and rhetorical question forms have been interconnected in earlier persuasion research, but those studies have not sought to identify the practical factors which influence message processors responses to rhetorical question forms.

This study will also examine to what degree ego involvement and utility play a role in the construction and maintenance of attitudes relevant to cell phone use while operating a motor vehicle. Participants will be given the opportunity to record their thoughts concerning the message forms and framing elements contained within representative message versions employed within the study. Previous research suggests rhetorical question forms are often viewed as distracting and confusing to certain categories of message receivers and so this study will seek to more clearly identify the causes of audience resistance to this linguistic form when featured in persuasive message content.

The body of message framing research suggests the presence of two major deficiencies within the data assessing the influence of gain and loss frames within platforms of influence, such as print advertisements, televised public service messages, and internet popup messages. Across a number of studies, the use of positively framed messages appears to meet the expectations of low involvement respondents while negatively framed messages (loss frame statements) appear to induce high involvement audiences to greater levels of agreement with the policy, proposition, or product being promoted. However, two of the major gaps in the message frame research need to be more fully analyzed. These deficiencies generate two areas for potential inquiry: (1) Identifying the specific emotional triggers including fear, safety, and embarrassment, which are predominantly responsible for creating the strong updraft in favor of negatively framed messages; and

(2) Determining the role of risk intensity and the magnitude of danger and loss associated with accepting or rejecting the nexus of the featured persuasive message form.

Finally, analytical parameters of the ELM will be reviewed and potentially expanded because few previous studies have integrated the use of rhetorical question forms and message framing within the same study. The results of this study should further clarify the role of these message construction variables as interpretive cues to persuasion. More importantly, the data collected in this project will also provide fresh insights concerning which message forms will work most effectively for law enforcement and highway safety agencies attempting to encourage the public to embrace risk avoidance behaviors when deciding where and when to employ the use of a cell phone.

Summary and Rationale

The focus of this dissertation is to employ parameters of the ELM (cognition style and non-manipulated involvement) in order to assess the integrated influence of message framing and rhetorical question forms upon audiences exposed to varying message forms promoting stronger penalties for cell phone use while driving a vehicle. This dissertation will seek to provide additional insights into deficiencies relating to the periodically confusing role of heuristic cues and the ELM, clarify the confounding role of rhetorical question forms as a message stimulus, and analyze the emotional triggers generated by the deployment of contrasting message frames in persuasive constructions.

Hypotheses

There are seven primary hypotheses which will be addressed during the course of this research study including:

H1: High Need for Cognition respondents will report higher levels of (a) message elaboration, (b) cognitive response, (c) favorable attitudes toward the message, and (d) favorable attitudes concerning the prescribed behavior, (e) favorable attitudes toward the issue, (f) cognitive involvement, (g) emotional involvement, and (h) future intent to not use a cell phone while driving.

H2: Messages featuring declarative statement forms will generate higher levels of (a) message elaboration, (b) cognitive response, (c) favorable attitudes toward the message, (d) favorable attitudes concerning the prescribed behavior, (e) favorable attitudes toward the issue, (f) cognitive involvement, (g) emotional involvement, and (h) future intent to not use a cell phone while driving.

H3: Messages featuring negatively framed (loss) statements will generate higher levels of (a) message elaboration, (b) cognitive response, (c) favorable attitudes toward the message, and (d) favorable attitudes concerning the prescribed behavior, (e) favorable attitudes toward the issue, (f) cognitive involvement, (g) emotional involvement, and (h) future intent to not use a cell phone while driving.

H4: There will be an interaction between message framing and cognition toward the message such that High NFC's exposed to negatively framed (loss) messages will report higher levels of (a) message elaboration, (b) cognitive response, (c) favorable attitudes toward the message, (d) favorable attitudes concerning the prescribed behavior, (e) favorable attitudes toward the issue, (f) cognitive involvement, (g) emotional involvement, and (h) future intent to not use a cell phone while driving.

H5: There will be an interaction between message framing and message form such that messages featuring declarative statement forms and negative framing (loss) will generate higher levels of (a) message elaboration, (b) cognitive response, (c) favorable attitudes toward the message, (d) favorable attitudes concerning the prescribed behavior, (e) favorable attitudes toward the issue, (f) cognitive involvement, (g) emotional involvement, and (h) future intent to not use a cell phone while driving.

H6: There will be an interaction between message form and cognition levels such that High NFC's exposed to declarative message forms will report greater levels of (a) message elaboration, (b) cognitive response, (c) favorable attitudes toward the message, (d) favorable attitudes concerning the prescribed behavior, (e) favorable attitudes toward the issue, (f) cognitive involvement, (g) emotional involvement, and (h) future intent to not use a cell phone while driving.

H7: There will be a three-way interaction between message form, message framing, and need for cognition such that High NFC's exposed to messages featuring declarative statement forms and negatively framed (loss) messages will report higher levels of (a) message elaboration, (b) cognitive response, (c) favorable attitudes toward the message, (d) favorable attitudes concerning the prescribed behavior, (e) favorable attitudes toward the issue, (f) cognitive involvement, (g) emotional involvement, and (h) future intent to not use a cell phone while driving.

Chapter II will provide the study methodology including participant demographics, experimental procedures to be followed, description and definition of independent and dependent variables and the overall design for the study.

CHAPTER II

METHODOLOGY

Overview

Design

Seven major hypotheses for this study were tested using a 2 x 2 x 2 factorial design. The three independent variables were need for cognition (high vs. low), message form (rhetorical question vs. declarative statement), and message frame (gain vs. loss). A detailed discussion of the trio of independent variables will follow. Participants were randomly assigned to review and evaluate one of four message versions as discussed in more detail below.

Preliminary Steps

Pretesting the messages. A pretest of the four message versions was conducted with volunteers (N=40) recruited from a snowball sample with the assistance of two other instructors situated on the researcher's home campus. Individuals were asked to review all four sample messages and then evaluate them using four, nine point Likert items. Each item asked respondents to evaluate the extent to which each of the messages featured four elements: (1) Rhetorical Questions; (2) Declarative Statements; (3) Positive Outcomes of Approving the Ban; and (4) Negative Outcomes of Not Approving the Ban.

The Likert scale required individuals to rate the message they reviewed using a nine interval scale ranging from "Not at all" to "All the time." The mean age of the participants was 23.5 years of age and 92% (37) of respondents were Caucasian with the other 8% (3) falling within one of two other racial groupings (African American and Hispanic). The four sample messages varied in message form (Rhetorical

Question vs. Declarative Statement) and message frame (Positive Outcomes vs. Negative Outcomes).

Overall, the variations featured in the messages were found to be representative of the message form and frame types contained across the four message versions. The mean averages were well within acceptable ranges for all four message elements. The means were calculated using a scale ranging from 1 (not at all) to 9 (all the time) in relation to the presence of the varying elements within each message version. Thus the higher the score the greater degree of support for appropriate variation among the four message versions. The mean averages ranged from a high score (M=7.20) for the declarative message versions to a lower rate (M=5.8) for the rhetorical question versions. In the area of framing, the Positive Outcomes (M=7.42) were more consistently identified as such in comparison to those for Negative Outcomes (M=5.70). Each message version was reviewed by an equivalent number of respondents (N=40; 4 groups x n=10).

The concept of a ban against cell phone use was conceived as a hypothetical law similar to those in force in several states including New York, New Jersey, and Connecticut. In order to avoid explicitly inducing involvement as a fourth independent variable this element of the message was generally defined (with/ without a ban) and lacked extensive detail so participants would focus more directly upon the message construction variables rather than upon the personal (high involving) or impersonal (low involving) nature of the target issue. A review of several pubic service campaigns confirmed the use of this method was a viable choice and thus messages in this study mirrored that approach to allow message receivers to focus on the behavior and less upon any specific elements associated

with the enforcement of a parameter specific ban.

Pilot testing. A small, snowball sample of individuals (N=11) participated in a pilot test of the complete 66 item survey in order to review and evaluate the procedures to be employed and insure their workability. Participants experienced few problems completing the survey packet in an average of roughly twenty minutes. There were some minor concerns pertaining to instructional wording for specific items, such as the pretest/posttest item, and so steps were taken to enlarge the font size and increase the spacing to more clearly differentiate the fill in the blank, seven point, Likert scale item from the subsequent set of four items asking participants to circle their preferred rating using a seven point Likert scale.

It was also determined that a double check system was essential to insure message randomization and match each survey booklet with the appropriate message version. Consequently, one nominal item was added which asked participants "what color is your folder?" and encouraged them to darken in the boxed item next to the appropriate booklet color representing the various message versions from among four color choices including orange, black, blue, and red. The folders containing the messages were color coded as follows: (1) Blue: declarative statement, negative message frame; (2) Red: declarative statement, positive message frame; (3) Orange: rhetorical question, positive message frame; and (4) Black: rhetorical question, negative message frame.

Sampling calculation. An apriori power analysis was conducted using the computer program G*Power 3.0.9. For this analysis, alpha was set at .05 and power at .95. The following analyses were calculated and the results are as follows: for a small effect size, [F^2 = .10, F (7, 2183) = 2.014], Non-centrality parameter Lamda=

21.91, minimum $N = 144$; for a medium effect size, [$F^2 = .25$, $F(7, 349) = 2.036$], Non-centrality parameter Lambda = 22.31, minimum $N = 219$; and for a large effect size, [$F^2 = .40$, $F(7, 144) = 2.078$], Non-centrality Lamda=23.04, minimum N=357. Therefore, it was determined a sample of between 350 and 400 participants would be sufficient to minimize Type II error and to test the 2 (NEED FOR COGNITION—low need for cognition vs. high need for cognition) X 2 (MESSAGE FORM – rhetorical question vs. declarative statement) X 2 (MESSAGE FRAMING – gain frame vs. loss frame) factorial design of the dissertation study.

Participants. Over 400 undergraduates recruited from general education courses at two medium-sized community colleges located in the Midwest agreed to voluntarily participate in the study (See Appendixes A and B for KCTCS and USM IRB approval forms respectively). The initial survey pool consisted of 413 total participants. Ultimately the study parameters excluded from participation any respondent younger than 18 years of age. Despite attempts to bar their participation, an announcement was made concerning this parameter prior to the distribution of the survey booklets, four surveys were excluded because the respondents were later found to be underage. An additional six surveys were discarded because they were not properly completed and this brought the total number of usable surveys to 403.

Items in the demographic section elicited respondents to voluntarily identify their gender, age, class rank (freshman-senior), and ethnic classification. In the area of gender, 57% (230) of the respondents classified themselves as female and 43% (174) as male. Nearly 50% (197) of those surveyed identified themselves as age 18-20, 14% (56) as age 21-22, 11% (45) as age 23-25, 7% (29) as age 26-30, and 18% (77) as age 30 and above.

A majority of respondents classified their academic standing as one of the following: freshman, 41% (168), or sophomores, 41% (167). The remaining percentage of the respondent pool, 18% (69), classified themselves respectively as juniors, 11% (44), or seniors, 7% (25). These percentages appropriately reflect the character of a participant sample gleaned exclusively from college populations which predominantly offer undergraduate courses (freshman-sophomore level) to students pursuing a two year, associates degree or coursework with which they can ultimately transfer to a four year institution. A small percentage of participants, 5%, were co-enrolled at a 2 year college and in courses at a 4 year institution located in their respective service areas.

Respondents were then asked to identify which ethnic classification they represented. A majority of respondents identified themselves as White/Caucasian (88.6%; 358). Roughly 5% (4.5%; 18) of participants classified themselves as Black/ African-American, 2.7% (11) as Mixed Race/Other, 1.7% (7) as Latino, 1.2% (5) as Asian, and 1% (4) as American Indian.

Individuals were then asked to respond to a series of questions concerning their use of cell phones. First, they were asked to indicate whether they had access to a cell phone. Virtually all of the respondents indicated that they possessed or had access to a cell phone, 97% (392), while the remainder, 3% (12), indicated they did not use or have access to a cellular device.

Respondents were then asked to respond to four, seven point, Likert scale items (Not at All/All the Time) assessing their typical use of cell phones and texting devices while driving and the degree to which they felt in danger from their own actions or those of others while driving. The items were averaged on a 1-7 scale

actions or those of others while driving. The items were averaged on a 1-7 scale ranging from "All the time"=7 to "Not at all"=1. The lowest mean average constituted the optimal choice for each of these four descriptive items.

In response to the question: "How often do you use a cell phone while driving?" A plurality indicated that they "never" or "rarely" used a cell phone while driving 56% (227). In contrast, roughly a quarter, (26%; 106) indicated they "routinely" utilized a cell phone while driving. Less than 20% (18%; 34) of those surveyed reported using their devices "frequently" while driving (See Figure 1).

The second item inquired: "How often do you engage in text messaging while driving?" Fully 60% (242) of those surveyed admitted to text messaging while driving on a regular basis and nearly 35% (34.5%; 139) specifically reported texting "All the time." Less than 20% (18.1%; 110) of participants described their daily use of texting while driving as a rare occurrence. Interestingly, this suggests that texting may be an even more worrisome behavior and a greater safety concern than merely using the cell phone to initiate calls while driving.

The last two items in the cell phone use section queried individuals concerning how safe they felt while using or encountering others using a cell phone while driving. A majority 51% (50.1%; 204) indicated they felt in danger when they individually used a cellular device while driving. In contrast, nearly 51% (50.7%; 204), revealed they felt far less threatened while encountering others employing cellular devices while driving. In sum, less than 30% (26.4%; 106) of all respondents viewed others use of cell phones while driving as representing a threat to their own welfare and safety.

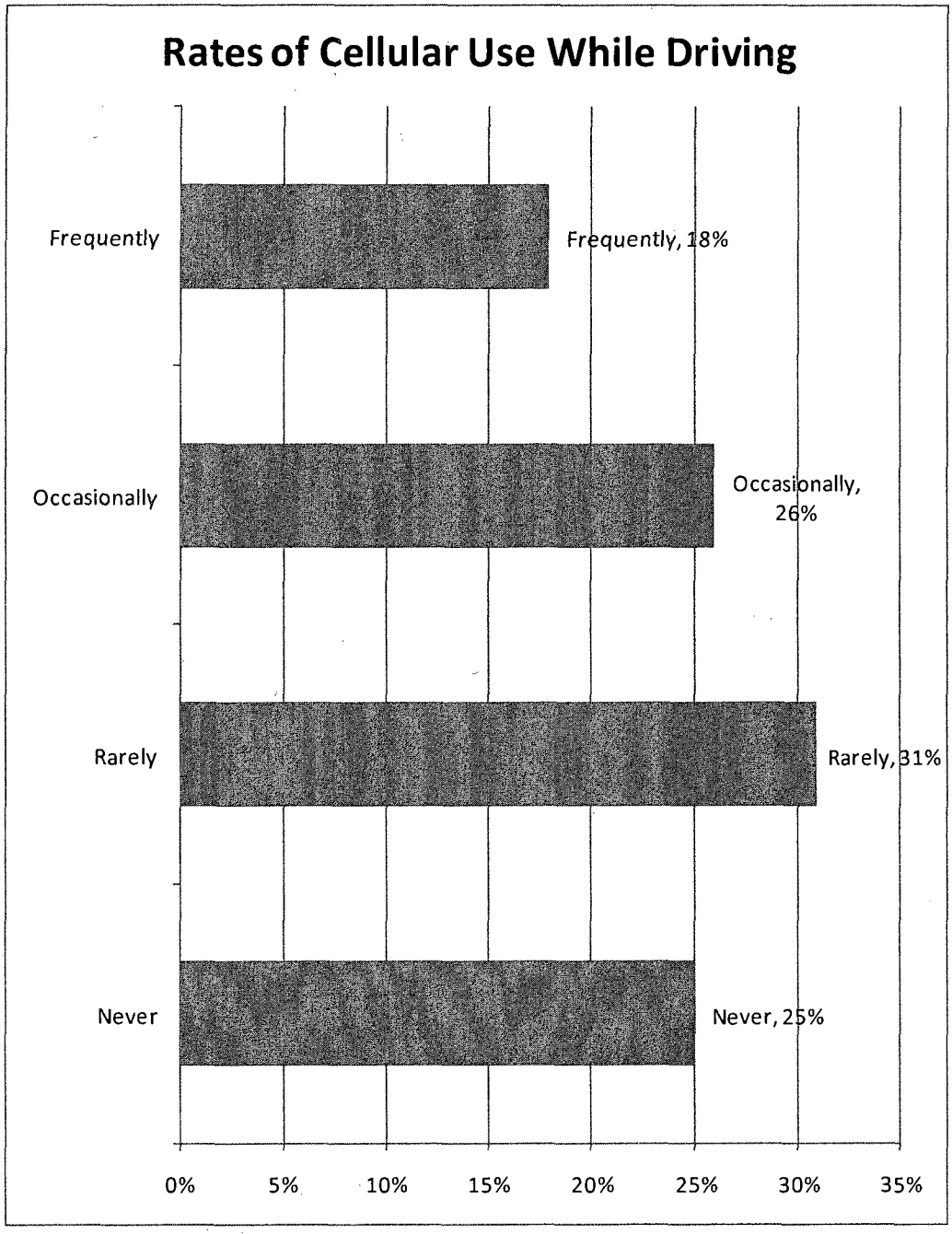


Figure 1. Rates of Cell Phone use range from Never to Frequently by Percentile

Independent Variable Manipulations

Need for Cognition

All participants were asked to review and complete the 18 item Need for Cognition Inventory (NCI) (Cacioppo, Petty, & Kao, 1984). The scale has been utilized extensively in past research to measure the level at which individuals value effortful thought and problem solving activities (See Appendix C for Approval to Use NCI Scales). The NCI is typically used to evaluate the preferred cognitive style embraced by individuals. Respondents who indicate a preference for intensive, analytical thinking are typically classified as High in Need for Cognition. Alternately, those who indicate antipathy toward engaging in effortful thought are typically classified as Low in Need for Cognition. A median split was employed to categorize which participants fell into which classifications (high NFC vs. low NFC). Respondents falling within the upper fiftieth percentile were classified as High NFC's, while those falling within the lower fiftieth percentile were categorized as Low NFC's.

Petty and Cacioppo (1984) contend High NFC individuals possess the ability to evaluate persuasive messages while effectively focusing upon issue relevant content, including argument quality and credible sources, and thus they favor a central route of message processing. Conversely, Low NFC individuals tend to evaluate persuasive messages while focusing upon non-issue relevant content, including source attractiveness, color graphics, and argument quantity, and thus they favor a peripheral route of message processing.

Message Form

Participants randomly received one of four versions of a public service announcement promoting a ban on cell phone use while driving (See Appendix D for Message Versions). The public service message versions were virtually identical except for two variations. Half of the four message versions featured seven statements worded in rhetorical question form. The opening line in the rhetorical question versions began with the phrase "Did you know" and concluded with a question mark (?) while the declarative forms were punctuated with a period (.). The second line in the message versions featured the alternating statements "Hang up and drive." (declarative version) and "Hang up and drive?" (rhetorical version). The rhetorical question version of the message began with the phrase, situated in the third line, "Don't you think it makes good sense to...Hang up and drive?" In contrast, the declarative statement version simply featured the "Hang up and drive" phrase situated independently in the second line of the message. The third line in the rhetorical question message versions contained the phrase "why wouldn't you support a ban on cell phone use by drivers?" while the declarative message version contained the statement "Support a ban on cell phone use by drivers."

The supporting statements section incorporated three independent justifications for supporting a ban on cell phone while driving and those were identical across all four versions of the message. The justification statements contended the following major benefits would accrue from imposing a ban: (1) Serious injuries and deaths would decrease significantly; (2) Billions in medical costs from accidents could be saved; and (3) Roads would be less hazardous with a ban on cell phone use while driving. Question marks were added to the end of each

of the three justifying statements utilized in the rhetorical question versions—e.g., "serious injuries and deaths will decrease significantly?"

The closing statements in the rhetorical question message versions projected the future with and without a cell phone ban. In the positive frame, rhetorical question version the concluding sentence inquired 'Don't you want a more secure future?" In contrast, the negative frame, rhetorical question version inquired "Why would you want to face a more dangerous future?"

Message Randomization

Respondents were given a facilitator enforced time period of one minute to review the message and then asked to return it to its original place in a manila envelope and place it back in their folder. Randomization was maintained through the use of color coded folders which corresponded to the varying message versions. The blue and red folders contained PSA's featuring declarative statements, while the black and orange folders contained PSA's featuring rhetorical questions. Part three of the survey included an item which confirmed the randomization of message version (e.g., "what color is your folder?").

Manipulation Check

A manipulation check was incorporated within the survey to assess the validity of the messages. A set of four, seven-point Likert-scale items were included in Part Four, Section A of the survey in order to evaluate the validity of two independent variables, message form and message framing, featured within each of the messages. The first two items asked respondents to rate "the extent to which the MESSAGE featured, alternately, either rhetorical questions or declarative statements. The second set of items asked respondents to rate "the extent to which the

MESSAGE featured, alternately, "positive outcomes of APPROVING the ban" and/ or "negative outcomes of NOT APPROVING the ban." To assess the effectiveness of each of the experimental manipulations, a series of one-way analyses of variance (ANOVAs) were performed. To assess perceptions of message form, rhetorical questions and declarative statements were compared and this produced statistical verification that the manipulations were successful.

Message Framing

Participants randomly received one of four potential message versions to review and evaluate. Positive message framing involves the use of gain frame statements which highlight the benefits of following a particular course of action (e.g., "With a cholesterol check you will be able to identify your risk for heart disease"). Negative message framing involves the construction of loss frame statements which highlight the disadvantages of not following a particular course of action (e.g., Without a cholesterol check you won't be able to identify your heart disease risk) (Witte & Morrison, 1995).

Message frame statements can embrace four basic styles of risk orientation including: (1) Gain: Attain, Desirable; (2) Gain: Not Attain, Undesirable, (3) Loss: Attain, Undesirable; and (4) Loss: Not Attain, Desirable. However, most message framing versions employed in social science research employ basic gain frames which promote the benefits of a particular course of action and loss frames which emphasize the loss of benefits or costs associated with not adhering to a particular course of action.

Each message version was virtually identical in format except for variances in message form and message frame. The message framing manipulation was featured

in three key elements of each message. In the opening header two words were juxtaposed in order to manipulate the message frame condition. The two positive message frame versions featured the following phrase: "Drivers *not using* a cell phone *prevented* 2,600 deaths and 570,000 injuries last year." Conversely, the two negative message frame versions featured the following phrase: "Drivers *using* a cell phone *caused* 2,600 deaths and 570,000 injuries last year." This opening sentence was followed, in all four message versions, by the bolded admonition: **"Hang up and drive"** (declarative sentence version)/**"Hang up and drive?"** (rhetorical question version).

The second message frame sample was placed within the preface to the three contentions varied in message frame with the gain statement version articulating *"With a ban..."* and the loss statement version previewing *"Without a ban..."*

The third message frame manipulation was situated within each of the three contentions concerning the benefits of a ban. Gain and loss frame statements were employed to establish the appropriate tone. The initial statement concerning reduction in injuries and deaths was modified by the alternating use of *decrease* (positive frame) and *increase* (negative frame). The second statement pertaining to savings in medical costs was modified by the alternating use of *saved* (positive frame) and *lost* (negative frame). The third statement describing the level of safety on the nation's roads was modified by the alternating use of two phrases "*more safe*" (positive frame version) and *"more hazardous"* (negative frame version).

The fourth and final message frame manipulation was featured in the concluding line of the message in bolded letters. Gain frame, declarative message versions predicted that a ban on cell phone use would produce a safer future, "With

your support we face a more secure future," while the rhetorical question versions featured an interrogative, "Why wouldn't you want a more secure future?"

In the loss frame manipulations the declarative statement version blended a call for support along with a global predictive phrase, "Without your support we face a more dangerous future." In contrast, the rhetorical statement version focused solely upon the desire for a safer driving environment, "Why would you want to face a more dangerous future?" While this set of message frame manipulations were not as congruent in wording as those employed in the first and second manipulations they did reflect proper grammar and easier to comprehend, low density language choices.

Survey Parameters

Participants were recruited from among 31 intact general education class sections from two community colleges located in the Midwest. Volunteers were asked to complete a 66 item survey instrument as part of a 2 (NFC-high vs. low) x 2 (Message form-rhetorical question vs. declarative statement) x 2 (Message frame-gain vs. loss frame) experimental design. The facilitator provided a brief overview of the data collection process and stressed participation in the study was voluntary. Thus, non-participants would still receive a survey booklet and then turn it in uncompleted, without responding to any of the enclosed items. This distribution procedure allowed non-participants to exercise their autonomy and avoid being singled out or embarrassed by those who did choose to participate voluntarily.

Randomization across the four message conditions was maintained by distributing the survey packets in colored folders each of which signified, for the facilitator's benefit only, the particular message version contained therein. The color coding was maintained across class sections in the following order: blue, black, red,

and orange. If the last participant received a red folder in one class section then the first participant in the next received an orange folder in order to maintain randomization. This procedure insured a properly randomized pool of response folders was distributed as a proportional number of participants (95-105) alternately received one of the four PSA editions.

After a brief orientation, respondents were then instructed to open the survey booklet and given one minute to complete a series of demographic items including several associated with gender, age, and class rank and one nominal item concerning cell phone ownership and four, seven-point items assessing attitudes concerning cell phone use patterns (see Appendix E for Survey Booklet). After participants completed Part one of the survey, they were then directed to stop and wait before moving onto the next section until signaled to do so by the facilitator.

Next, individuals were asked to turn to Part Two and work through to Part Three in the booklet. Part Two of the survey included three response sets including: (1) The 18 item Need for Cognition Inventory (NCI); (2) Initial attitude assessment concerning the target message; and (3) A pair of two item sets of 7 point Likert scales evaluating cognitive/emotional involvement with the issue of cell phone use while driving and behavioral intent concerning their personal use of cell phones. Petty and Cacioppo's (1984) NCI scale is an 18 item, five point scale (extremely like me/extremely unlike me) designed to assess the respondent's affinity for cognitive effort and problem solving—e.g., "I find satisfaction in deliberating hard and for long hours." Next, a single, seven point scale (Strongly Agree/Strongly Disagree) assessed respondents initial attitude toward the issue (ATTTIa) (e.g., Cell phone use while driving should be banned). Finally, two pairs of Likert, seven point scales

evaluated each individuals cognitive (e.g., I think a great deal about the issue of cell phone use while driving) and emotional involvement (e.g., I feel very strongly about the issue of cell phone use while driving) concerning the targeted issue. The second pair of items measured the respondents' behavioral intent to employ a cell phone while driving (e. g., I plan to avoid using a cell phone the next time I am driving).

Individuals were then asked to move onto Part Three, Section A and complete one item intended to verify the randomization process (see Appendix F for Coding Book). If an individual responded that their packet color was "blue" and then the researchers found that the message version included in their packet matched, then verification of randomization was clearly established. During the coding process, a double check was conducted to assure the color of their survey packet was properly matched with the correct message version. The color codes corresponded to the four specific message versions in the following fashion: (1) Blue: Declarative statement, Negative message frame; (2) Black: Rhetorical question, Negative message frame; (3) Red: Declarative statement, Positive message frame; and (4) Orange: Rhetorical question, Positive message frame. This system was extremely effective as only a small number of survey packets (5 out of 428) were mismarked and those were discovered in the cross-checking process prior to the initiation of data analysis. Participants were given a total of six minutes to complete Part Two and Part Three, Section A.

Following the completion of Part Three, Section A, individuals turned to Part Four, Section A and, before completing any items, were asked to open a manila envelope containing their version of the target message and review it for a timed, one minute period (Part Three, Section B). One minute later, respondents were asked to

complete all of the items in Part Four, sections A-D, of the survey booklet. Part Four included four sets of scales including: (1) Part A: A four item, manipulation check; (2) Part B: Eight, seven point semantic differential items measuring attitudes toward the behavior; (3) Part C: Nine, five point Likert items assessing attitudes concerning message effectiveness; and (4) Part D: One, seven point item assessing a post-hoc measure of attitude toward the issue (ATTTIb) (Strongly Agree/Strongly Disagree).

Part Four, section A featured four items which rated the extent to which the target message incorporated message forms (rhetorical questions/declarative statements) and message frames (positive outcomes/negative outcomes). This section included two pairs of nine point Likert scale items. The first set of items asked individuals to rate the extent to which the message version they reviewed featured either rhetorical questions (item one) or declarative statements (item two). The second pair of items requested respondents rate the extent to which the message version they reviewed contained either positive outcomes (item one) or negative outcomes (item two).

Part Four, section B contained eight, seven point semantic differential items assessing individuals attitudes concerning the act of driving while using a cell phone (*Driving while talking on a cell phone would be…*). Eight sets of bipolar adjectives were used to allow respondents to describe their view of cell phone use (e.g., harmful/beneficial, foolish/wise) while driving a vehicle.

Part Four, section C required individuals to register their attitudes concerning the effectiveness of the public service announcement they were asked to review. This section included nine, five point Likert scale items (5=strongly agree, 4=agree, 3=neither disagree/agree, 2=disagree, and 1=strongly disagree) with which

respondents rated the effectiveness of the message ("The message is memorable," "This message is truthful") across dimensions of attention, veracity, influence, and persuasive power.

Part Four, section D featured a post-hoc measure of each participant's attitude regarding the target message. The item required individuals to again assess their attitude toward the public policy proposal (*Cell phone use while driving should be banned*) employing one, seven point semantic differential (Strongly Agree/Strongly Disagree). Participants were given four minutes to complete the items in Part Four and then asked to stop and await further instructions before moving onto Part Five.

Part Five included three response sets including: (1) Section A: An open response, thought listing section; (2) Section B: Six, seven point semantic differential items assessing the cognitive value of the target message; and (3) Section C: Two pairs of repeated items providing a post hoc assessment of emotional and cognitive involvement with the message.

Part Five, section A required participants to recall and record all thoughts they recalled while reviewing the target message. Respondents were given two minutes to record their thoughts and assured they need not be overly concerned with spelling, grammar, or syntax. Once the two minute interval expired, individuals were instructed to review statements recorded during the thought listing process and rate them. Each statement was to be rated using a three level system: (1) Thoughts identified as supporting a ban were rated as (+); (2) Thoughts identified as not supporting a ban were rated as (-); and (3) Thoughts identified as not related to the issue of banning cell phone use rated using (0).

This thought listing process has been used successfully in several previous

ELM based studies (Cacioppo & Petty, 1979, 1980, 1982; Wegener et al, 1995) and has proven to exhibit strong reliability (α=.93). Similarly, the self rating system employed in this section has also been utilized extensively (Hale & Dilliard, 1995; Duthler & Palmgreen, 2003; Blankeship & Craig, 2006) with high reliability across a number of research conditions and settings.

Part Five, Section B featured six, seven point items designed to evaluate the cognition value of the targeted message (Lane et al., 2006). Six semantic differential items featuring bipolar adjectival phrases (e.g., this message "would make people think/would not make people think") assessed cognition value across dimensions of information credibility, intellectual stimulation, and willingness to engage in effortful thought. The rating scale ranged from one to seven, with a "1" representing an optimal rating of "7."

The final section of the survey, Part Five, Section C, featured four repeated measures assessing the cognitive and emotional level of involvement experienced by participants after reviewing the target message. Once participants completed the final section, they were then asked to turn in their response packets, thanked for their participation, debriefed, and excused.

CHAPTER III

RESULTS

Reliability Measures

This chapter will highlight the procedures used to measure and evaluate levels of attitudinal strength, direction, and levels of elaboration by respondents processing the target messages. Specifically, this section will detail the calculations and rating systems employed to measure the eight dependent variables including (1) levels of elaboration; (2) cognitive message value; (3) message effectiveness; (4) attitudes toward the prescribed behavior; (5) attitudes toward the issue; (6) cognitive involvement; (7) emotional involvement; and (8) future intent not to use a cell phone while driving. A summary of the manipulation checks of the sample messages is also included in the concluding section of this chapter.

Dependent Variables

Elaboration. Need for cognition levels were previously measured as an independent variable using the 18 item, Need for Cognition Inventory (NCI). Results from the NCI produced a composite score assessing the degree to which individuals enjoyed engaging in cognitive effort or elaboration (Petty & Cacioppo, 1984). A median split of the scores was utilized with the top half of all respondents classified as High NFCs and the bottom half classified as Low NFCs.

To measure the dependent variable of elaboration, the degree to which individuals engaged in effortful thought, respondents were asked, after reviewing the target message, to engage in a thought listing exercise for two minutes and then rate each of the chronicled items on a three level scale. Individuals were provided with a response sheet with twelve numbered lines to record "any and all thoughts" they

recalled experiencing while reviewing the message. The use of a dozen response slots was found to be the optimal length based upon previous NFC studies employing a thought listing component (Petty & Cacioppo, 1981). Individuals were then asked to rate each item using a (+) to signify statements supportive of a ban on cell phone usage, a (-) to signify statements not supportive of a ban, and a (0) to signify statements that were not relevant to the issue of a ban. This thought listing method has been used extensively and obtained acceptable reliability ratings in past research (α=.84). Similarly, researchers have successfully utilized the practice of calculating elaboration ratios by subtracting the total number of negative comments from the total of positive comments and then dividing the difference into the total number of positive and negative comments (Cacioppo, Petty, & Kao, 1984; Donovan & Jalleh, 2000; Meyers-Levy & Maheswararn, 2004; Blankeship & Craig, 2006). An acceptable level of reliability was also obtained for this procedure (α=.87).

Cognition message value. A cognition message value scale featuring six, seven-point semantic differential items was employed to measure the degree to which the message encouraged intellectual effort and activity (Lane, Harrington, Donohew, & Zimmerman, 2006).

The six items, redacted from an original pool of fifteen, were selected because of their relevance in wording and tone to the target issue. The semantic differential items required respondents to assess the cognitive stimulation level promoted by the target message (e.g., Not intellectually engaging/Intellectually engaging) using a response set ranging from one to seven. The reliability coefficient obtained for this scale was found to be acceptable (α=.819).

Attitudes concerning message effectiveness. Attitudes toward the prescribed

behavior supporting a ban on cell phone usage while driving were measured through the use of two survey items. First, one Likert item was administered both pre-test and post-test which assessed participant attitudes concerning the target issue (e.g., "Cell phone use while driving should be banned") on a seven point scale.

A second series of nine items utilizing five point Likert rating scales was presented (Noar, 2003) to measure attitudes concerning message effectiveness. The response items for this scale ranged from strongly agree to strongly disagree (1=Strongly Disagree, 2=Disagree, 3=Neither Disagree/Agree, 4=Agree, 5=Strongly Agree). The higher the score, up to a maximum of five, the more optimal the ratings. The items asked participants to evaluate the quality of the message across dimensions of persuasive recall, efficacy, veracity, and overall influence (e.g., "This message would make people my age more likely to avoid talking on a cell phone while driving"). The resulting reliability for this instrument was calculated and found to be acceptable (α=.894).

Attitudes concerning the prescribed behavior. The first set of items pertaining to attitude toward the prescribed behavior (e.g., "Please don't drive while using a cell phone") provided a descriptive overview of respondent perceptions concerning the use of cellular devices while driving (Duthler & Palmgreen, 2003). This scale featured four, seven point Likert scale items (Strongly Agree/Strongly Disagree) intended to identify the degree to which participants engaged in cognitive effort, were emotionally connected, and mindful of their behavioral intentions concerning the use of cell phones while driving.

The second set of scales required respondents to assess their attitudes concerning the prescribed behavior, using a cell phone while driving. The instrument

employed was an eight item, seven point set of semantic differential option scales (Jones & Rossiter, 2004). The items were linked to a general question ("Driving while using a cell phone for me would be?") asked as a precursor to completing the 8 succeeding items. The reliability index for this measure was found to be acceptable (α=.916).

Attitudes toward the issue. This dependent variable was measured utilizing a repeated pretest-posttest Likert item adapted from items (e.g., "Cell phone use while driving should be banned") featured in Part Two, section B of the survey and Part Four, section B. The pretest item featured a 7 point, Likert scale (strongly agree/ strongly disagree) and the posttest item featured a 9 point Likert scale. To compensate for the uneven number of response choices between pretest and posttest (7 vs. 9) z-tests were performed to assess differences in attitude toward the issue.

Cognitive involvement. This dependent variable was measured employing a pretest-posttest item (e.g., "I think a great deal about the issue of cell phone use while driving") adapted from a scale employed in an earlier study (Duthler & Palmgreen, 2003). The pretest was situated in Part two, section A of the survey and the posttest item was located in Part 5, section C. Both items featured a 7 point, reverse scored, Likert scale item. The items were valued such that Strongly Agree responses were rated highest (response #1=+7) while Strongly Disagree ratings were rated lowest (response #7=+1). Mean averages were computed and a between subjects univariate analysis was conducted to assess the level of cognitive involvement across varying message conditions.

Emotional involvement. To evaluate the dependent variable of emotional involvement a pretest-posttest item ("I feel very strongly about the issue of cell

phone use while driving") was incorporated into Part two, Section B (pretest) and Part 5, Section C (posttest). The item was a 7 point, Likert scale ranging from "Strongly Agree" to "Strongly Disagree" in terms of response options adapted by Duthler & Palmgreen (2003).

The items were valued such that Strongly Agree responses were rated highest (response #1=+7) while Strongly Disagree ratings were rated lowest (response #7=+1). Mean averages were computed and a between subjects univariate analysis was conducted to assess the level of emotional involvement across varying message conditions.

Future intent to avoid using a cell phone while driving. To assess the dependent variable of future intent to avoid using a cell phone a pretest-posttest item (e.g., "I plan to avoid using a cell phone the next time I am driving") was incorporated into Part Two, Section B (pretest) and Part Five, Section C (posttest). The repeated measure featured a 7 point, Likert scale ranging from "Strongly Agree" to "Strongly Disagree." The items were again reverse scored such that Strongly Agree was valued as "7" and "Strongly Disagree" was valued as a "1." Mean averages were computed and a between subjects univariate analysis was conducted to assess the level of future intent to avoid using a cell phone before and after reviewing the target message.

Manipulation Check

To assess the effectiveness of the two message manipulations a series of one way analyses of variance (ANOVAs) were initiated. To assess perceptions of message form, items concerning the presence of declarative sentences and rhetorical questions were embedded within the survey.

Four, nine point Likert items (Not At All/All the Time) were incorporated into the survey in order to determine the extent to which the target messages incorporated rhetorical questions, declarative statements, positive outcomes, and negative outcomes. The items required participants to rate the presence of these elements within the respective messages they were randomly assigned to review.

Respondents in this survey were randomly (N=403) exposed to one of the following four message conditions including: (1) Declarative Statement, Negative Message Frame—n=103 respondents; (2) Declarative Statement, Positive Message Frame—n=105 respondents; (3) Rhetorical Question, Negative Message Frame—n=100 respondents; and (4) Rhetorical Question, Positive Message Frame—n=95 respondents.

ANOVAs confirmed significant differences existed across the independent variable of message form exemplars. The ANOVAs pertaining to message form yielded the following results: (1) Rhetorical Questions [$F(3, 397)=51.030, p<.0001$] and (2) Declarative Statements [$F(3, 398)=27.867, p<.0001$] which confirmed individuals were able to discern a clear cut difference between each of the message forms and the manipulations operated as intended.

The magnitude of identification across categories for the independent variable of message form, the higher the score the stronger and more prominent the manipulation, was noticeable. The rhetorical/negative message form condition means (M=6.12, SD=2.34) were somewhat higher than those in the rhetorical/positive frame condition (M=5.72, SD=2.85). In assessing the declarative message form conditions, it was found both versions received near equivalent identification ratings with the declarative/negative message frame (M=7.57, SD=1.90) comparable to the

declarative/positive message frame version (M=7.61, SD=2.14). Consequently, the positive frame condition was rated more favorably when paired with declarative forms, while rhetorical forms were more clearly recognized when paired with negatively framed messages.

The ANOVA results for message framing, negative vs. positive, also demonstrated significance at the .001 level and produced the following results: (1) Positive Message Framing: [F(3, 398)=46.161, p<.001.] and (2) Negative Message Framing [F(3, 397)=42.269, p<.001.]. Comparatively, in the message framing conditions the results were more distinct as positive frames/declarative statement versions (M=7.95, SD=1.92) were identified more readily than positive frames/rhetorical question versions (M=7.32, SD=2.54) on a 9 point Likert scale. Negatively framed messages were similarly rated with negative frame/declarative statement versions (M=6.87, SD=2.93) in contrast to positively framed/rhetorical question versions (M=6.02, SD=3.16).

Next, a series of means comparisons were conducted to identify whether the manipulations for message forms and message frames were consistently present across the four advocacy versions. These comparisons confirmed the manipulations were operant across all 4 conditions. For rhetorical questions the comparison yielded clear cut differences (M=6.07, 5.72—rhetorical question vs. M=2.76, 2.87—declarative). Similarly, declarative statements were clearly differentiated as well when means were compared (M=7.61, 7.57—declarative statement vs. M=5.19, 5.44—rhetorical question).

Message Framing involves the use of statements which promote either gain or loss implications in direct relation to the individual's willingness to follow a

particular course of action or adopt a particular attitude. Gain frames typically suggest individuals will accrue certain benefits when they adhere to a particular, pro-social course of behavior or attitudinal construct. Loss frames typically suggest individuals will experience a lack of benefits or exposure to disadvantages when they fail to adhere to a particular pro-social course of behavior or attitudinal construct. The means comparisons for message framing variables also demonstrated proper manipulations. In the case of negatively framed messages the contrast was clearly evident (M=6.87, 6.00—negative framing—vs. M=2.88, 3.73—positive framing). Similarly, positively framed message comparisons also confirmed this variable was also properly manipulated (M=7.95, 7.32—positive framing vs. M=4.81, 4.07—negative framing).

Results

Elaboration

Hypothesis 1a (Cognition Style): Hypothesis 1a predicted high need for cognition respondents would report higher levels of elaboration than low need for cognition respondents. The ANOVA did not confirm a statistically significant difference for need for cognition [F (1, 373)=.371, p=.543]. However, means comparisons did show directional support for the hypothesis as high need for cognition respondents (M=.246, SD=.76) registered marginally higher levels of elaboration than low need for cognition participants (M=.193, SD=.74)

Hypothesis 2a (Message Form): Hypothesis 2a predicted messages featuring declarative statement forms would produce higher levels of elaboration than those featuring rhetorical question forms. The ANOVA did not support a main effect for message form (declarative statement vs. rhetorical questions) upon elaboration levels

[F (1, 373)=.070, p=.792]. Hypothesis 2a was also not supported by a means comparison (Rhetorical Question M=.229, SD=.77 *vs.* Declarative M=.210, SD=.74) as higher levels of elaboration were registered by respondents exposed to messages featuring rhetorical questions rather than declarative statements as hypothesized.

Hypothesis 3a (Message Frame): Hypothesis 3a predicted messages featuring negatively framed statements would generate higher levels of elaboration than those containing positively framed statements. The ANOVA did not confirm a significant main effect for message framing upon elaboration [F (1, 373)=.359, p=.550] for message framing. A means comparison (Negative Framing M=.195, SD=.76 vs. Positive Framing M=.245, SD=.74) also did not support the hypothesis that negatively framed statements enhanced elaboration in comparison to positively framed messages.

Hypothesis 4a (Cognition Style/Message Framing): Hypothesis 4a predicted a two-way interaction between cognition levels and message framing such that high need for cognition individuals exposed to negatively framed statements would generate than participants in any higher levels of elaboration other message conditions. An ANOVA failed to support the two way interaction hypothesis between cognition levels and message framing [F (1,373)=2.89, p=.090]. Means comparisons across the four conditions supported the hypothesis and demonstrated the high need for cognition, negative message framing version producing the highest levels of elaboration (High Need for Cognition/Negative Framing M=.291, SD=.73 vs. Low Need for Cognition/Positive Framing M=.289, SD=.70; High Need for Cognition/Positive Framing M=.205, SD=.78; Low Need for Cognition/Negative Framing M=.111, SD=.77) across all four message conditions.

Hypothesis 5a (Message Form/Message Frame): Hypothesis 5a predicted a two-way interaction involving message form and message frame wherein messages featuring declarative message forms and negatively framed (loss) statements would generate higher levels of elaboration across all levels. The ANOVA failed to support the prediction of a two-way interaction between the independent variables of message frame and message form [$F(1,373)=.203$, $p=.652$]. The means comparisons, across the four conditions, also did not support hypothesis 5a and instead suggested messages featuring declarative statements and positive message framing would promote the highest levels of elaboration (Declarative/Positive Framing $M=.255$, $SD=.73$) vs. (Rhetorical Question/Positive Framing $M=.234$, $SD=.77$; Rhetorical Question/Negative Framing $M=.224$, $SD=.77$; Declarative/Negative Framing $M=.166$, $SD=.75$).

Hypothesis 6a (Cognition Style/Message Form): Hypothesis 6a predicted a two-way interaction between need for cognition and message form such that high need for cognition individuals exposed to declarative message forms would generate greater levels of elaboration than those present across all other conditions. An ANOVA failed to confirm the presence of a statistically significant two-way interaction involving cognitive style and message form, [$F(1,373)=.329$, $p=.567$]. A means comparison suggested the results were directionally favorable as the high need for cognition/declarative scores were marginally higher than those evident across all other conditions (High Need for Cognition/Declarative $M=.259$, $SD=.75$) vs. (High Need for Cognition/Rhetorical Question $M=.233$, $SD=.77$; Low Need for Cognition/ Rhetorical Question $M=.225$, $SD=.77$; and Low Need for Cognition/Declarative $M=.162$, $SD=.72$).

Hypothesis 7a (Cognition Style/Message Form/Message Frame): Hypothesis 7a predicted a three-way interaction wherein high need for cognition respondents exposed to messages featuring declarative sentences and negatively framed (loss) statements would generate higher levels of elaboration than those present in any other condition. An ANOVA evaluating a potential three-way interaction failed to confirm a statistically significant interaction between cognition style, message framing, and message form [F (1, 373)=007, p=.932]. Hypothesis 7a was also not supported by the means comparisons that revealed low need for cognition processors exposed to messages featuring rhetorical questions and positive framing (Low Need for Cognition/Rhetorical Question/Positive Framing M=.302, SD=.70) produced the highest levels of elaboration in contrast to all other message conditions (High Need For Cognition/Rhetorical Question/Negative Framing M=.293, SD=.71; High Need For Cognition/Declarative/Negative Framing M=.289, SD=.76; Low Need For Cognition/Declarative/Positive Framing M=.278, SD=.70; High Need For Cognition/Declarative/Positive Framing M=.231, SD=.75; High Need for Cognition/ Rhetorical Question/Positive Framing M=.179, SD=.82; Low Need For Cognition/ Rhetorical Question/Negative Framing M=.165, SD=.82; and Low Need for Cognition/Declarative/Negative Framing M=.058, SD=.72).

Message Cognition Value

Hypothesis 1b (Cognition Style): Hypothesis 1b predicted high need for cognition respondents would register higher levels of cognitive response than low need for cognition individuals. The ANOVA results did not confirm a main effect for need for cognition upon the dependent variable of cognitive response, [F (1, 383) =.731, p=.393]. Means comparisons demonstrated marginal, directional support for

the hypothesis (High Need For Cognition M=4.89, SD=1.24 vs. Low Need for Cognition M=4.77, SD=1.21).

Hypothesis 2b (Message Form): Hypothesis 2b predicted declarative statement forms would produce higher cognitive message values than rhetorical question forms. The ANOVA for this main effect revealed no significant differences between message form types [F (1, 383)=.029, p=.865]. A means comparison signaled modest directional support for the hypothesis (Declarative M=4.84, SD=1.16) vs. (Rhetorical Question M=4.81, SD=1.30) that CMV ratings would be higher among individuals exposed to Declarative forms.

Hypothesis 3b (Message Frame): Hypothesis 3b predicted there would be a main effect for message framing such that negatively framed statements would produce higher cognitive response values than those featuring positively framed statements. The ANOVA confirmed a significant difference for a main effect for message frame in relation to the dependent variable of cognitive response [F (1,383) =4.252, p<.05]. The directional hypothesis was contradicted as a means comparison illustrated positive message framing enhanced cognitive response levels (Positive Framing M=4.96, SD=1.22) vs. (Negative Framing M=4.70, SD=1.22) to a greater degree than negatively framed messages. However, a confirmation of an overall main effect for framing was confirmed by these results.

Hypothesis 4b (Cognition Style/Message Framing): Hypothesis 4b predicted a two-way interaction between cognition style and message framing such that high need for cognition respondents exposed to negatively framed (loss) messages would produce higher cognitive response values than participants in any other condition. The two-way ANOVA did not reveal significance for this interaction, [F (1,383)

=.3.002, p=.084]. Hypothesis 4b was also not supported as means comparisons revealed Low Need For Cognition individuals exposed to positively framed messages (Low Need for Cognition/Positive Framing M=5.02, SD=1.23) produced the highest CMV levels in contrast to those in the other conditions (High Need For Cognition/ Positive Framing M=4.91, SD=1.22; High Need For Cognition/Negative Framing M=4.87, SD=1.27; and Low Need For Cognition/Negative Framing M=4.55, SD=1.16).

Hypothesis 5b (Message Form/Message Frame): Hypothesis 5b predicted a two-way interaction between message framing and message form such that individuals exposed to messages featuring declarative statement forms and negative message framing would generate higher levels of cognitive message valuation. A two-way ANOVA confirmed no statistically significant differences between varying form and frame conditions [F (1, 383)=.215, p=.643]. The two-way interaction hypothesis was also not supported as means comparisons instead illustrated the message version featuring rhetorical question forms and positive message framing produced the highest CMV levels (Rhetorical Questions/Positive Framing M=4.98, SD=1.25) vs. (Declarative/Positive Framing M=4.95, SD=1.20; Declarative/ Negative Framing M=4.74, SD=1.11; and Rhetorical Question/Negative Framing M=4.65, SD=1.33) in contrast to all other message versions.

Hypothesis 6b (Cognition Style/Message Form): Hypothesis 6b predicted a two-way interaction involving cognition style and message form would occur such that high need for cognition participants exposed to declarative message forms would report greater levels of cognitive response than those present in other message conditions. A two-way ANOVA did not demonstrate any statistically significant

differences between cognition message values in relation to cognition style and message forms [F (1, 383)=.064, p=.801]. A series of means comparisons suggested directional support for the hypothesis (High Need For Cognition/Declarative M=4.91, SD=1.15) vs. the other three conditions (High Need For Cognition/Rhetorical Question M=4.86, SD=1.34; Low Need For Cognition/Rhetorical Question M=4.76, SD=1.26; and Low Need For Cognition/Declarative M=4.77, SD=1.17).

Hypothesis 7b (Cognition Style/Message Form/Message Frame):

Hypothesis 7b predicted a three-way interaction involving message form, message framing, and cognition style such that high need for cognition receivers processing messages featuring declarative statements and negative framing would produce greater cognitive response to the message. The three-way ANOVA did not confirm a statistically significant relationship between cognition style, message form, and message frame [F (1, 383)=.053, p=.818]. A series of means comparisons also did not confirm support for the hypothesis as low need for cognition respondents produced higher CMV scores than their High NFC counterparts across all conditions (Low Need For Cognition/Rhetorical Question/Positive Framing M=5.0, SD=1.19 and Low Need For Cognition/Declarative/Positive Framing M=5.00, SD=1.27,) vs. (High Need For Cognition/Declarative/Negative Framing M=4.94, SD=1.16; High Need For Cognition/Rhetorical Question/Positive Framing M=4.93, SD=1..31; High Need For Cognition/Declarative/Positive Framing M=4.89,SD=1.14; High Need For Cognition/Rhetorical Question/Negative Framing M=4.80, SD=1.39; Low Need For Cognition/Declarative/Negative Framing M=4.55, SD=1.03, ; Low Need For Cognition/Rhetorical Question/Negative Framing M=4.54, SD=1.28).

Attitudes Concerning Message Effectiveness

Hypothesis 1c (Cognition Style): Hypothesis 1c predicted high need for cognition respondents would report more favorable attitudes concerning the message than low need for cognition individuals. An ANOVA failed to confirm a significant difference for message effectiveness at the .05 level [F (1, 384)=1.821, p=.178]. However, means analysis did reflect directional support for the hypothesis (High Need For Cognition M=3.35, SD=.81) vs. (Low Need For Cognition M=3.23, SD=.82).

Hypothesis 2c (Message Form): Hypothesis 2c predicted messages featuring declarative statement forms would generate more favorable attitudes toward the target message than rhetorical question forms featured within the advocacy. The ANOVA for this main effect did not confirm that a significant difference existed between varying types of message forms upon attitudes toward the target message [F (1, 384)=.131, p=.717]. Means comparisons suggested modest directional support for the hypothesis (Declarative M=3.30, SD=.79) vs. (Rhetorical Question M=3.27, SD=.84) that individuals exposed to messages featuring declarative forms would produce higher message evaluation ratings.

Hypothesis 3c (Message Frame): Hypothesis 3c predicted messages containing negatively framed messages would produce higher levels of favorable attitudes toward the message than positively framed versions of the message. The main effect ANOVA did not demonstrate statistical significance for message framing, [F (1, 384)=.299, p=.585]. Hypothesis 3c was not supported as means comparisons suggested positively framed messages produced more favorable attitudes toward the issue than negatively framed messages (Positive Framing

M=3.32, *SD*=.79) vs. (Negative Framing *M*=3.26, *SD*=.*84*).

Hypothesis 4c (Cognition Style/Message Framing): Hypothesis 4c predicted a two-way interaction would be present between need for cognition and message framing such that high need for cognition respondents exposed to negatively framed (loss) messages would exhibit more favorable attitudes toward the target message than participants in other conditions. The two-way ANOVA approached near significance and suggested High NFC's exposed to negatively framed messages would register more favorable attitudes toward the target message [*F* (1, 384)=3.671, *p*=.056]. Means comparisons provided minimal directional support for the hypothesis as overall message evaluation ratings were highest in the High NFC, Negative message framing condition (*M*=3.41, *SD*=.83) vs. (Low Need For Cognition/Positive Framing *M*=3.34, *SD*=.78; High Need For Cognition/Positive Framing *M*=3.29, *SD*=.79; Low Need For Cognition/Negative Framing *M*=3.14, *SD*=.84).

Hypothesis 5c (Message Form/Message Frame): Hypothesis 5c predicted a two-way interaction would exist between message framing and message form such that messages featuring declarative statement forms and negative framing would produce more favorable attitudes toward the message. A two-way ANOVA did not reveal a significant difference between message frame and message form in relation to favorability toward the message [*F* (1, 384=1.108, *p*=.293]. Hypothesis 5c was not supported as means comparisons suggested messages featuring declarative statements and positive message frames (*M*=3.37, *SD*=.80) would produce the highest message evaluations vs. (Rhetorical Question/Negative Framing *M*=3.29, *SD*=.90; Rhetorical Question/Positive Framing *M*=3.25, *SD*=.77; and Declarative/

Negative Framing *M*=3.24, *SD*=.79).

Hypothesis 6c (Cognition Style/Message Form): Hypothesis 6c predicted a two-way interaction involving cognition style and message form would be evidenced such that high need for cognition participants exposed to declarative message forms would register more favorable attitudes toward the message. A two-way ANOVA revealed no significant interactive differences upon ratings for message effectiveness for a two-way interaction involving cognition level and message form [*F* (1,384) =.421, *p*=.517]. A means comparison confirmed directional support for the hypothesis in contrast to other conditions (High Need for Cognition/Declarative *M*=3.39, *SD*=.75 vs. High Need for Cognition/Rhetorical Question *M*=3.30 *SD*=.87; Low Need for Cognition/Rhetorical Question *M*=3.24, *SD*=.81; and Low Need for Cognition/Declarative *M*=3.22, *SD*=.83). with High NFC individuals generating the highest message evaluation ratings when exposed to declarative forms.

Hypothesis 7c (Cognition Style/Message Form/Message Frame): Hypothesis 7c predicted a three-way interaction involving message form, message framing, and cognition style would be present such that high need for cognition processors exposed to messages featuring declarative statements and negative (loss) framing would rate the target message as more effective than those across other conditions. The three-way ANOVA failed to confirm a significant interaction involving message frame, message form, and cognition style [*F* (1, 384)=.018, *p*=.894]. Means comparisons displayed marginal directional support for hypothesis 7c (High Need For Cognition/Declarative/Negative Framing *M*=3.41, *SD*=.74 vs. High Need For Cognition/Rhetorical Question/Negative Framing *M*=3.40, *SD*=.93; Low Need For Cognition/Declarative/Positive Framing *M*=3.38, *SD*=.83; High Need For Cognition/

Declarative/Positive Framing *M*=3.37, *SD*=.77; Low Need For Cognition/Rhetorical Question/Positive Framing *M*=3.30, *SD* .73 ; High Need For Cognition/Rhetorical Question/Positive Framing *M*=3.21, *SD*=.81; Low Need For Cognition/Rhetorical Question/Negative Framing M=3.20, SD=.87; and Low Need For Cognition/ Declarative/Negative Framing *M*=3.07, *SD*=.80).

Attitudes Toward the Prescribed Behavior

Hypothesis 1d (Cognition Style): Hypothesis 1d predicted high need for cognition participants would report more favorable attitudes than low need for cognition participants concerning the prescribed behavior promoted in the public service messages ("Don't drive while using a cell phone"). The ANOVA to identify a main effect did not reveal a significant difference in attitudes toward the behavior between respondents varying in cognition style [F (1, 383)=1.220, p=.270]. Means comparisons did reveal modest, directional support for hypothesis 1d (High Need For Cognition *M*=3.91, *SD*=1.34*)* vs. (Low Need For Cognition *M*=3.75, *SD*=1.33 *)* relating to cognition style.

Hypothesis 2d (Message Form): Hypothesis 2d predicted messages featuring declarative statements would produce more favorable responses concerning behavioral intent than those featuring rhetorical questions. A main effect ANOVA did not detect a significant difference between attitudes concerning prescribed behavior across message form conditions [F (1, 383)=1.484, p=.224]. Means comparisons evidenced directional support for the hypothesis participants exposed to declarative message versions would indicate a greater willingness to avoid using a cell phone while driving (Declarative *M*=3.91, *SD*=1.39) vs. (Rhetorical Question *M*=3.74, *SD*=1.27).

Hypothesis 3d (Message Frame): Hypothesis 3d predicted messages containing negatively framed messages would promote more favorable attitudes toward the intended behavior (willingness to not use a cell phone while driving) than those containing positively framed messages. An ANOVA surveying for a main effect did not confirm a statistically significant difference between messages varying in message frame [F (1, 383)=.088, p=.767]. Hypothesis 3d was also not supported by means comparisons that illustrated positively framed messages produced slightly stronger support concerning the prescribed behavior than negatively framed messages (Positive Framing M=3.86, SD=1.35) vs.(Negative Framing M=3.80, SD=1.32).

Hypothesis 4d (Cognition Style/Message Framing): Hypothesis 4d predicted a two-way interaction involving need for cognition and message framing such that high need for cognition respondents exposed to negatively framed message versions would exhibit more favorable responses concerning behavioral intent than message processors in other conditions. A two-way ANOVA confirmed a significant interaction between cognition style and message framing at the .05. level, [F (1, 383) =7.525, p<.005]. Means comparisons supported the hypothesis that High NFC individuals exposed to negatively framed messages would produce optimal ratings for ATPB (M=4.08, SD=1.38) vs. (Low Need For Cognition/Positive Framing M=3.98, SD=1.41; High Need For Cognition/Positive Framing M=3.75, SD=1.28; and Low Need For Cognition/Negative Framing M=3.56, SD=1.23).

Hypothesis 5d (Message Form/Message Frame): Hypothesis 5d predicted a two-way interaction involving message frame and message form such that messages featuring declarative statement forms and negative framing statements would

produce more favorable responses regarding behavioral intent. A two-way ANOVA did not confirm a significant difference between attitudes toward the behaviors across frame and form conditions [F (1, 383)=.120, p=.730]. Hypothesis 5d was not supported by means comparisons which signaled messages featuring declarative sentences and positive message framing would produce higher attribution scores than all other message versions (Declarative/Positive Framing M=3.96, SD=1.44 vs. Declarative/Negative Framing M=3.86, SD=1.35; Rhetorical Question/Negative Framing M=3.74, SD=1.30; Rhetorical Question/Positive Framing M=3.74, SD=1.24).

Hypothesis 6d (Cognition Style/Message Form): Hypothesis 6d predicted a two-way interaction involving cognition levels and message form such that high need for cognition receivers exposed to messages featuring declarative statements were expected to exhibit stronger confirmation of behavioral intent not to use a cell phone while driving. A two-way ANOVA did not reveal a significant two-way interaction between cognition style and message form [F (1,383)=.208, p=.648]. Means comparisons signaled directional support for the hypothesis as high need for cognition individuals produced higher attribution ratings (High Need for Cognition/ Declarative M=4.02, SD=1.38) when exposed to messages featuring declarative sentences compared to all other conditions (High Low Need for Cognition/ Declarative M=3.81, SD=1.40 ; High Need for Cognition/Rhetorical Question M=3.79, SD=1.28; and Low Need for Cognition/Rhetorical Question M=3.69, SD=1.26).

Hypothesis 7d (Cognition Style/Message Form/Message Frame): Hypothesis 7d predicted a three-way interaction between cognition style, message

form, and message framing such that high need for cognition receivers exposed to messages featuring declarative statements and negative message frames would demonstrate greater support for the prescribed behavioral intention. A three-way ANOVA did not confirm statistical significance for an interaction between the variables of cognition style, message form, and message frame [F (1,383)=.560, p=.455]. Means comparisons provided directional support for the hypothesis that high need for cognition individuals exposed to messages featuring declarative statements and negative message framing would signal optimum support for the prescribed behavioral intention (M=4.22, SD=1.36) vs. (Low Need For Cognition/ Declarative/Positive Framing M=4.09, SD=1.48; High Need For Cognition/ Rhetorical Question/Negative Framing M=3.94, SD=1.39; Low Need for Cognition/ Rhetorical Question/Positive Framing M=3.84, SD=1.32; High Need for Cognition/ Declarative/Positive Framing M=3.83, SD=1.39; High Need For Cognition/ Rhetorical Question/Positive Framing M=3.66, SD=1.17; Low Need For Cognition/ Rhetorical Question/Negative Framing M=3.58, SD=1.20; and Low Need For Cognition/Declarative/Negative Framing M=3.54, SD=1.26;).

Attitude Toward the Issue

Hypothesis 1e (Cognition Style): Hypothesis 1e predicted high need for cognition participants would report more favorable attitudes than low need for cognition participants concerning the attitude toward the issue promoted in the public service messages ("Cell phone use while driving should be banned"). The F test, employing a covariate to control for testing effect, did not identify a main effect in attitudes toward the issue between respondents varying in cognition style [F (1, 374) =1.122, p=.290]. Means comparisons reported in z score form to address an

imbalance in the number of pretest and posttest items, also did provide confirmation for hypothesis 1e (High Need For Cognition M=-7.20, SD=1.00) vs. (Low Need For Cognition M=.085, SD=.996) as Low NFC participants rated the issue more positively than High NFC respondents.

Hypothesis 2e (Message Form): Hypothesis 2e predicted messages featuring declarative statements would produce more favorable responses concerning attitude toward the issue than those featuring rhetorical questions. An F test, after the adjustment for the covariate, did not detect a significant difference between attitudes toward the issue across message form conditions [F (1, 374)=.984, p=.322]. Means comparisons converted to z scores also failed to provide support for the hypothesis that individuals exposed to declarative message versions would register stronger pro-message attitudes toward a ban on cell phone use. Instead, individuals exposed to rhetorical question versions of the message produced more positive attitudes toward the proposal to ban cell phone use while driving. (Rhetorical Question M=.065, SD=1.01) vs. (Declarative M=-4.41, SD=.98)

Hypothesis 3e (Message Frame): Hypothesis 3e predicted messages containing negatively framed messages would promote more favorable attitudes concerning the issue than those containing positively framed messages. An ANOVA surveying for a main effect, with a covariate for pretesting, did not confirm a statistically significant difference between messages varying in message frame type [F (1, 374)=.217, p=.642]. Hypothesis 3e was marginally supported by means comparisons that illustrated negatively framed messages produced slightly stronger support concerning attitudes toward the issue than positively framed messages (Negative Framing M=.010, SD=.96) vs.(Positive Framing M=.006, SD=1.03).

Hypothesis 4e (Cognition Style/Message Framing): Hypothesis 4e predicted a two-way interaction involving need for cognition and message framing such that high cognition need respondents exposed to negatively framed message versions would exhibit more favorable attitudes toward the issue than message processors in other conditions. A two-way ANOVA, with a covariate for pretesting, did not confirm a significant interaction between cognition style and message framing at the .05. level, [F (1, 374)=1.558, p=.213]. Means comparisons reported in z score form also did not support the two-way interaction hypothesis as the most favorable attitude level was produced among Low Need For Cognition individuals exposed to negatively framed messages (M=.173, SD=.94) vs. (High Need For Cognition/ Positive Framing M=.027, SD=1.03; Low Need For Cognition/Positive Framing M= -1.64, SD=1.04; and High Need For Cognition/Negative Framing M= -1.82, SD=.96).

Hypothesis 5e (Message Form/Message Frame): Hypothesis 5e predicted a two-way interaction involving message frame and message form such that advocacy versions featuring declarative statement forms and negative framing statements would produce more favorable responses concerning attitude toward the issue. A two-way ANOVA did not confirm a significant difference between attitudes toward the issue across frame and form conditions [F (1, 374)=.090, p=.764]. Hypothesis 5e was also not supported by means comparisons that illustrated messages featuring rhetorical questions and positive message framing (M=.085, SD=1.00) produced higher attribution scores than all other message versions (Rhetorical Question/ Negative Framing M=.047, SD=1.03; Declarative/Negative Framing M=-2.38, SD=.911; Declarative/Positive Framing M=-6.49, SD=1.06).

Hypothesis 6e (Cognition Style/Message Form): Hypothesis 6e predicted a two-way interaction involving cognition levels and message form such that high need for cognition receivers exposed to message featuring declarative statements were expected to exhibit more positive attitudes toward the issue not to use a cell phone while driving than those across all other conditions. A two-way ANOVA did not reveal a significant two-way interaction between cognition style and message form [F (1,374)=.112, p=.738] for attitude toward the issue. Means comparisons did not support the hypothesis as low cognition style processors produced higher attribution ratings when exposed to messages featuring rhetorical questions (M=.089, SD=1.01) vs. (Low Need For Cognition/Declarative M=.082, SD=.98 ; High Need For Cognition/Rhetorical Question M=.041, SD=1.02; and High Need For Cognition/ Declarative M= -1.78, SD=.97) than those in all other conditions.

Hypothesis 7e (Cognition Style/Message Form/Message Frame): Hypothesis 7e predicted a three-way interaction between cognition style, message form, and message framing such that high need for cognition individuals exposed to messages featuring declarative statements and negative message frames would demonstrate more positive attitudes toward the issue. A three-way ANOVA did not confirm statistical significance for an interaction between the independent variables of cognition style, message form, and message frame [F (1,374)=.560, p=.455]. Means comparisons did not support the hypothesis as Low NFCs exposed to declarative statement, negatively framed messages produced the most positive attitudes toward the issue (M=.20, SD=.89) vs. (Low Need For Cognition/Rhetorical Question/ Negative Framing M=.14, SD=1.01; Low Need For Cognition/Rhetorical Question/ Positive Framing M=.13, SD=1.00; Low Need For Cognition/Rhetorical Question/

Positive Framing *M*=.020, *SD*=1.01; High Need For Cognition/Declarative/Negative Framing *M*= -2.74, *SD*=.876; Low Need For Cognition/Declarative/Positive Framing *M*= -4.69, *SD*=1.07; High Need For Cognition/Rhetorical Question/Negative Framing *M*= -7.49, *SD*=1.05; and Low Need For Cognition/Declarative/Positive Framing *M*= -8.42, *SD*=1.05).

Cognitive Involvement

Hypothesis 1f (Cognition Style): Hypothesis 1f predicted high need for cognition participants would register higher levels of cognitive involvement than low need for cognition processors concerning the target issue ("Cell phone use while driving"). The ANOVA did not reveal a main effect for cognitive involvement between respondents varying in cognition style [*F* (1, 379)=.308, *p*=.580]. Means comparisons also did not reveal confirmation for hypothesis 1f as low cognition style participants registered higher cognitive involvement ratings (Low Need For Cognition *M*=4.61, *SD*=1.90) vs. (High Need For Cognition *M*=-4.42, *SD*=1.79) than high cognition style individuals.

Hypothesis 2f (Message Form): Hypothesis 2f predicted messages featuring declarative statements would produce higher ratings for cognitive involvement concerning the target issue than those featuring rhetorical questions. The ANOVA for main effects did not detect a significant difference between cognitive involvement across message form conditions [*F* (1, 379)=.021, *p*=.886]. Means comparisons also failed to provide support for the hypothesis that participants exposed to declarative message versions would indicate a greater willingness to think about the issue than those presented with messages featuring rhetorical questions (*M*=4.55, *SD*=1.82) vs. (Declarative *M*=-4.49, *SD*=1.87).

Hypothesis 3f (Message Frame): Hypothesis 3f predicted messages containing negatively framed messages would produce higher ratings for cognitive involvement concerning the target issue than those containing positively framed messages. An ANOVA surveying for main effect did not detect a statistically significant difference between messages varying in message frame [F (1, 379)=.210, p=.647]. Hypothesis 3f was marginally supported by means comparisons that illustrated negatively framed messages produced slightly stronger levels of cognitive involvement with the issue than positively framed messages (Negative Framing M=4.54, SD=1.86) vs.(Positive Framing M=4.50, SD=1.84).

Hypothesis 4f (Cognition Style/Message Framing): Hypothesis 4f predicted a two-way interaction involving need for cognition and message framing such that high need for cognition respondents exposed to negatively framed message versions would register higher cognitive involvement ratings concerning the target issue than message processors in other conditions. A two-way ANOVA did not confirm a significant interaction between cognition style and message framing at the .05. level, [F (1, 379)=.321, p=.571]. Means comparisons also did not support the two-way interaction hypothesis for cognitive involvement as low Cognition style receivers produced the highest ratings for involvement when exposed to negatively framed messages (Low Need For Cognition M=4.75, SD=1.91) vs. (High Need For Cognition/Positive Framing M=4.53, SD=1.81; Low Need For Cognition/Positive Framing M= 4.47, SD=1.89; and High Need For Cognition/Negative Framing M=4.31, SD=1.77).

Hypothesis 5f (Message Form/Message Frame): Hypothesis 5f predicted a two-way interaction involving message frame and message form such that advocacy

forms featuring declarative statements and negative framing statements would produce higher cognitive involvement ratings concerning the target issue. A two-way ANOVA did not confirm a significant difference between attitudes toward the issue across frame and form conditions [F (1, 379)=2.99, p=.084]. Hypothesis 5f was also not supported by means comparisons that illustrated messages featuring rhetorical questions and negative message framing (M=4.63, SD=1.93) produced higher attribution scores than all other message versions (Declarative/Positive Framing M=4.53, SD=1.97; Declarative/Negative Framing M= 4.46, SD=1.79; Rhetorical Question/Positive Framing M=4.46, SD=1.71).

Hypothesis 6f (Cognition Style/Message Form). Hypothesis 6f predicted a two-way interaction involving cognition levels and message form such that high need for cognition receivers exposed to ad versions featuring declarative statements were expected to exhibit higher ratings for cognitive involvement regarding the target issue. A two-way ANOVA did not reveal a significant two-way interaction between cognition style and message form [F (1,379)=1.332, p=.249] for cognitive involvement. Means comparisons did not support the hypothesis as low cognition style individuals produced higher cognitive involvement ratings when exposed to messages featuring rhetorical questions (M=4.63, SD=1.94) vs. (Low Need For Cognition/Rhetorical Question M=4.60, SD=.1.87; High Need For Cognition/ Rhetorical Question M=4.49, SD=1.79; and High Need For Cognition/Declarative M= 4.35, SD=1.80) than those in all other conditions.

Hypothesis 7f (Cognition Style/Message Form/Message Frame): Hypothesis 7f predicted a three-way interaction between cognition style, message form, and message framing such that high cognition style individuals exposed to messages

featuring declarative statements and negative message frames would generate higher levels of cognitive involvement. A three-way ANOVA did not confirm statistical significance for an interaction between the independent variables of cognition style, message form, and message frame [F (1,379)=.359, p=.550]. Means comparisons did not support the hypothesis as low cognition receivers exposed to either rhetorical question or declarative statement forms combined with negatively framed messages produced the highest ratings for cognitive involvement concerning the target issue (Low Need For Cognition/Rhetorical Question/Negative Framing M=4.75, SD=2.02 and Low Need For Cognition/Declarative/Negative Framing M=4.75, SD=1.82) vs. High Need for Cognition/Declarative/Positive Framing M=4.55, SD=1.88; Low Need for Cognition/Declarative/Positive Framing M=4.51, SD=2.07; High Need for Cognition/Rhetorical Question/Positive Framing M=4.50, SD=1.76; High Need for Cognition/Rhetorical Question/Negative Framing M=4.49, SD=1.84; Low Need for Cognition/Rhetorical Question/Positive Framing M=4.42, SD=1.67: High Need for Cognition/Declarative/Negative Framing M=4.14, SD=1.72).

Emotional Involvement

Hypothesis 1g (Cognition Style): Hypothesis 1g predicted high need for cognition participants would register higher levels of emotional involvement than low need for cognition participants concerning the target issue ("I feel very strongly about the issue of cell phone use while driving"). The ANOVA did not reveal a main effect for emotional involvement toward the issue between respondents varying in cognition style [F (1, 378)=.193, p=.660]. Means comparisons also did not reveal confirmation for the hypothesis as low need for cognition participants registered higher levels of emotional involvement (Low Need For Cognition M=4.29,

SD=1.80) vs. (High Need For Cognition *M*=-4.01, *SD*=1.77) concerning the issue than their high cognition style counterparts.

Hypothesis 2g (Message Form): Hypothesis 2g predicted messages featuring declarative statements would produce higher ratings for emotional involvement concerning the target issue than those featuring rhetorical questions. The ANOVA revealed a near significant result for emotional involvement across message form conditions [*F* (1, 378)=3.537, *p*=.061]. Means comparisons failed to support the hypothesis that participants exposed to declarative message versions would register higher levels of emotional involvement than those presented with rhetorical message versions (Rhetorical Question *M*=4.27, *SD*=1.72) vs. (Declarative Statements *M*= -4.04, *SD*=1.84).

Hypothesis 3g (Message Frame): Hypothesis 3g predicted messages containing negatively framed messages would produce higher ratings for emotional involvement concerning the target issue than those containing positively framed messages. An ANOVA surveying for a main effect did not detect a statistically significant difference between messages varying in message frame [*F* (1, 378)=.425, *p*=.515]. Hypothesis 3g was marginally supported by means comparisons which illustrated negatively framed messages produced slightly stronger levels of emotional involvement than positively framed messages (Negative Framing *M*=4.24, *SD*=1.80) vs.(Positive Framing *M*=4.06, *SD*=1.77).

Hypothesis 4g (Cognition Style/Message Framing): Hypothesis 4g predicted a two-way interaction involving need for cognition and message framing such that high need for cognition respondents exposed to negatively framed message versions would register higher emotional involvement ratings concerning the target issue than

message processors in other conditions. A two-way ANOVA did confirm a near significant interaction between cognition style and message framing at the .05. level, [F (1, 378)=3.731, p=.054]. Means comparisons did not support the two-way interaction hypothesis (Low Need For Cognition/Negative Framing M=4.58, SD=1.77) vs. (High Need For Cognition/Positive Framing M=4.14, SD=1.76; Low Need for Cognition/Positive Framing M= 3.98, SD=1.79; and High Need For Cognition/Negative Framing M=3.87, SD=1.78) as low cognition style respondents exposed to negatively framed messages produced higher emotional involvement ratings than those in any other message condition.

Hypothesis 5g (Message Form/Message Frame): Hypothesis 5g predicted a two-way interaction involving message frame and message form such that messages featuring declarative statement forms and negative framing (loss) statements would produce higher emotional involvement ratings concerning the target issue. A two-way ANOVA did not confirm a significant difference between attitudes toward the issue across frame and form conditions [F (1, 378)=.010, p=.919]. Hypothesis 5g was also not supported by means comparisons that illustrated messages featuring rhetorical questions and positive message framing (Rhetorical Question/Negative Framing M=4.35, SD=1.81) would produce higher ratings than all other message versions (Rhetorical Question/Positive Framing M=4.20, SD=1.63; Declarative/ Negative Framing M=4.14, SD=1.80; Declarative/Positive Framing M=3.94, SD=1.89).

Hypothesis 6g (Cognition Style/Message Form): Hypothesis 6g predicted a two-way interaction involving cognition levels and message form such that high need for cognition receivers exposed to messages featuring declarative statements were

expected to exhibit higher ratings for emotional involvement regarding the target issue. A two-way ANOVA did not reveal a significant two-way interaction between cognition style and message form [F (1,378)=1.807, p=.180] for emotional involvement. Means comparisons did not support the hypothesis as low NFCs produced higher attribution ratings when exposed to messages featuring rhetorical questions and declarative statements (Low Need For Cognition/Rhetorical Question M=4.33, SD=1.70; Low Need For Cognition/Declarative M=4.25, SD=.1.88) vs. (High Need For Cognition/Rhetorical Question M=.4.22, SD=1.75; and High Need For Cognition/Declarative M=3.82, SD=1.79) than those across all other conditions.

Hypothesis 7g (Cognition Style/Message Form/Message Frame): Hypothesis 7g predicted a three-way interaction between cognition style, message form, and message framing wherein high need for cognition participants exposed to messages featuring declarative statements and negative message frames would demonstrate higher levels of emotional involvement concerning the target issue. A three-way ANOVA did not confirm statistical significance for an interaction [F (1, 378)=.176, p=.675]. Means comparisons did not support the hypothesis as low cognition style processors exposed to either rhetorical question or declarative statement messages forms and negatively framed messages produced the highest ratings for emotional involvement concerning the target issue (Low Need For Cognition/Rhetorical Question/Negative Framing M=4.64, SD=1.75 and Low Need For Cognition/ Declarative/Negative Framing M=4.52, SD=1.79) vs. High Need For Cognition/ Rhetorical Question/Positive Framing M=4.40, SD=1.66; High Need For Cognition/ Rhetorical Question/Negative Framing M=4.02, SD=1.84; Low Need For Cognition/ Rhetorical Question/Positive Framing M=3.98, SD=1.59; Low Need For Cognition/

Declarative/Positive Framing M=3.98, SD=1.95; High Need For Cognition/ Declarative/Positive Framing M=3.90, SD=1.85; and High Need For Cognition/ Declarative/Negative Framing M=3.73, SD=1.74).

Future intent to avoid using a cell phone

Hypothesis 1h (Cognition Style): Hypothesis 1h predicted high need for cognition participants would register higher levels of behavioral intent to avoid using a cell phone than low need for cognition processors ("I plan to avoid using a cell phone the next time I am driving"). The ANOVA did not reveal a main effect for future intent to avoid using a cell phone (INTU) between respondents varying in cognition style [F (1, 378)=.217, p=.642]. Means comparisons also did not reveal confirmation for hypothesis 1h as Low Need for Cognition (M=4.41, SD=2.03) vs. (High Need For Cognition M=-4.19, SD=2.02) individuals registered higher levels of intent to avoid using a cell phone than high cognition style respondents.

Hypothesis 2h (Message Form): Hypothesis 2h predicted messages featuring declarative statements would produce higher ratings for intent to avoid using a cell phone while driving than those containing rhetorical questions. The ANOVA did not reveal a significant main effort for message form [F (1, 378)=2.544, p=.112]. Means comparisons provided directional support for the hypothesis participants exposed to declarative message versions would indicate a greater willingness to avoid using a cell phone while driving (Declarative M=4.42, SD=2.10) vs. (Rhetorical Question M=4.18, SD=1.95) than those exposed to rhetorical question versions.

Hypothesis 3h (Message Frame): Hypothesis 3h predicted messages containing negatively framed messages would produce higher ratings for behavioral intent not to use a cell phone while driving than those containing positively framed

messages. An ANOVA surveying for a main effect did not detect a statistically significant difference between messages varying in message frame type [F (1, 378) =.042, p=.837]. Hypothesis 3h was also not supported by means comparisons that illustrated positively framed messages produced slightly stronger levels of behavioral intent not to use a cell phone than negatively framed messages (Positive Framing M=4.38, SD=2.05) vs.(Negative Framing M=4.23, SD=2.00).

Hypothesis 4h (Cognition Style/Message Framing): Hypothesis 4h predicted a two-way interaction involving need for cognition and message framing such that high need for cognition respondents exposed to negatively framed message versions would register stronger levels of behavioral intent to avoid cell phone use while driving than message processors in other conditions. A two-way ANOVA confirmed a significant interaction between cognition style and message framing at the .05. level, [F (1, 378)=5.873, p=.016]. Means comparisons contradicted the direction of the two-way interaction hypothesis (Low Need For Cognition/Negative Framing M=4.62, SD=1.89) vs. (High Need For Cognition /Positive Framing M=4.56, SD=1.94; Low Need For Cognition/Positive Framing M= 4.19, SD=2.16; and High Need For Cognition/Negative Framing M=3.82, SD=2.05) as low cognition style individuals exposed to negatively framed messages produced higher emotional involvement ratings than the directional prediction that high cognition style receivers exposed to negatively framed messages would produce the optimal results.

Hypothesis 5h (Message Form/Message Frame): Hypothesis 5h predicted a two-way interaction involving message frame and message form such that messages featuring declarative statement forms and negative framing (loss) statements would produce higher behavioral intent not to use a cell phone while driving. A two-way

ANOVA did not confirm a significant difference between message versions across frame and form conditions [F (1, 378)=.086, p=.769]. However, hypothesis 5h was directionally supported by means comparisons that illustrated messages featuring declarative statements and negative message framing (Declarative/Negative Framing M=4.44, SD=2.02) would produce higher ratings than all other message versions (Declarative/Positive Framing M=4.40, SD=2.18; Rhetorical Question/Positive Framing M= 4.35, SD=1.92; Rhetorical Question/Negative Framing M=4.02, SD=1.97).

Hypothesis 6h (Cognition Style/Message Form): Hypothesis 6h predicted a two-way interaction involving cognition style and message form such that high need for cognition receivers exposed to messages featuring declarative statements were expected to exhibit higher ratings for behavioral intent not to use a cell phone while driving. A two-way ANOVA did not reveal a significant two-way interaction between cognition style and message form [F (1,378)=1.678, p=.196] for emotional involvement. Means comparisons also did not support hypothesis 6h as low cognition style audiences produced higher attribution ratings when exposed to messages featuring declarative statements (Low Need For Cognition/Declarative M=4.71, SD=2.09) vs. (High Need For Cognition/Rhetorical Question M=4.28, SD=1.99; High Need For Cognition/Declarative M=4.11, SD=2.07 and Low Need For Cognition/Rhetorical Question M=4.09, SD=1.91) than those across all other conditions.

Hypothesis 7h (Cognition Style/Message Form/Message Frame): Hypothesis 7h predicted a three-way interaction for cognition style, message form, and message framing wherein high need for cognition individuals exposed to

messages featuring declarative statements and negative frames would register greater behavioral intent not to use a cell phone while driving. An ANOVA did not detect a significant three-way interaction [F (1, 378)=.522, p=.471]. Means contrasts did not support the hypothesis as low cognition style individuals exposed to declarative statements and negatively framed messages produced the highest ratings for behavioral intent not to use cell technology while driving (Low Need For Cognition/ Declarative/Negative Framing M=4.92, SD=1.90) vs. (High Need For Cognition/ Rhetorical Question/Positive Framing M=4.81, SD=1.75; Low Need For Cognition/ Declarative/Positive Framing M=4.49, SD=2.27; High Need For Cognition/ Declarative/Positive Framing M=4.31, SD=2.10; Low Need For Cognition/Rhetorical Question/Negative Framing M=4.30, SD=1.84; High Need For Cognition/ Declarative/Negative Framing M=3.92, SD=2.04; Low Need for Cognition/ Rhetorical Question/Positive Framing M=3.84, SD=1.98; and High Need for Cognition/Rhetorical Question/Negative Framing M=3.71, SD=2.08)

Table 1

Means by Message Condition

Dependent Variables

Main Effects and Two-Way Interaction Means

ME (Message Elaboration)

		Message Condition		
DS	RQ	NMF	PMF	Low NFC
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	main effect	main effect	main effect	main effect
.210	.229	.195	.245	.193
(.74)	(.77)	(.76)	(.74)	(.74)
(193)	(188)	(195)	(186)	(192)

		Message Condition		
High NFC	RQ/NMF	RQ/PMF	DS/NMF	DS/PMF
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	2-way	2-way	2-way	2-way
.246	.224	.234	.166	.255
(.76)	(.77)	(.77)	(.75)	(.73)
(189)	(97)	(91)	(98)	(95)

Table 1 (continued)

MCV (Message Cognition Value)

Message Condition				
DS	RQ	NMF	PMF	Low NFC
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	main effect	main effect	main effect	main effect
4.84	4.81	4.70*	4.96*	4.77
(1.16)	(1.30)	(1.22)	(1.22)	(1.21)
(203)	(188)	(199)	(192)	(200)

Message Condition				
High NFC	RQ/NMF	RQ/PMF	DS/NMF	DS/PMF
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	2-way	2-way	2-way	2-way
4.89	4.65	4.98	4.74	4.95
(1.24)	(1.33)	(1.25)	(1.11)	(1.20)
(191)	(97)	(91)	(102)	(101)

Table 1 (continued).

MEF (Message Effectiveness Rating)

	Message Condition			
DS	RQ	NMF	PMF	Low NFC
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	main effect	main effect	main effect	main effect
3.30	3.27	3.26	3.32	3.23
(.79)	(.84)	(.84)	(.79)	(.82)
(200)	(192)	(201)	(191)	(198)
	Message Condition			
High NFC	RQ/NMF	RQ/PMF	DS/NMF	DS/PMF
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	2-way	2-way	2-way	2-way
3.35	3.29	3.25	3.24	3.37
(.81)	(.90)	(.77)	(.79)	(.80)
(194)	(99)	(93)	(102)	(98)

Table 1 (continued).

ATPB (Attitude Toward the Prescribed Behavior)

Message Condition				
DS	RQ	NMF	PMF	Low NFC
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	main effect	main effect	main effect	main effect
3.91	3.74	3.80	3.86	3.75
(1.39)	(1.27)	(1.32)	(1.35)	(1.33)
(203)	(188)	(200)	(191)	(198)

Message Condition				
High NFC	RQ/NMF	RQ/PMF	DS/NMF	DS/PMF
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	2-way	2-way	2-way	2-way
3.91	3.74	3.74	3.86	3.96
(1.34)	(1.30)	(1.24)	(1.35)	(1.44)
(193)	(98)	(90)	(102)	(101)

Table 1 (continued).

FAIss* (Favorable Attitude to the Issue)				
		Message Condition		
DS	RQ	NMF	PMF	Low NFC
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	main effect	main effect	main effect	main effect
-4.41	.065	.010	.006	.085
(.98)	(1.01)	(.96)	(1.03)	(.99)
(200)	(183)	(194)	(189)	(195)
		Message Condition		
High NFC	RQ/NMF	RQ/PMF	DS/NMF	DS/PMF
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	2-way	2-way	2-way	2-way
-7.20	.047	.085	.-2.38	-6.49
(1.00)	(1.03)	(1.00)	(.911)	(1.06)
(188)	(93)	(90)	(101)	(99)

*means for FAIss converted to Z scores to balance unequal choices in the pretest (7) and posttest (9) scales. Pool numbers=N added only for this dependent variable.

Table 1 (continued).

CI (Cognitive Involvement)

Message Condition				
DS	RQ	NMF	PMF	Low NFC
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	main effect	main effect	main effect	main effect
4.49	4.55	4.54	4.50	4.61
(1.87)	(1.82)	(1.86)	(1.84)	(1.90)
(201)	(187)	(197)	(191)	(197)

Message Condition				
High NFC	RQ/NMF	RQ/PMF	DS/NMF	DS/PMF
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	2-way	2-way	2-way	2-way
4.42	4.63	4.46	4.46	4.53
(1.79)	(1.93)	(1.71)	(1.79)	(1.97)
(191)	(96)	(91)	(101)	(100)

Table 1 (continued).

EI (Emotional Involvement)				
		Message Condition		
DS	RQ	NMF	PMF	Low NFC
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	main effect	main effect	main effect	main effect
4.04	4.27	4.24	4.06	4.29
(1.84)	(1.72)	(1.80)	(1.77)	(1.80)
(201)	(186)	(196)	(191)	(196)
		Message Condition		
High NFC	RQ/NMF	RQ/PMF	DS/NMF	DS/PMF
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	2-way	2-way	2-way	2-way
4.01	4.35	4.20	4.14	3.94
(1.77)	(1.81)	(1.63)	(1.80)	(1.89)
(191)	(95)	(91)	(100)	(101)

Table 1 (continued).

INTU (Future Intent Not To Use a Cell Phone)				
		Message Condition		
DS	RQ	NMF	PMF	Low NFC
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	main effect	main effect	main effect	main effect
4.42	4.18	4.23	4.38	4.41
(2.10)	(1.95)	(2.00)	(2.05)	(2.03)
(201)	(186)	(196)	(191)	(196)
		Message Condition		
High NFC	RQN	RQP	DSN	DSP
M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)
main effect	2-way	2-way	2-way	2-way
4.19	4.02	4.35	4.44	4.40
(2.02)	(1.97)	(1.92)	(2.02)	(2.18)
(191)	(95)	(91)	(101)	(100)

Note: Message Conditions include: RQN=Rhetorical Question/Negative Frame; RQP=Rhetorical Question/Positive Frame; DSN=Declarative/Negative Frame; DSP=Declarative/Positive Frame; DS=Declarative; RQ=Rhetorical Question; NMF=Negative Frame; PMF=Positive Frame: Low NFC=Low Need for Cognition; High NFC=High Need for Cognition. The 8 dependent variables included: ME=Message Elaboration; MCV=Message Cognition Value; MEF=Message Effects; ATPB=Attitude Toward the Prescribed Behavior, FAIss=Favorable attitudes toward the issue, CI=cognitive involvement, EI=emotional involvement, and INTU=Future intent not to use a cell phone while driving *=p<.005.
M=mean; SD=Standard Deviations, N=number per cell.

Table 2

Composite Means by Cognition Style

Two-way and Three-way Interaction Means

ME (Message Elaboration)

Two-way and Three-way Interaction Means

Low Need for Cognition and

DS	RQ	NF	PF	RQN	RQP	DSN	DSP
M	M	M	M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
.162	.225	.111	.289	.165	.302	.058	.278
(.72)	(.77)	(.77)	(.70)	(.82)	(.70)	(.72)	(.70)
(99)	(93)	(104)	(88)	(52)	(41)	(52)	(47)

High Need for Cognition and

DS	RQ	NF	PF	RQN	RQP	DSN	DSP
M	M	M	M	M	M	M	M
(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
259	.233	.291	.205	.293	.179	.289	.231
(.75)	(.77)	(.73)	(.78)	(.71)	(.82)	(.76)	(.75)
(94)	(95)	(91)	(98)	(45)	(50)	(46)	(48)

Table 2 (continued).

Two-way and Three-way Interaction Means

MCV (Message Cognition Value)

	DS	RQ	NF	PF	RQN	RQP	DSN	DSP
Low Need for Cognition and	M	M	M	M	M	M	M	M
	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
	4.77	4.76	4.55	5.02	4.54	5.04	4.55	5.00
	(1.17)	(1.26)	(1.16)	(1.23)	(1.28)	(1.19)	(1.03)	(1.27)
	(104)	(96)	(106)	(94)	(53)	(43)	(53)	(51)
High Need for Cognition and	M	M	M	M	M	M	M	M
	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
	4.91	4.86	4.87	4.91	4.80	4.93	4.94	4.89
	(1.15)	(1.34)	(1.27)	(1.22)	(1.39)	(1.31)	(1.16)	(1.14)
	(99)	(92)	(93)	(98)	(44)	(48)	(49)	(50)

Table 2 (continued).

Two-way and Three-way Interaction Means

MEF (Message Effectiveness Ratings)

	DS	RQ	NF	PF	RQN	RQP	DSN	DSP
Low Need for Cognition and	M	M	M	M	M	M	M	M
	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
	3.22	3.24	3.14	3.34	3.20	3.30	3.07	3.38
	(.83)	(.81)	(.84)	(.78)	(.87)	(.73)	(.80)	(.83)
	(101)	(97)	(107)	(91)	(54)	(43)	(53)	(48)
High Need for Cognition and	DS	RQ	NF	PF	RQN	RQP	DSN	DSP
	M	M	M	M	M	M	M	M
	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
	3.39	3.30	3.41	3.29	3.40	3.21	3.41	3.37
	(.75)	(.87)	(.83)	(.79)	(.93)	(.81)	(.74)	(.77)
	(99)	(95)	(94)	(100)	(45)	(50)	(49)	(50)

Table 2 (continued).

Two-Way and Three-way Interaction Means

ATPB (Attitude Toward the Prescribed Behavior)

	DS	RQ	NF	PF	RQN	RQP	DSN	DSP
Low Need for Cognition and	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
	3.81	3.69	3.56	3.98	3.58	3.84	3.54	4.09
	(1.40)	(1.26)	(1.23)	(1.41)	(1.20)	(1.32)	(1.26)	(1.48)
	(104)	(94)	(106)	(92)	(53)	(41)	(53)	(51)
	DS	RQ	NF	PF	RQN	RQP	DSN	DSP
	M	M	M	M	M	M	M	M
	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
High Need for Cognition and	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
	4.02	3.79	4.08*	3.75	3.94	3.66	4.22	3.83
	(1.38)	(1.28)	(1.38)	(1.28)	(1.39)	(1.17)	(1.36)	(1.39)
	(99)	(94)	(94)	(99)	(45)	(49)	(49)	(50)

Table 2 (continued).

Two-way and Three-way Interaction Means

FAIss* (Favorable Attitude To the Issue)

	DS	RQ	NF	PF	RQN	RQP	DSN	DSP
Low Need for Cognition and	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
	.082	.089	.173	-1.64	.143	.020	.203	-4.60
	(.98)	(1.01)	(.94)	(1.04)	(1.01)	(1.01)	(.89)	(1.07)
	(103)	(92)	(105)	(90)	(52)	(40)	(53)	(50)
High Need for Cognition and	DS	RQ	NF	PF	RQN	RQP	DSN	DSP
	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
	-1.78	.041	-1.82	.027	-7.49	.136	-2.74	-8.42
	(.97)	(1.02)	(.96)	(1.03)	(1.05)	(1.00)	(.87)	(1.05)
	(97)	(91)	(89)	(99)	(41)	(50)	(48)	(49)

Table 2 (continued).

Two-way and Three-way Interaction Means							
CI (Cognitive Involvement)							
Low Need for Cognition and							
DS	RQ	NF	PF	RQN	RQP	DSN	DSP
(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
4.63	4.60	4.75	4.47	4.75	4.42	4.75	4.51
(1.94)	(1.87)	(1.91)	(1.89)	(2.02)	(1.67)	(1.82)	(2.07)
(103)	(94)	(103)	(94)	(51)	(43)	(52)	(51)
High Need for Cognition and							
DS	RQ	NF	PF	RQN	RQP	DSN	DSP
(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
4.35	4.49	4.31	4.53	4.49	4.50	4.14	4.55
(1.80)	(1.79)	(1.77)	(1.81)	(1.84)	(1.76)	(1.72)	(1.88)
(98)	(93)	(94)	(97)	(45)	(48)	(49)	(49)

Table 2 (continued).

Two-way and Three-way Interaction Means

EI (Emotional Involvement)

	DS	RQ	NF	PF	RQN	RQP	DSN	DSP
Low Need for Cognition and	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
	4.25	4.33	4.58	3.98	4.64	3.98	4.52	3.98
	(1.88)	(1.70)	(1.77)	(1.79)	(1.75)	(1.59)	(1.79)	(1.95)
	(103)	(93)	(102)	(94)	(50)	(43)	(52)	(51)
High Need for Cognition and	DS	RQ	NF	PF	RQN	RQP	DSN	DSP
	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
	3.82	4.22	3.87	4.14	4.02	4.40	3.73	3.90
	(1.79)	(1.75)	(1.78)	(1.76)	(1.84)	(1.66)	(1.74)	(1.85)
	(98)	(93)	(94)	(97)	(45)	(48)	(49)	(49)

Table 2 (continued).

Two-way and Three-way Interaction Means

INTU (Future Intent Not To Use a Cell Phone)

	DS	RQ	NF	PF	RQN	RQP	DSN	DSP
Low Need for Cognition and	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
	4.71	4.09	4.62*	4.19	4.30	3.84	4.92	4.49
	(2.09)	(1.91)	(1.89)	(2.16)	(1.84)	(1.98)	(1.90)	(2.27)
	(103)	(93)	(102)	(94)	(50)	(43)	(52)	(51)
High Need for Cognition and	DS	RQ	NF	PF	RQN	RQP	DSN	DSP
	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	2-way	2-way	2-way	2-way	3-way	3-way	3-way	3-way
	4.11	4.28	3.82	4.56	3.71	4.81	3.92	4.31
	(2.07)	(1.99)	(2.05)	(1.94)	(2.08)	(1.75)	(2.04)	(2.10)
	(98)	(93)	(94)	(97)	(45)	(48)	(49)	(49)

Note: Need for Cognition styles: HNFC=High Need for Cognition; LNFC=Low Need for Cognition. Message Conditions include: RQN=Rhetorical Question/Negative Frame; RQP=Rhetorical Question/ Positive Frame; DSN=Declarative/Negative Frame; DSP=Declarative/Positive Frame; DS=Declarative; RQ=Rhetorical Question; NMF=Negative Frame; and PMF=Positive Frame. The 8 dependent variables included: ME=Message Elaboration; MCV=Message Cognition Value; MEF=Message Effects; ATPB=Attitude Toward the Prescribed Behavior, FAIss=Favorable attitudes toward the issue, CI=cognitive involvement, EI=emotional involvement, and INTU=Future intent not to use a cell phone while driving *=p<.005.M=mean; SD=Standard Deviations, N=number per cell.

Table 3

Analysis of Variance for Message Elaboration

Source	df		F	p
NFC	1		.371	.543
MForm	1		.070	.792
MFrame	1		.359	.550
NFC x MFrame	1		2.89	.090
MForm x MFrame	1		.203	.652
NFC x MForm	1		.329	.567
NFC, MForm, x MFrame	1		.007	.932
S within-group				
Error	373	MS	.573	

Note: Independent variables are NFC=need for cognition; MForm=message form; and MFrame=message frame.

Table 4

Analysis of Variance for Cognition Message Value

Source	df		F	p
NFC	1		.731	.393.
MForm	1		.029	.865
MFrame	1		4.252*	.040
NFC x Mframe	1		3.002	.084
Form x MFrame	1		.215	.643
NFC x MForm	1		.064	.801
NFC, MForm, x MFrame	1		.053	.818
S within-group				
Error	383	MS	(1.508)	

Note: Independent variables are NFC=need for cognition; MForm=message form; and MFrame=message frame.

Table 5

Analysis of Variance for Message Effectiveness

Source	df		F	p
NFC	1		1.821	.178
MForm	1		.131	.717
MFrame	1		.299	.585
NFC x MFrame	1		3.671	.056
MForm x MFrame	1		1.108	.293
NFC x MForm	1		.421	.517
NFC, MForm, x MFrame	1		.018	.894
S within-group				
Error	384	MS	(.669)	

Note: Independent variables are NFC=need for cognition; MForm=message form; and MFrame=message frame.

Table 6

Analysis of Variance for Attitudes Toward Prescribed Behavior

Source	df		F	p
NFC	1		1.220	.270
MForm	1		1.484	.224
MFrame	1		.088	.767
NFC x MFrame	1		7.525**	.006
MForm x MFrame	1		.120	.730
NFC x MForm	1		.208	.648
NFC, MForm, x MFrame	1		.560	.455
S within-group				
Error	373	MS	(1.769)	

Note: Independent variables are NFC=need for cognition; MForm=message form; and MFrame=message frame. *=p<.05; **=p<.01.

Table 7

Analysis of Variance for Favorable Attitudes Toward The Issue

Source	df		F	p
NFC	1		1.122	.290
MForm	1		1.484	.322
MFrame	1		.088	.642
NFC x MFrame	1		.1.558	.213
MForm x MFrame	1		.090	.764
NFC x MForm	1		.112	.738
NFC, MForm, x MFrame	1		.279	.597
S between subjects				
Error	374	MS	(.540)	

Note: Independent variables are NFC=need for cognition; MForm=message form; and MFrame=message frame. *=p<.05; **=p<.01.

Table 8

Analysis of Variance for Cognitive Involvement

Source	df		F	p
NFC	1		.308	.580
MForm	1		.021	.886
MFrame	1		.210	.647
NFC x MFrame	1		.321	.571
MForm x MFrame	1		.2.992	.084
NFC x MForm	1		1.332	.249
NFC, MForm, x MFrame	1		.359	.550
S between subjects				
Error	379	MS	(2.371)	

Note: Independent variables are NFC=need for cognition; MForm=message form; and MFrame=message frame. *=p<.05; **=p<.01.

Table 9

Analysis of Variance for Emotional Involvement

Source	df		F	p
NFC	1		.193	.660
MForm	1		3.537	.061
MFrame	1		.425	.515
NFC x MFrame	1		3.731	.054
MForm x MFrame	1		.010	.919
NFC x MForm	1		1.807	.180
NFC, MForm, x MFrame	1		.176	.675
S between subjects				
Error	378	MS	(2.327)	

Note: Independent variables are NFC=need for cognition; MForm=message form; and MFrame=message frame. *=p<.05; **=p<.01.

Table 10

Analysis of Variance for Future Intention Not To Use a Cell Phone

Source	df		F	p
NFC	1		.217	.642
MForm	1		2.544	.112
MFrame	1		.042	.837
NFC x MFrame	1		5.873*	.016
MForm x MFrame	1		.086	.769
NFC x MForm	1		1.678	.196
NFC, MForm, x MFrame	1		.522	.471
S between subjects				
Error	378	MS	(2.870)	

Note: Independent variables are NFC=need for cognition; MForm=message form; and MFrame=message frame. *=p<.05; **=p<.01.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

This dissertation examined the integrated effect of messages featuring variations in framing, form, and individual need for cognition style upon attitudes concerning a proposal to ban cell phones while driving and the prescribed behavior to avoid using a cell phone while driving. The study was also designed to broaden understanding of the link between message construction and the attitude-behavior continuum while expanding upon earlier work employing the Elaboration Likelihood Model as a context for evaluating the role of cognition in attitude development. Finally, the study was also intended to provide data that public policy makers could utilize to more capably construct and develop effective public service campaigns concerning a major safety issue, the use and abuse of cell phones while driving an automobile.

Discussion of Results

Analyzing the Results

The purpose of this dissertation was to broaden understanding of the link between message construction and the attitude-behavior continuum. More practically, the study was intended to evaluate which types of persuasive advocacy would work most effectively to encourage support for enactment of a ban against the use of cell phones while driving and discourage individuals from using a cellular device while operating a motor vehicle. This study was interrelated to an examination of message processing pathways within the context of the Elaboration Likelihood Model of persuasion, hereafter referred to as the ELM.

The results revealed a two-way interaction such that high need for cognition

individuals registered a stronger commitment to avoiding the use of a cell phone (Attitudes toward the prescribed behavior-"I should not use a cell phone while driving") when exposed to messages featuring negatively framed (loss statements) in contrast to low NFC respondents and High NFC individuals exposed to positively framed messages.

Conversely, despite the rejection of the original hypothesis, that negative framing would produce higher cognitive response ratings, there was a significant main effect found for message framing upon cognition value such that positively framed messages produced more positive ratings for cognition value, the degree that individuals found the advocacy to be intellectually stimulating and worthwhile as a vehicle for persuasion. Similarly, a significant two-way interaction was also found for message framing and cognition style upon future intent not to use a cell phone (INTU). However, the predicted direction for negative framing effect was contradicted as results confirmed High NFC individuals exposed to positively framed messages produced optimal ratings for INTU.

There were also near significant effect results for the following: A main effect for message form (p=.061) for emotional involvement; a two-way interaction between cognition level and message framing upon ratings for message effectiveness (p=.056); a two-way interaction between message form and message frame for cognitive involvement (p=.084); and a two-way interaction involving cognition style and message framing (High NFC, negative framing) upon emotional involvement (p=.054)

These results also revealed no significant main effects for cognition style upon relative levels of elaboration, cognition value, message effectiveness, attitude

toward the prescribed behavior, attitudes toward the issue, cognitive involvement, emotional involvement, and future intent not to use a cell phone. There were also no significant main effects found for message form across the eight dependent variable dimensions. Main effects were also not confirmed for message framing upon levels of elaboration, message effectiveness, and attitude toward the prescribed behavior. There was also no significant confirmation for two way interactions involving cognition style and message form, message form with message framing, or the three-way interaction conditions involving cognition style, message form, and message frame.

Cognition style. It was hypothesized High Need for Cognition individuals would register stronger levels of elaboration, quantity of thoughts and message recall, and assess target messages more favorably within the dependent measures of cognition value, message effectiveness and attitudes toward the behavior. Means comparisons were directionally favorable for half of the dependent variables with High NFCs demonstrating higher mean ratings across four attitude dimensions than Low NFC respondents. Specifically, means comparisons supported the main effect hypotheses for cognition style for elaboration (High NFC M=.246, SD=.76, n=189) vs. (Low NFC M=.193, SD=.74, N=192); cognition message value (High NFC (M=4.89, SD=1.24, n =191) vs. (Low NFC M=4.77, SD=1.21, n=200) message effectiveness (High NFC M=3.35, SD=.81, n=194) vs. (Low NFC M=3.23, SD=.82, n=198), and attitude toward the behavior (High NFC M=3.91, SD=1.34, n=193) vs. (Low NFC M=3.75, SD=1.33, n=198) . However, the planned comparisons did not reveal any significant differences for cognition style as a main effect across the eight dependent variables.

There are two primary explanations for the lack of confirmation for a significant main effect for cognition style, the lack of specific manipulations pertaining to argument strength and a ceiling level related to issue involvement. Past study results confirmed High Need for Cognition respondents focused upon issue relevant content, such as strong arguments, when evaluating a variety of persuasive message forms. One of the key central route cues for High NFCs involves the presence of an argument strength condition within target messages. In this instance, for the sake of clarity and cohesion, argument strength was not incorporated into the study design as an independent variable. The absence of a distinct argument strength manipulation may have diluted the impact of cognition upon levels of elaboration, cognitive message value, and attitude toward the message. While there were certainly coherent arguments presented in all four message versions no distinct strong/weak argument manipulations were incorporated into the various message samples. Past studies have consistently employed the argument strength manipulation and found confirmation through this variable for High NFC, central route audiences. Conversely, Low NFCs typically exhibit far less focus on argument strength and more attention to peripheral cue triggers including the use of colors, argument quantity, certain eye catching illustrations and font styles. Without specifically accounting for the potency of the arguments presented it is hard to discern to what degree this may have minimized the impact of cognition upon message interpretation and assessment.

In addition, High NFCs typically follow a central processing route wherein they focus upon issue relevant cues and exhibit higher levels of elaboration regardless of their level of involvement with a particular issue or product highlighted

in various message form types. By definition, an involving message is classified as one that is salient to the goals, values, and outcomes desired by a given group (Haugtvedt & Petty, 1992). In this instance, it was evident that the issue of cell phone use was a highly involving issue for most respondents based upon their reported level of access to (97% of respondents own/use one) and their consistent daily use of cell technology to generate calls (75%) and send text messages (87%) while operating an automobile. It seems clear that individuals view cellular devices as an essential tool of daily life and one that is extremely emotionally and psychologically involving. This may have contributed to the lack of significant response patterns concerning the proposal to ban cell phones while driving regardless of their cognition style. As a result, the target issue, to ban cell phone use, appears to have manifested such a high level of interest and involvement overload that a ceiling level concerning the issue produced a confounding influence upon the results for cognition style and the anticipated ratings for elaboration and message effectiveness.

Thus, the lack of significant outcomes for need for cognition level can be attributed in large part to a definitive threshold which emerged wherein respondents, regardless of cognition style, followed a central processing route while evaluating the four message versions. This phenomenon confounded the predicted results for that independent variable. Revising the messages to focus solely upon encouraging receptors to simply change their individual behavior, rather than supporting a generic, legal ban upon their use, might have mitigated this confounding effect. However, based upon the elaboration recall responses registered by a large percentage of participants there still remains a strong likelihood that a ceiling effect

for involvement would still be triggered.

Message form. It was hypothesized a main effect for message form would be evident for messages featuring declarative statements among the eight dependent measures. None of the planned comparisons confirmed a statistically significant difference between persuasive message versions alternately featuring either rhetorical question or declarative statement forms.

Means comparisons for four of the eight dependent measures (elaboration, cognitive message value, message evaluation, and attitudes toward the prescribed behavior) revealed directional support for predictions High NFC respondents would generate stronger favorable responses to messages featuring declarative statements. Means comparisons for the latter four dependent variables (attitude toward the issue, cognitive involvement, emotional involvement, and future intent to avoid using a cell phone) were not supportive of the message form hypotheses. In addition, none of the planned comparisons confirmed a statistically significant difference between persuasive message versions containing either rhetorical question or declarative statement forms.

The results from a number of past message form studies indicate rhetorical questions promote learning, aid message recall, and increase curiosity because they encourage receivers to focus more closely upon the ideas following rhetorical headings. Within the context of the ELM, past studies involving message forms confirm rhetorical questions are employed by Low NFCs, in low involvement conditions, as a peripheral cue because the extensive presence of question marks stands out and thus produces increases in levels of elaboration and counter-arguing.

Conversely, the supporting hypotheses for this study relating to message

forms were founded upon a collection of results suggesting declarative message forms consistently were viewed by High NFC individuals as enhancing recall, increasing the potency of strong arguments, and as less pushy, obtrusive, and distracting than rhetorical question forms regardless of the level of issue (high vs. low) involvement.

Again, the involvement levels pertaining to the target issue appear to have reached such a high level that a definitive ceiling on involvement was reached. This ceiling effect, in turn, appears to have substantially diminished Low NFC respondent's ability to evaluate the various message forms through a traditional, peripheral processing route. Participant's immersion in the cell phone topic was so involving, prior to exposure to the target messages, that they predominantly followed a central processing route and this produced high levels of counter-arguing as they reviewed the target message forms. Individuals expressed a high volume of antipathy toward the proposal to ban in the thought listing section, used to measure the dependent variable of elaboration, which confirms the target message influenced individuals to follow a central processing pattern, regardless of their individual cognition style. A vast majority of participants possessed extremely high levels of knowledge, prior to the study, concerning the use of cell phones and a definitive interest in their use as a lifeline and as a key element of their social identity which produced a dearth of significant outcomes for elaboration across all eight dependent variables.

Each of the four respective advocacy versions contained no fewer than seven exemplars of message form, two of these were emphasized in bolded type as part of the opening and concluding segments of the message. Many of the past message

form studies found effects were more pronounced in combined interaction with other variables and much less so in isolation. So, in that sense, these results are in line with past outcomes since most ELM studies analyze the role of message form in tandem with other core elements of the processing route track alternately featuring central or peripheral routes of persuasion.

Another factor which may have confounded the main effect outcomes relating to message form were the quantity and structure of their use within this study. Previous research studies employed up to a dozen sample exemplars at various locations throughout the respective message versions while only seven were employed in this study. This reduction in quantity was initiated to improve the clarity and flow of the message content presented.

Similarly, a number of earlier studies highlighted the message forms by placing them as distinctive opening and closing headers, while the versions utilized here were placed at the top and the bottom of each message they were not singularly featured as the unique beginning and ending elements of the messages. The reason for this adjustment was to disperse the exemplars throughout the messages and to minimize their obtrusiveness since the rhetorical question samples included highlighting the three justifying statements. It was also anticipated further boosting their presence in the messages would markedly distract from the overall clarity of the message.

Message framing. It was hypothesized a main effect for message frame would be evident for persuasive messages featuring negatively (loss) framed elements upon the eight dependent measures of elaboration, cognitive message value, message evaluation, attitudes toward the prescribed behavior, attitudes toward the

target issue, cognitive involvement, emotional involvement, and future intention to avoid using a cell phone. No main effects for message framing were confirmed by planned comparisons for seven of the eight dependent variables.

A significant main effect for positive message framing was found for cognitive message value (CMV). The directional hypothesis 3b (cognitive response value) was contradicted as the means comparisons suggested positive message framing produced enhanced ratings for the dependent variable, the degree to which the featured message triggered enhanced levels of intellectual engagement.

The importance of this finding is that individuals exposed to positively framed messages should, based on past results, more consistently identify them as stimulating higher levels of intellectual engagement and cognitive activity. Past research results pertaining to the ELM confirm that positively framed messages operate as a peripheral route cue. This peripheral cue heuristic is favored by Low NFC individuals because gain frames are perceived as less strident in tone and easier to process than loss frames. Similarly, gain frames are consistently perceived as less cognitively complex and as less threatening than negatively framed messages. The majority of message framing studies have also concluded positively framed messages are more successful in public education campaigns involving lifestyle behavior changes, including those encouraging parents to use car restraints to protect younger children.

Conversely, negatively framed messages work best to promote preemptive behaviors related to personal health including those which encourage women to engage in breast self exams or influence adults over forty to undergo annual cholesterol checks. Given these distinctions it seems clear that the stimulus messages

discouraging cell phone usage were more closely aligned with public education campaigns embracing lifestyle behavior changes and thus the counter-hypothetical main effect for message framing is in general accordance with the preponderance of past research outcomes.

However, a plurality of message framing studies involving the ELM suggest negatively framed messages are more persuasive than positively framed messages and this was the foundation upon which the main effect hypotheses for framing in this study were based (Maheswaran & Meyers-Levy, 1990; Donovan & Jalleh, 2000). There are two possible reasons for the directional rejection of the hypotheses including the nature of issue involvement and the type of framing exemplars deployed within the four message versions conceptualized for this study. Persuading individuals to minimize or abandon the use of a highly involving and ego involving product, like cell phones, undoubtedly represents a challenging task and this clearly contributed to the mixed results for the main effect related to message framing.

Second, the message frame exemplars employed in the message versions included the use of two major frame forms: (1) Gain-Attain-Desirable (With a ban.../ Drivers not using a cell phone...) and (2) Loss-Attain-Undesirable (Without a ban.../ Drivers using a cell phone..). It is possible that integrating exemplars featuring the other two frame types, Gain-Not Attain-Undesirable and Loss Attain-Not Attain-Desirable, might have produced different results and directional support for the hypotheses. However, the vast majority of previous message framing studies employed the most frequently employed message framing types (1 and 2 above) and those produced a main effect for message framing. Thus, it is more likely participants reached a saturation level regarding the issue of cell phone use that in

turn, triggered the main effect outcomes involving positively framed messages.

Need for cognition and message framing. It was hypothesized a two-way interaction would be evident for persuasive messages varying across cognition style and message framing such that High NFC individuals processing message versions featuring negatively (loss) framed statements would register higher favorability ratings across the eight dependent measures than Low NFC respondents. Past research concerning message framing and the ELM suggested High NFCs would rate messages featuring negative framing more favorably than those containing positively framed messages. Conversely, based upon past study results, Low NFCs typically register higher levels of favorability in response to messages featuring positively framed messages.

In several respects, the results for the eight sub-hypotheses for this two-way interaction reflected past results. There was no confirmation for a significant two-way interaction upon the dependent measures of elaboration and cognitive response value. There were near significant results (4c: p=.056; 4g: p=.054) suggesting a two way interaction between cognition style and message framing upon message effectiveness (Hypothesis 4c) and emotional involvement (Hypothesis 4g). The means comparisons for 4c showed directional support for High NFCs rating negatively framed messages more favorably (M=3.41 vs. M=3.29) in contrast to those present in any other persuasive condition. Conversely, the means comparisons for 4g contradicted the hypothesized direction of the interaction effect for cognition style with negatively framed messages promoting higher levels of emotional involvement among Low NFC respondents. This suggests that these individuals may have viewed the negatively framed messages as more emotionally compelling than

the, comparatively, softer toned gain frame message content. Thus, in this instance, negatively framed messages appeared to function as a peripheral cue for Low NFCs because these messages are typically characterized as more direct and easier to process in the restricted period of time provided in this experiment to evaluate the messages.

There was a significant two-way interaction between cognition style and message framing upon the dependent variable of attitude toward the prescribed behavior (p=<.05). The importance of this result cannot be understated because it underscores the utility of deploying negatively framed messages for specific target audiences. In essence, past research confirmed High NFC audiences are more willing to process messages that emphasize the negative outcomes associated with not following or following a particular course of action. Thus, in the case of advocacy discouraging individuals from habitually using a cell phone while driving, High NFC audiences registered a stronger commitment, than Low NFC's, to abstain from this dangerous practice.

There was a second significant two-way interaction for cognition style and message frame upon the dependent variable of future intent not to use a cell phone (p<.05). Again the hypothesized direction of the framing effect was contradicted as High NFC individuals were found to register higher levels of behavioral intent when exposed to positively framed messages. This result is also important because it suggests it is easier to encourage respondents to revise highly involving, personally relevant behaviors when persuasive advocacy forms feature gain framed messages. Individuals who favor a greater willingness to engage in effortful cognition seem to view negatively framed messages as overly officious and often demanding in tone.

Conversely, the use of positively framed messages, in this instance, appears to suggest these messages served as a central route cue, which effectively promoted support for the proposal and signaled a willingness to by participants to alter current behavioral patterns for the greater good.

In contrast to results from several earlier studies, these findings strongly suggest that a significant gap exists between expressed attitude and behavioral intent relating to various public safety issues among those participating in this study (Ajzen & Fishbein, 1980). Results from a large number of surveys document a major disconnect between individuals expressed attitudes favoring a particular behavioral course and their reported behavioral intentions and subsequent acknowledged behavioral patterns. One example of this disconnect involves the issue of smoking bans at the state level which are consistently favored (expressed attitude) by a majority of individuals and yet many of those who support such restrictions often acknowledge that they, themselves, still smoke cigarettes or express a behavioral intent to continue using tobacco products (attitudes toward prescribed behavior). In this study, a pronounced unwillingness to avoid the use of cell phones while driving would clearly suggest some fine tuning of the message forms employed is required in order to strengthen the connection between expressed attitude and behavioral intent. Recall that a majority of survey (71%) respondents overwhelmingly described feeling somewhat less safe when they individually utilized a cell phone while driving and this may indicate why negatively framed message forms produced more favorable attitudes among high cognition individuals. High NFC individuals are more likely to seek congruity between expressed attitudes, behavioral intent, and self -reported behavioral patterns because they value elaboration and intensive evaluation

of target issues.

Message form and message frame. It was predicted a two-way interaction would be present for persuasive messages varying in message form and message frame such that message versions featuring declarative statements and negatively framed statements would produce higher favorability ratings across the eight dependent measures. There were no significant interactions for this two-way interaction across each of the dependent variables. Only one of the means comparisons confirmed directional support for a significant interaction for any of the dependent measures including elaboration, cognitive response value, message effectiveness, attitudes toward the prescribed behavior, attitude toward the issue, cognitive involvement, emotional involvement, and future intent not to use a cell phone.

There was directional support for one hypothesis, 5g (M=4.44), as messages featuring declarative and negatively framed statements produced the highest levels of expressed future intention not to use a cell phone while driving. These results were disappointing and again suggest that the highly involving nature of cell phone ownership played a major role in the lack of support for any of the four sub-hypotheses. Past ELM studies involving message forms (declarative statements vs. rhetorical questions) indicate that the more prior knowledge a message receiver possesses about an issue, prior to processing attitudinally charged messages, the more likely they are to reject negatively framed messages containing rhetorical questions. In this instance, the primary hypothesis suggested negative framing when integrated with declarative statements would produce stronger levels of message agreement.

However, the primary hypothesis for this study was based upon the presumed

initial, combinative influence of framing and form for audiences faced with salient life and death decisions. Few, if any, past studies had combined these message variables and it was anticipated these two components would produce stronger levels of consensus concerning the target issue. The key lesson emerging from these outcomes is that one of the deficiencies of the ELM is that it does not account for the role the linkage of old information and conflicting attitudes plays in the persuasive process. Some respondents exhibited high levels of egocentrism in their responses during the thought listing process (e.g., "Using a cell phone makes me feel in control and safer while driving"). In this instance, these results suggest that this is a major deficiency in ELM research and partially explains the lack of significant results for several of the two-way interaction sequences conceptualized in the study.

Need for cognition and message form. It was hypothesized a two-way interaction would be evident for persuasive messages varying across cognition style and message form such that High NFC individuals processing messages featuring declarative statements would register higher favorability ratings across all dependent measures. None of the planned comparisons for the eight dependent measures produced confirmation of a significant two-way interaction involving cognition style and message form.

There was directional support across means comparisons for four of the eight supporting hypotheses including: 6a (M=.259) as High NFCs exposed to declarative statements produced the strongest ratings for elaboration across all conditions, 6b (M=4.91) as High NFCs produced higher ratings for cognitive response value; 6c (M=3.39) as High NFCs reported the strongest ratings for message effectiveness across all conditions; and 6d (M=4.02) as High NFCs exhibited the most positive

evaluations related to attitudes toward the prescribed behavior. Means comparisons did not provide directional support for hypotheses 6e (Attitude Toward the Issue), 6f (Cognitive Involvement), 6g (Emotional Involvement), and 6h (Future Intention to Avoid Using a Cell Phone).

These results again suggest the parameters of the messages were viable and impactful because the means comparisons for half of the dependent variables were directionally favorable toward support of the hypotheses for two-way interactions. However, the lack of confirmation for statistical significance is disappointing. Past research studies patterning involvement suggest if a target message is centered upon an issue that is too highly involving then audiences may respond to those messages with defensive or ego protective responses, such as counter-arguing. In this instance, it seems certain that the stimulus issue of cell phones and driving was highly involving and individuals viewed their ownership and use of phones as a matter of personal autonomy and control. In the thought listing component of the study, individuals who viewed the various messages sometimes revealed strong, hostile attitudes concerning the imposition of any limitations upon their use. It seems evident that the impact of issue involvement served as a confounding factor for two of the three two-way interaction sequences.

Need for cognition, message form, and message frame. It was hypothesized a three-way interaction would be evident for persuasive messages varying across cognition style, message form, and message framing type such that High NFC individuals processing messages featuring declarative and negatively framed (loss) statements would register higher favorability ratings across the eight dependent conditions. Initially, none of the planned comparisons predicting a three-way

interaction were found to be statistically significant.

Similarly, only two of the eight means comparisons suggested confirmation of the various sub-hypotheses, specifically 7c three-way ratings (M=3.41) for message effectiveness and 7d three way ratings (M=4.22) for attitude toward the prescribed behavior reflected directional confirmation for the hypotheses. All of the other sub-hypotheses were not directionally supported. Initially, none of the planned comparisons predicting a three -way interaction were found to be statistically significant.

These results suggest that issue involvement saturation may again have played a confounding role in producing a lack of significant results for the three-way interaction hypotheses. However, beyond the issue of involvement, it may also be helpful to examine the impact of message modality as an additional confounding element. Previous ELM studies have consistently confirmed print messages, set in magazine or newspaper settings, are more ecologically valid then other platforms of message presentation, such as audio or video modalities. The methodological framework for this study was founded upon the rationale, gleaned from dozens of previous persuasive message studies, that written messages produce greater recall, elaboration, and attitude change than radio and television. Another key benefit of the written modality involves a receivers' ability to review a message several times for clarity, focus, and understanding (Petty & Cacioppo, 1983, 1984). In this study, however, message recipients were given one timed minute, a common standard, to review the public service announcements. However, it is possible the messages were simply too complex for some message receivers to comprehend fully and that either additional time or the use of a different modality, such as an online version of

the message, might have produced more salient results across all conditions including the two-way and three-way interaction scenarios. One key confounding factor that is prevalent across many respondent pools is message comprehension and thus employing other modalities, such as video or audio message versions, that are less lexically complex and easier to process might be advisable for those seeking to replicate elements of this study in the future.

Contributions to the Literature

The findings for this study suggest for a vast majority of individuals, in this study, 7 of the 8 dependent variables, negatively framed messages work best to promote greater levels of compliance with the admonition to abandon the use of cell phones while driving. Similarly, there was support found for a general effect for positive message framing and this expands upon past ELM findings wherein the impact of gain frame messages in shaping attitudes was limited only to studies featuring comparatively low involvement issues (e.g., pizzas and pens) and Low NFC audiences.

This was one of the first studies to examine the unique interactive properties of cognition style, message framing, and message form upon attitude construction. Few statistically significant interactions were found in the course of this study, however the results do provide a template upon which messages varying in frame and form can be adjusted and fine tuned to produce more impactful results. More importantly, these suggested adjustments in message design clearly must occur with the knowledge, gleaned from this study, that messages proposing to ban cell phone use while driving center upon an extremely high involving issue. Furthermore, the results also suggest varied framing effects (negative vs. positive) can produce

socially desirable outcomes in promoting behavioral intent concerning cell phone use ("Hang up and drive") across differing audiences.

Past studies of the ELM suggest low NFC individuals respond more favorably to easier to process peripheral cues such as positively framed messages, while high NFC respondents demonstrate greater adherence to advocacy forms featuring negatively framed messages. The means comparisons for the two way interaction for cognition style and framing upon attitude toward the behavior suggested Low NFC participants responded most favorably to positively framed messages (M=3.98).

Despite the lack of significant findings for message form and cognition style, the identification of an interaction for cognition and message framing does suggest ELM studies do not necessarily need to incorporate unique manipulations of argument strength or involvement as independent variables to effectively identify the linkage between attitude construction and behavioral intent.

These findings concerning attitude construction provide support for utilizing a methodological shortcut wherein ELM and communication researchers pre-test for topic/product involvement levels while bypassing the need to initiate fully developed manipulations for involvement and argument strength or argument quantity. The benefit of this approach would be to eliminate the use of a potentially extraneous independent variable, argument strength, which has often been criticized as creating an artificial dichotomy in demarcating the distinction between strong and weak arguments. In many instances, weak argument exemplars are often founded upon extremely, and some would suggest inanely, minor and weak premises (e.g., "you should buy a new car so you can enjoy riding upon more dependable tires"). While strong argument exemplars embody the use of major and logical premises and thus

the contrast is evident across manipulations while lacking strong ecological validity. The lack of high ecological validity is a concern because public policy advocates rarely incorporate or promote their side of the issue with weak arguments or arguments centered upon minor or tangential premises. Consequently, if an advocate wishes to sell a consumer item or address an important public policy issue with a target audience they will typically incorporate and highlight only the most salient and impactful reasons for purchasing their particular service or product. In this instance, the four message versions employed core arguments, but did not incorporate an argument strength manipulation. All of the contentions were uniformly based upon three major premises including those underscoring saving lives, saving billions in medical costs, and making roads safer for all drivers, while varying in tone and form. Thus, the message versions employed to discourage cell phone use while driving were generally ecologically valid as they emphasized uniformly strong, logical claims while excluding claims based upon minor or tangential premises.

Finally, the data from this study pertaining to involvement and cell phone use clearly illustrate the enormity of the task facing public policy experts as they seek to encourage safer driving behaviors on our nation's roadways. Individuals clearly are habituated to cell phone use as a key component of daily life and as a central element of their self concept. This egocentric view of cell phone ownership and use is especially prevalent for the comparatively high percentage, nearly 80%, of young respondents (aged 18-30) employed in this study. Clearly, many users view their cell phone as a "life line" and a "quality of life" line because so many utilize it on a daily basis to communicate with friends, family, and classmates about anything and everything (Richards & Corcoran, 2002; Santo, 2008).

Limitations

There are four limiting factors pertaining to this study which are worthy of discussion including concerns related to: (1) Potency of message form exemplars; (2) Issue involvement saturation as a confounding element; (3) A need to consider the role of gender in persuasion; and (4) Message modality.

Past studies employing the use of rhetorical questions have typically utilized message exemplars containing a blend of interrogatives, tag questions, or personal pronouns (e.g., "you," "us," or "we") and this blueprint was followed in developing the public service announcements generated for this study as well. Manipulation checks confirmed the differing messages reliability across all four versions ($p=<.001$) and the advertisements appeared as distinctive and comprehensible to those who viewed and evaluated them both in the pilot test and actual survey segments of the study. However, it is possible that the layout and font style and sizing could be varied in order to further enhance the visibility and contrast between declarative statement/rhetorical question exemplars throughout each message version. For instance, enhancing the lettering through the use of bold face and enlarging the font for the opening statement ("Did you know drivers using a cell phone (caused/saved) 2600 deaths and 570,000 injuries last year?"), while moving the closing statement ("Why would you want to face a more dangerous future?/Without your support we face a more dangerous future.") to the very bottom of the message and enlarging the font size and selecting a contrasting script style to emphasize the form type employed for each of the message editions. Initiating some slight wording adjustments might have produced a greater level of parallelism, which in turn might have increased message comprehensibility and thus produced higher levels of recall and message

agreement. The message samples used in this study were patterned after those employed by several state and local public safety organizations to encourage seat belt use by all adults and parents to use child safety seats for infants while traveling by automobile.

The degree to which issue involvement played a role in these results must also be carefully evaluated. As noted previously, cell phone ownership and use engender an overwhelmingly high level of issue involvement relating to their personal use. Accordingly, promoting a general proposal to ban their use appeared to trigger a highly emotional and ego-defensive response among many respondents. In addition, the public service announcements did not directly address the use of cellular technology to text message and yet 35% of survey respondents indicated they engaged in texting "all the time while driving," and over 70% reported texting a "significant percentage of the time while driving." It seems clear that the messages employed in this study did not specifically target text messaging as a core behavior to reform and thus this may have served as an additional confounding factor in promoting higher levels of message disagreement. Some respondents may not have been able to differentiate between using the cell phone to initiate calls, the object of the ban, and their use of other devices, such as a "Blackberry" or "I-phone," to generate text messages while driving. Attempts to replicate these message forms should strongly consider targeting driving while text messaging as the predominant prescribed behavior to discourage while examining which message variables most strongly influence attitudes and behavioral intention.

Those interested in replicating this study may also wish to consider incorporating the role of gender in any future examination of the ELM and

persuasive message construction. The survey sample for this study was skewed for gender with nearly 70% of the pool consisting of female participants. Additionally, studies should consider the use of statistical weighting for gender imbalances and reevaluating the role of gender as a factor in evaluating the potency of central and peripheral route processing upon attitudes concerning cell phone use while driving. However, past ELM research has not found a significant influence pertaining to gender, except in those instances where researchers attempted to employ gender typified topics as part of their research focus and design (Cacioppo & Petty, 1980). Regardless, assessing the role of gender as a covariate would certainly be an advisable approach to adopt in extending or replicating the procedures and design parameters employed in this study.

The fourth and final limiting factor for this study involves concerns related to modality and the need for possible adjustments. Written messages have consistently been utilized as the predominant modality in a wide array of ELM and persuasive message studies with a high level of utility. For studies focusing upon a highly involving technology, like cell phones, it may be advisable to reframe written messages into a more user friendly format such as within the context of a web page or online platforms employing high quality computer generated images and fonts. A number of studies indicate that the predominant user profile for cell phones and text messaging, participants aged 18-25, prefer to read or process information, such as news, in an online format (Mindich, 2004). Due to logistical limitations, the use of such a platform was not readily available for this project, but those seeking to replicate this study may wish to develop online or web based platforms to enhance the credibility of the messages and provide a more user-friendly environ for use in

displaying them during future research.

Directions for Future Research

The results of this study of the persuasion process produced results which suggest variations in message framing greatly enhance the potential for individuals to avoid or reduce their participation in dangerous or anti-social behaviors including driving while using a cell phone. Future research should expand upon study of this subject area, public safety concerns, by focusing specifically upon text messaging, instant messaging, and even the use of GPS devices as driving distractions which should be regulated. It would also be helpful to incorporate a pre-survey involvement assessment for such studies to further validate the degree to which the use of such technologies appear to fall, along a continuum, within the realm of high involvement issues and products within the context of the ELM.

Employing the use of other variables instead of or in addition to message form may allow researchers to identify more salient and impactful approaches to public persuasion in alignment with cognition style and principles of the ELM.

The process of developing and constructing message exemplars might be further enhanced through the use of focus groups which would rate samples for potency, comprehensibility, and clarity across a variety of message modalities (e.g., print, web-pages, audio, video, instant messaging, and text versions).

One of the major quandaries past ELM studies have encountered involves the need to match an equivalent number of peripheral cues (argument quantity, color) with an equal quantity of central route cues (source credibility, argument quality). This was not a focus of our study concerning framing and form as these variables are typically categorized as peripheral route cues. But in studying other high

involvement issues/products using the ELM paradigm future researchers may wish to adhere more closely to this matching principle relating to cue type. In the case of studies concerning use of high tech products, such as cell phones and GPS navigation systems, it might be helpful to examine differences across gender, age, and the use of peer endorsers/advocates to more fully and comprehensively examine the persuasion process within a more realistic and ecologically valid context.

Finally, future studies should more fully seek to identify the role emotional triggers, beyond egocentrism and locus of control, play in the cognitive processing pathways individuals choose to follow in evaluating persuasive messages, developing salient issue attitudes, and registering behavioral intentions.

Effective public persuasion is centered firmly upon gaining a greater understanding of the communication centered avenues individuals choose, consciously or unconsciously, to follow in constructing beliefs, attitudes, and values. It also involves the need to identify message variables which are congruent with the needs, wants, desires, and concerns of differing audiences across a variety of contexts. The results of this study represent a first step in the process of more clearly identifying those important elements and putting them to operable use to promote societal advancements in the areas of public safety, personal health, and individual accountability. Developing a better understanding of the persuasion process will ultimately enhance our quality of life and advance our knowledge of how to most effectively craft and channel the most potent and meaningful messages to their appropriate audiences. By refining the persuasion process, through continued study and analysis, it seems certain that enhanced forms of public advocacy can save lives and, ultimately, our planet, one effectively constructed message at a time.

APPENDIX A

KCTCS IRB APPROVAL

300 North Main Street
Versailles, KY 40383
Telephone: (859) 256-3100
www.kctcs.edu

October 3, 2008

Robert Glenn
Owensboro CTC:

Thank you for your cooperation in meeting the Federal requirements for conducting research that utilizes human subjects.

After careful consideration of your application to KCTCS Human Subjects Review Board, I have determined that you are eligible for a certificate of exemption from federal regulations regarding the protection of human subjects based on your research using a procedure that meets the exemption criteria of Section 7, (2). I have enclosed a signed copy of your exemption certificate. We also will keep one on file in the System Office.

Sincerely,

Keith W. Bird

Keith W. Bird, Ph.D.
Chancellor
Chair, KCTCS Human Subjects Review Board

cc: Christina Whitfield

HSRB Exempt Form 05

Human Subjects

Project Director/ Principal Investigator: Robert Glenn

Faculty Staff Student College: Owensboro CTC

Address: 4800 New Hartford Road Owensboro, KY 42303

Office Phone: (270)686-4553 Email: bobj.glenn@kctcs.edu

Faculty Sponsor (Student/Class Project): _____

Department: _____

Address: _____

Office Phone: _____ Email: _____

FOR SUBMISSION DEADLINES AND COMMITTEE MEETING DATES CALL 859-256-3218
(Committee meetings scheduled once a semester as necessary: no meetings in the summer.)

1. Source of Support: *Sponsored Research *University Funded Research (*Unfunded Research) Sponsor: _____

2. Type of Project: *(Check all that apply)* Original Submission Resubmission Student Project Class Project (New) Continuation Renewal

A class project requires HSRB review if it is a research project. Research is defined as "any systematic gathering and analysis of information, usually made under conditions determined by the investigator, that aims to test a hypothesis, to discover some unknown principle, or effect, or to re-examine some known or suggested principle." (Human Subjects Review Board: Handbook for Investigators, Part III, C.1)

3. Research to be conducted in the U.S.? (Yes) No

If *No*, specify country or territory: _____

4. Has this study been previously reviewed by another HSRB? Yes No

If *Yes*, please identify: University of Southern Mississippi

5. PROJECT TITLE "Persuasive effects of rhetorical questions & message framing in Promoting Responsible Cell Phone Use."

6. DESCRIPTION OF PROTOCOL: Attach, or provide below, a complete, detailed description of the research protocol including explanation of why the protocol should be regarded as exempt. It should be understandable to the non-specialist and not longer than three pages.

Certification of Exemption from Federal Regulations Regarding the Protection of Human Research Subjects: Check all applicable conditions. Exemptions may not be claimed for research involving prisoners, fetuses, pregnant women, the mentally retarded or disabled, or human in vitro fertilization.

7. I certify that the project identified above, in which the only involvement of human subjects will be in one or more of the categories checked below, is exempt from federal regulations regarding the protection more of the categories checked below, is exempt from federal regulations regarding the protection of human research subjects and does not require full review by the Human Subjects Review Board.**

(1) Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as
(i) research on regular or special education instructional strategies, or
(ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior, *UNLESS*
(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; *AND*,
(ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation
Note: When a study uses subjects who are MINORS, category (2) only applies as follows: Studies using educational tests involving minors as subjects are exempt. Studies using survey or interview procedures with minors as subjects are NOT exempt. Studies using observations of public behavior involving minors are NOT exempt unless the investigator does not participate in the activities being observed.

(3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, or observation of public behavior that is not exempt under (2), if:
(i) the human subjects are elected or appointed public officials or candidates for public office; or
(ii) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

(4) Research, involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified directly or through identifiers linked to the subjects. ***

(5) Research and demonstration projects which are conducted by or subject to the approval of federal department or agency heads, and which are designed to study, evaluate, or otherwise examine:
(i) public benefit or service programs;
(ii) procedures for obtaining benefits or services under those programs;
(iii) possible changes in or alternatives to those programs or procedures; or
(iv) possible changes in methods or levels of payment for benefits or services under those programs.

(6) Taste and food quality evaluation and consumer acceptance studies,
(i) if wholesome food without additives are consumed; or
(ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

I certify that the project will not be changed to increase the risk, exceed or change the exempt condition(s) without filing an additional certification or application for approval by the Human Subjects Review Board. I understand that responsibility for protecting human subjects is shared by the entire research team.

Signature: _____ 8/19/08
Project Director/ Principal Investigator — Date

Signature: _____ 8/26/08
KCTCS College President/CEO — Date

Concurrence with claim of exemption

Signature: _____
Board Chair/ Authorized Reviewer — Date

* The original Certification of Exemption is to be forwarded to HSRB Chair, KCTCS System Office, 300 N. Main St., Versailles, KY 40383 with copies of the proposal routed for review and approval. This project may be subject to review and confirmation of its exempt nature by the KCTCS Human Subjects Review Board and/or the sponsoring agency.

** If the Project Director has any questions about the Exempt status of the project, the appropriate Human Subjects Review Board Chair should be contacted.

*** If the records involved are those of KCTCS students, the project is not exempt and must be reviewed by the HSRB. Such research must conform with the Family Education Rights and Privacy Act of 1974 also known as the Buckley Amendment.

APPENDIX B

USM IRB APPROVAL

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

Office of Graduate Studies, 118 College Drive #5024, Hattiesburg, MS 39406-0001

Dissertation Proposal or Prospectus Approval Form

Date Approved March 9, 2007 Empl. ID 19158

Department Speech Communication

Student Name Robert Glenn, III Attempt #1 ✓ Attempt #2 _____

Student's Major Communication Emphasis Area Speech Communication

X Approved revisions for S

Committee Members: (Signatures Required)

1. Dr. Susan A. Sitaker (Committee Chair: Please print name) (Committee Chair Signature)

2. Lawrence A. Hosman (Please print member name) (Member Signature)

3. Keith V. Erickson (Please print member name) (Member Signature)

4. Charles H. Tardy (Please print member name) (Member Signature)

5. John C. Meyer (Please print member name) (Member Signature)

6. Department Chair (Member Signature) Date 3/9/07

Print Name Charles H. Tardy

RECEIVED
MAR 16 2007

3-16-07

White-Graduate Studies Yellow-Department Pink-Student

AA/EOE/ADA1

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

TO: Robert J. Glenn, III
1829 Monday Court
Owensboro, KY 42303

FROM: Lawrence A. Hosman, Ph.D.
HSPRC Chair

PROTOCOL NUMBER: 28091601
PROJECT TITLE: An Investigation of the Persuasive Effects of Rhetorical Questions, Message Framing, and the ELM in Promoting Cell Phone Use

Enclosed is The University of Southern Mississippi Human Subjects Protection Review Committee Notice of Committee Action taken on the above referenced project proposal. If I can be of further assistance, contact me at (601) 266-4279, FAX at (601) 266-4275, or you can e-mail me at Lawrence.Hosman@usm.edu. Good luck with your research.

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **28091601**
PROJECT TITLE: **An Investigation of the Persuasive Effects of Rhetorical Questions, Message Framing, and the ELM in Promoting Cell Phone Use**
PROPOSED PROJECT DATES: **08/01/08 to 04/30/09**
PROJECT TYPE: **Dissertation or Thesis**
PRINCIPAL INVESTIGATORS: **Robert J. Glenn, III**
COLLEGE/DIVISION: **College of Arts & Letters**
DEPARTMENT: **Speech Communication**
FUNDING AGENCY: **N/A**
HSPRC COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF APPROVAL: **11/20/08 to 11/19/09**

Lawrence A. Hosman
Lawrence A. Hosman, Ph.D.
HSPRC Chair

11-25-08
Date

HUMAN SUBJECTS REVIEW FORM
UNIVERSITY OF SOUTHERN MISSISSIPPI
(SUBMIT THIS FORM IN DUPLICATE)

Protocol # 2809/601
(office use only)

Name Robert J. Glenn, III Phone (270)686-4553

E-Mail Address bobj.glenn@kctcs.edu

Mailing Address 1829 Munday Court Owensboro, KY 42303
(address to receive information regarding this application)

College/Division College of Arts and Letters Dept Speech Communication

Department Box # 5131 Phone (270)266-4271

Proposed Project Dates: From 8-1-08 To 4-30-09
(specific month, day and year of the beginning and ending dates of full project, not just data collection)

Title "An Investigation of the Persuasive Effects of Rhetorical Questions, Message Framing, and the ELM in Promoting
Cell Phone Use."

Funding Agencies or Research Sponsors

Grant Number (when applicable)

____ New Project

_X_ Dissertation or Thesis

____ Renewal or Continuation: Protocol #

____ Change in Previously Approved Project: Protocol #

Robert J. Glenn III — 7-31-08
Principal Investigator — Date

[signature] — 8-7-08
Advisor — Date

Charles W. Lady IV — 9-10-08
Department Chair — Date

RECOMMENDATION OF HSPRC MEMBER

____ Category I, Exempt under Subpart A, Section 46.101 ( ) ( ), 45CFR46.

_/_ Category II, Expedited Review, Subpart A, Section 46.110 and Subparagraph (/).

____ Category III, Full Committee Review.

[signature] — 11/17/08
HSPRC College/Division Member — DATE

Laurence A. Hosman — 11-25-08
HSPRC Chair — DATE

APPENDIX C

SCALE APPROVAL

Excerpt of email sent to Dr. Richard Petty on August 22, 2007.

From: bobj.glenn@kctcs.edu

To: petty.1@osu.edu

RE: permission to utilize the 18 Item NFC Scale

Dear Dr. Petty:
I am a doctoral student at the University of Southern Mississippi working on a doctoral degree in Communication. My dissertation topic, An Investigation of the Persuasive Effects of Rhetorical Questions, Message Framing, and the ELM in Promoting Responsible Cell Phone Use, is designed to employ the use of the 18 item Need for Cognition Scale.

I greatly admire your work and contributions to the social sciences and respectfully request your approval to use the NFC scale in my dissertation research.

Respond whenever you are able.

Thank you in advance,

Robert Glenn
Doctoral Student, University of Southern Mississippi

Response: September 7, 2007

From: petty.1@osu.edu

To: bobj.glenn@kctcs.edu

RE: approval to use 18 item NFC Scale

Dear Robert:

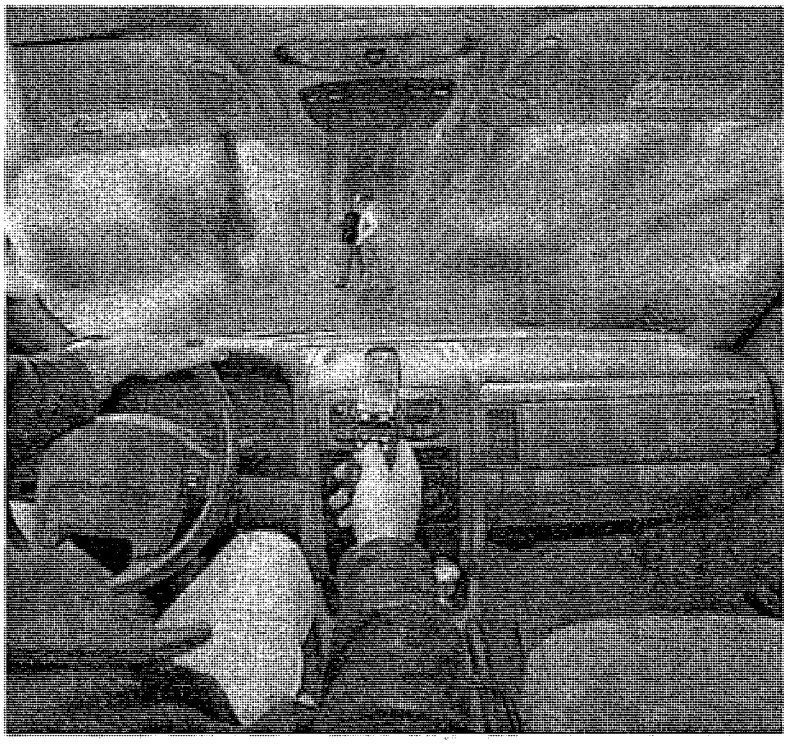
Sounds good to me!!

Rich Petty,
Professor of Psychology,
The Ohio State University

APPENDIX D

MESSAGE VERSIONS

Drivers using a cell phone caused 2,600 deaths and 570,000 injuries last year. **Hang up and drive.**



Support a ban on cell phone use by drivers.

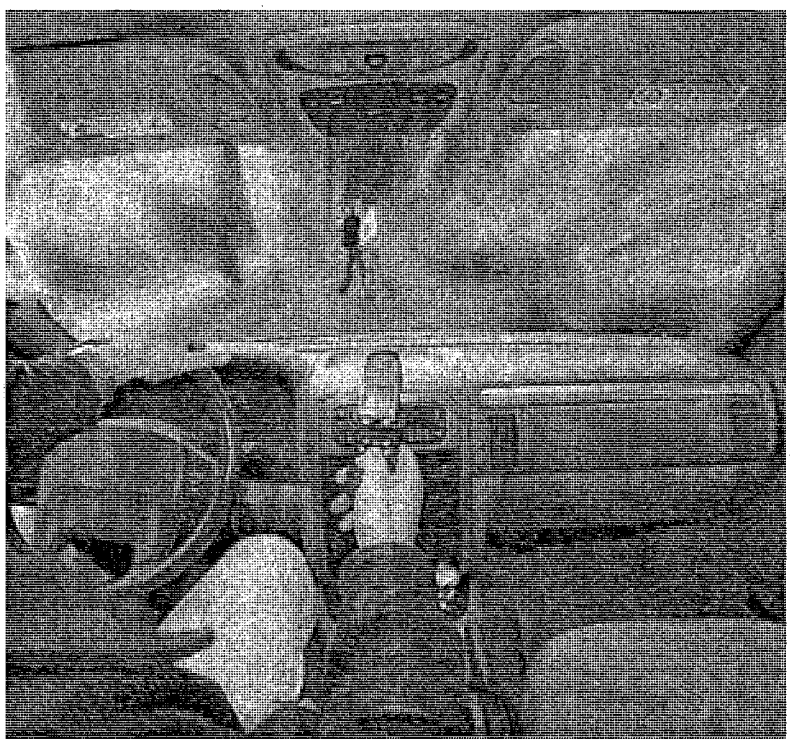
Without a ban . . .

- Serious injuries and deaths will increase significantly.
- Billions will continue to be lost in medical costs.
- Roads will be more hazardous for all drivers.

Without your support we face a more dangerous future.

NCSCPU National Council for Safe Cellular Phone Use
2700 West K Street, Washington, D.C. 10270 www.ncscpu.org

Drivers not using a cell phone prevented 2,600 deaths and 570,000 injuries last year. **Hang up and drive.**



Support a ban on cell phone use by drivers.

With a ban . . .

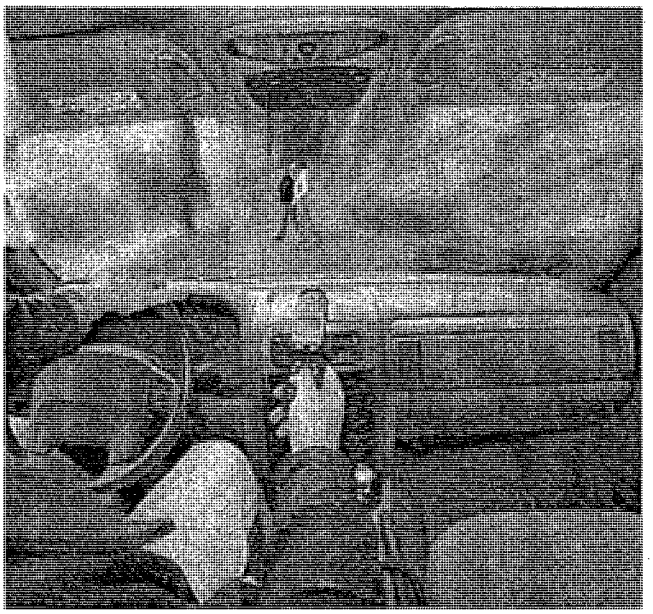
- Serious injuries and deaths will decrease significantly.
- Billions will be saved in medical costs.
- Roads will be more safe for all drivers.

With your support we face a more secure future.

NCSCPU National Council for Safe Cellular Phone Use
2700 West K Street, Washington, D.C. 10270 www.ncscpu.org

Did you know drivers using a cell phone caused 2,600 deaths and 570,000 injuries last year?

Don't you think it makes good sense to **Hang up and drive?**



Why wouldn't you . . .
support a ban on cell phone use by drivers?

Did you know that without a ban . . .

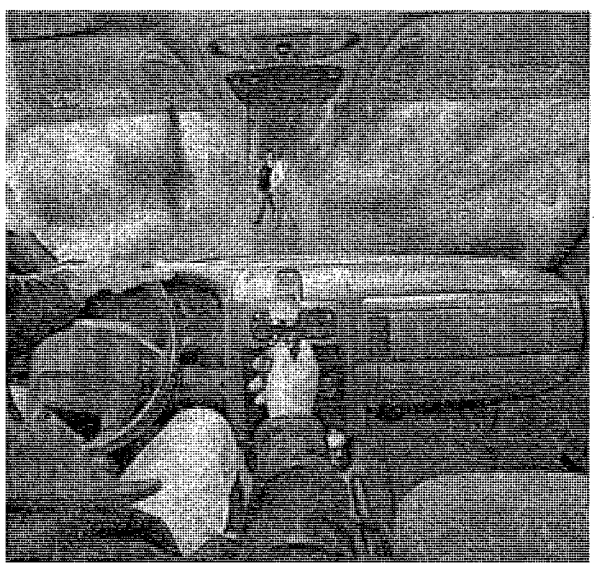
- serious injuries and deaths will increase significantly?
- billions will continue to be lost in medical costs?
- roads will be more hazardous for all drivers?

Why would you want to face a more dangerous future?

NCSCPU National Council for Safe Cellular Phone Use
2700 West K Street, Washington, D.C. 10270 www.ncscpu.org

Did you know drivers not using a cell phone prevented 2,600 deaths and 570,000 injuries last year?

Don't you think it makes good sense to **Hang up and drive?**



Why wouldn't you . . .

support a ban on cell phone use by drivers?

Did you know that with a ban . . .

- serious injuries and deaths will decrease significantly?
- billions will be saved in medical costs?
- roads will be more safe for all drivers?

Don't you want a more secure future?

NCSCPU National Council for Safe Cellular Phone Use
2700 West K Street, Washington, D.C. 10270 www.ncscpu.org

APPENDIX E

SURVEY BOOKLET

Directions: Please darken in one of the answer blocks below in response to each question.

1. What is your gender?

Male ☐ Female ☐

What is your age?

Under 18 ☐ 18-20 ☐ 21-22 ☐ 23-25 ☐ 26-30 ☐ 30 above ☐

Current Academic Standing:

Freshman ☐ Sophomore ☐ Junior ☐ Senior ☐

What group do you belong to?: White (not Hispanic) ☐ American Indian/Alaskan Native ☐ Black/African American (Not Hispanic) ☐ Asian/Pacific Islander ☐ Hispanic/Latino ☐ Other ☐

Directions: In responding to items 5-9 please darken in the appropriate space.

Do you have access to a cell phone? Yes ☐ No ☐

How often do you use a cell phone to make calls while driving?

All the time ○○○○○○○ Not at All

How often do you engage in text messaging while driving?

All the time ○○○○○○○ Not at All

To what degree do you feel in danger as you drive while using a cell phone?

All the time ○○○○○○○ Not at All

To what degree do you feel in danger when you encounter others driving while using a cell phone?

All the time ○○○○○○○ Not at All

Once done, please wait for further instructions before moving onto Part Two

Part II-Section A: **Directions:** For each of the statements below, please indicate whether or not the statement is "like you" or what you believe. For example, if the statement is extremely "***unlike*** you" or what you believe about yourself (not at all like you) please place a "1" on the line to the left of the statement. If the statement is "***like*** you" or what you believe about yourself (very much like you) please place a "5" on the line to the left of the statement. You should use the following scale as you rate each of the statements below.

1	2	3	4	5
Extremely unlike me	Somewhat Unlike Me	Uncertain	Somewhat like me	Extremely like me

10. ___ I prefer complex to simple problems.
11. ___ I like to have the responsibility of handling a situation that requires a lot of thinking.
12. ___ Thinking is not my idea of fun.
13. ___ I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.
14. ___ I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.
15. ___ I find satisfaction in deliberating hard and for long hours.
16. ___ I only think as hard as I have to.
17. ___ I prefer to think about small daily projects rather than long term ones.
18. ___ I like tasks that require little thought once I've learned them.
19. ___ The idea of relying on thought to make my way to the top appeals to me.
20. ___ I really enjoy a task that involves coming up with new solutions to problems.
21. ___ Learning new ways to think doesn't excite me very much.
22. ___ I prefer my life to be filled with puzzles I must solve.
23. ___ The notion of thinking abstractly is appealing to me.
24. ___ I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
25. ___ I feel relief rather than satisfaction after completing a task that requires a lot of mental effort.
26. ___ It's enough for me that something gets the job done; I don't care how or why it works.
27. ___ I usually end up deliberating about issues even when they do not affect me personally.

Part Two-Section B

Assessment concerning a public policy proposal:

28. **"Cell phone use while driving should be banned."**

Directions:

Please darken in the oval located nearest to the phrase which most closely reflects your attitude toward this issue.

Strongly Agree **Strongly Disagree**

29. **"I think a great deal about the issue of cell phone use while driving."**

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

30. **"I feel very strongly about the issue of cell phone use while driving."**

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

31. **"I plan to use a cell phone the next time I am driving."**

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

32. **"I plan to avoid using a cell phone the next time I am driving."**

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

Once you have completed Part Two-Section B please put your pencils down until instructed to move to the next section of the survey.

Part Three Section A: The Message

Directions: You will now be given up to one minute to review a public service announcement concerning an important public issue. Please review it carefully and then wait for the researcher to signal when you should move onto Part 4. Before beginning please indicate which color folder you have, circle the appropriate color folder.

33. What color is your folder?

Blue ☐ **Black** ☐ **Red** ☐ **Orange** ☐

You may now remove the message from the left side of your folder and begin reading and reviewing the message.

Part Four-Section A

Please note that questions 34 and 35 are paired and contrasting items.

34. Please rate the extent to which the MESSAGE featured *rhetorical questions.*

Not at All O O O O O O O O O **All the Time**

35. Please rate the extent to which the MESSAGE featured *declarative statements.*

Not at All O O O O O O O O O **All the Time**

Please note that questions 36 and 37 are paired and contrasting items.

36. Please rate the extent to which the MESSAGE featured *positive* outcomes of APPROVING the ban.

Not at All O O O O O O O O O **All the Time**

37. Please rate the extent to which the MESSAGE featured *negative* outcomes of NOT APPROVING the ban.

Not at All O O O O O O O O O **All the Time**

Once directed, you may continue on to complete Part 4-Sections B and C.
You have 3 minutes to complete sections B and C.

Part Four-Section B

The following items concern your views about talking on a cell phone while driving. Please answer each item by choosing the number that best describes your opinion. For example, if you think driving with a cell phone is "harmful," you would choose 1, but if you think driving with a cell phone is "beneficial" you would choose 7. If you think it is somewhere between "harmful" and "beneficial," you would choose a number between 2 to 6, depending upon which adjectives best describe your overall feelings about driving while using a cell phone.

For me, driving while talking on a cell phone would be:

38.	harmful	1	2	3	4	5	6	7	beneficial
39.	unpleasant	1	2	3	4	5	6	7	pleasant
40.	bad	1	2	3	4	5	6	7	good
41.	unenjoyable	1	2	3	4	5	6	7	enjoyable
42.	worthless	1	2	3	4	5	6	7	valuable
43.	boring	1	2	3	4	5	6	7	interesting
44.	useless	1	2	3	4	5	6	7	useful
45.	foolish	1	2	3	4	5	6	7	wise

Part Four-Section C

Please rate the following items regarding the message you reviewed on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree). For example, if you strongly disagree with the statement given, you would choose "1," and if you strongly agree with it, you would choose "5." If your view falls somewhere between "strongly disagree" and "strongly agree," you would choose a number between 2 to 4.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree

46. **This message would catch my attention.**
1 2 3 4 5

47. **This message is believable.**
1 2 3 4 5

48. **This message would make me more likely to not talk on or use a cell phone while driving.**
1 2 3 4 5

49. **This message is memorable.**
1 2 3 4 5

50. **This message is effective.**
1 2 3 4 5

51. **This message would make people my age more likely to avoid talking on a cell phone while driving.**
1 2 3 4 5

52. **This message would help convince people my age to avoid talking or using a cell phone while driving.**
1 2 3 4 5

53. **This message is truthful.**
1 2 3 4 5

54. **This message would help convince me to support enacting a ban on t he use of cell phones while driving.**
1 2 3 4 5

Part Four-Section D

Assessment concerning a public policy proposal:

55. **"Cell phone use while driving should be banned."**
Please darken in the oval located nearest to the phrase which most closely reflects your attitude toward this issue.

Strongly Agree ○ ○ ○ ○ ○ ○ ○ ○ ○ Strongly Disagree 1-7

Once you have completed Part Four-Section D please put your pencils down until instructed to move to the next section of the survey.

Part Five-Section A

Now you will be asked in section A to list thoughts you experienced while reading the public service announcement. Please only complete that first step before moving onto the concluding portion of Part 5-Section A.

Part Five-Section A Open Response

56. Now you will be asked in section A to list thoughts you experienced while reading the public service announcement. Please only complete that first step before moving onto the concluding portion of Part 5-Section A.

_____( )

_____( )

_____( )

_____( )

_____( )

_____( )

_____( )

_____( )

_____( )

_____( )

_____( )

_____( )

Now please go back and rate the statements you listed in relation to supporting a ban on cell phone use. Use the boxes situated to the right ( ) to rate each statement. Rate statements that would support a ban with a (+), rate statements that would go against a ban with a (-) and rate statements which are not relevant to the issue of banning cell phones while driving with a zero (0).

Once you are done rating your statements in Section A, move onto Section B in this part of the survey.

Part 5-Section B

Circle the number closest to the phrase which best represents your view of the thought process you engaged in while reviewing the public service announcement. For example, if you felt the message contained very "credible information" you would circle a 1. If you felt the message contained information that was "not credible" you would circle a 7. If your view lies somewhere in between, choose between 2-6 on the rating scales below.

Effort Assessment

57. Credible information presented 1 2 3 4 5 6 7 Information presented not credible

58. Not intellectually stimulating 1 2 3 4 5 6 7 Intellectually stimulating

59. Not intellectually engaging 1 2 3 4 5 6 7 Intellectually engaging

60. Would make people think 1 2 3 4 5 6 7 Would not make people think

61. Not at all thought-provoking 1 2 3 4 5 6 7 Thought-provoking

62. Did not really make me think 1 2 3 4 5 6 7 Really made me think

Once you have completed this section, move onto Section C. Be sure to carefully read the instructions for each section carefully before beginning your responses.

Part Five-Section C

Directions: Read each statement and indicate your level of general agreement or disagreement with the statements listed below. If you strongly agree with a statement you would circle a "1," on the other hand if you strongly disagree with a statement you would circle a "7." If your level of response lies somewhere in between then you would rank it from 2-6.

63. "I think a great deal about the issue of cell phone use while driving."
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

64. "I feel very strongly about the issue of cell phone use while driving."
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

65. "I plan to use a cell phone the next time I am driving."
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

66. "I plan to avoid using a cell phone the next time I am driving."
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

Once you have responded to these items you may close your survey packet, put your pencil down and await further instructions.

APPENDIX F

CODING BOOKLET

Code Book

SurveyID

Gender: Item 1: Male=1 Female=2

Age: Item 2: Under 18=1, 18-20=2, 21-22=3, 23-25=4, 26-30=5, 30 & above=6.

Rank: Item 3: Fresh=1, Soph=2, Junior=3, Senior=4

Group: Item 4: White=1, Amer, Indian=2, Black=3, Asian=4, Latino=5, Other=6

Attitudes toward cell phone use

C1: Item 5: Do you have access to a cell phone?: Yes=1 No=2.

C2: Item 6: How often use a cell?: All the time 1, 2, 3 Not sure-4, Not at all=5, 6, 7.

C3: Item 7: How often use texting?: All the time 1, 2, 3 Not sure-4, Not at all=5, 6, 7.

C4: Item 8: Danger caused by you?: All the time 1, 2, 3, Not sure-4, Not at all 5, 6, 7.

C5: Item 9: Danger caused by others?: All the time 1, 2, 3, Not sure-4, Not at al 5, 6, 7.

Need for Cognition Instrument

NFC 1-18: Items 10-27.

NFC 1: Item 10-low nfc=1-2 not sure=3 high nfc=4-5

NFC 2: Item 11-low nfc=1-2 not sure=3 high nfc=4-5

NFC 3: Item 12-Rev. high nfc=4-5 not sure=3 low nfc=1, 2

NFC 4: Item 13-Rev. high nfc=4-5 not sure=3 low nfc=1, 2

NFC 5: Item 14-rev. high nfc=4-5 not sure=3 low nfc=1, 2

NFC 6: Item 15-Low nfc=1, 2 not sure=3 high nfc=4, 5

NFC 7: Item 16-rev. high nfc=4-5 not sure=3 low nfc=1, 2

NFC 8: Item 17-rev. high nfc=4-5 not sure=3 low nfc=1, 2

NFC 9: Item 18-rev. high nfc=4-5 not sure=3 low nfc=1, 2
NFC 10: Item 19-Low nfc 1, 2 not sure 3 high nfc 4, 5
NFC 11: Item 20-Low nfc 1, 2 not sure 3 high nfc 4, 5
NFC 12: Item 21-rev. high nfc=4-5 not sure=3 low nfc=1, 2
NFC 13: Item 22-low nfc 1, 2 not sure 3 high nfc 4, 5
NFC 14: Item 23-low nfc 1, 2 not sure 3 high nfc 4, 5
NFC 15: Item 24-low nfc 1, 2 not sure 3 high nfc 4, 5
NFC 16: Item 25-rev. High nfc=4, 5 not sure=3 low nfc=1, 2
NFC 17: Item 26-rev. High nfc=4-5 not sure=3 low nfc=1, 2
NFC 18: Item 27-low nfc 1, 2 not sure 3 high nfc 4, 5

Pretest ATTTMa: Item 28: (7 Item)
Strongly agree=1-3, Not sure=4, Strongly disagree=5-7

INVcoga: Item 29: I think about CP use: SA 7-5 NS=4
SD=3-1

INemoa: Item 30: I feel strongly: SA 7-5 NS=4
SD=3-1
BI1a: Item 31: Plan to use: reverse SA 1-3 NS=4 SD 5-7
BI1b: Item 32: Plan to Avoid: SA 7-5 NS=4 SD 3-1

Condition: Item 33:
Folder Color: Blue=1, Black=2, Red=3, Orange=4

Ideal coding scores:

Message versions:

Blue-Declarative Statement, Negative Message Frame-1 (DN)
1, 9 (Declarative Statement) 1, 9 (Negative Message Frame)

Black-Rhetorical Question, Negative Message Frame-2 (QN)
9, 1 (Rhetorical Question), 1, 9 (Negative Message Frame)

Red-Declarative Statement, Positive Message Frame-3 (DP)
1, 9 (Declarative Statement), 9, 1 (Positive Message Frame)

Orange-Rhetorical Question, Positive Message Frame-3 (QP)
9, 1 (Rhetorical Question), Positive Message Frame (9, 1)

Manipulation Check:

ManQ: Item 34: RQ's

ManD: Item 35: DS

ManP: Item 36: Positive MF

Mannr: Item 37: Negative MF

Attitudes Toward the Behavior: (Reverse all of these items 38-45)
Note: **Reverse score all items.** (Jones et al. 2004).

Att1b: Item 38: Harm-Benef: 1-7, 2-6, 3-5, 4-4, 5-3, 6-2 7-1

Att2b: Item 39: Un-Pleasant: 1-7, 2-6, 3-5, 4-4, 5-3, 6-2 7-1

Att3b: Item 40: Bad-Good: 1-7, 2-6, 3-5, 4-4, 5-3, 6-2 7-1

Att4b: Item 41: Un-Enjoy: 1-7, 2-6, 3-5, 4-4, 5-3, 6-2 7-1

Att5b: Item 42: Worth-Val: 1-7, 2-6, 3-5, 4-4, 5-3, 6-2 7-1

Att6b: Item 43: Boring-Interesting: 1-7, 2-6, 3-5, 4-4, 5-3, 6-2 7-1

Att7b: Item 44: Useless-Useful: 1-7, 2-6, 3-5, 4-4, 5-3, 6-2 7-1
Att8b: Item 45: Foolish-Wise: 1-7, 2-6, 3-5, 4-4, 5-3, 6-2 7-1

Message Effectiveness: Intentions (Noar et. Al, 2005)
Eff1b: Item 46: Attention: 1-1, 2-2, 3-3, 4-4, 5-5
Eff2b: Item 47: Believable: 1-1, 2-2, 3-3, 4-4, 5-5
Eff3b: Item 48-Stop Behavior: 1-1, 2-2, 3-3, 4-4, 5-5
Eff4b: Item 49: Memorable: 1-1, 2-2, 3-3, 4-4, 5-5
Eff5b: Item 50: Effective: 1-1, 2-2, 3-3, 4-4, 5-5
Eff6b: Item 51: My Age: 1-1, 2-2, 3-3, 4-4, 5-5
Eff7b: Item 52: Convince: 1-1, 2-2, 3-3, 4-4, 5-5
Eff8b: Item 53: Truthful: 1-1, 2-2, 3-3, 4-4, 5-5
Eff9b: Item 54: Convince Me: 1-1, 2-2, 3-3, 4-4, 5-5

ATTTMb: Item 55: : (Reverse) SA 9, 8, A 7, 6 , NS-5, D 4, 3 SD 2, 1
(needs to be equalized because #28 is a 7 item scale and this is 9 item)

Item 56: Thought Listing Exercise: written statements
Rating:

TLISTtot=Total number of thoughts listed	0-12
TLISTpos=(+)=support a cell phone ban	0-12
TLISTneg=(-)=against a cell phone ban	0-12
TLISTnone=(0)=not related to a ban.	0-12

Message Cognition Value (Lane and others 2006) (R=Reverse scoring)
MCV1: Item 57: Credib 1=7, 2=6, 3=5 NS-4=4, 5=3, 6=2, 7=1 Not Credible
MCV2: Item 58: Not Stim. R 1=1, 2=2, 3=3, NS-4=4, 5=5, 6=6, 7=7 Intell Stimul.
MCV3: Item 59: No EngageR 1=1, 2=2, 3=3, NS 4=4, 5=5,

6=6, 7=7 Engaging
MCV4: Item 60: Would think 1=7, 2=6, 3=5 NS-4=4, 5=3, 6=2, 7=1 Not Think
MCV5: Item 61: Not ProvokeR 1=1, 2=2, 3=3, NS 4=4, 5=5, 6=6, 7=7 Provoking
MCV6: Item 62:Did not thinkR 1=1, 2=2, 3=3, NS 4=4, 5=5, 6=6, 7=7 Did Think

Repeated measures:
Behavioral Intent
INVcogb: Item 63: Think R 1=7, 2=6, 3=5 NS-4=4, 5=3, 6=2, 7=1

INVemob: Item 64: Feel StronglyR 1=7, 2=6, 3=5 NS-4=4, 5=3, 6=2, 7=1

Post behavioral intentions to comply.
BI1b: Item 65: Plan to Use: 1=1, 2=2, 3=3, NS 4=4, 5=5, 6=6, 7=7

BI2b: Item 66: Plan to AvoidR: 1=7, 2=6, 3=5 NS-4=4, 5=3, 6=2, 7=1

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