

EXAMINING THE EFFECTIVENESS OF A FEAR APPEAL MESSAGE
REGARDING CALLING WHILE DRIVING: THE ROLE OF
PERCEIVED BEHAVIORAL CONTROL, SOCIAL NORMS,
AND THE THIRD-PERSON PERCEPTION

A Master's Thesis

Presented to

The Faculty of the School of Communication

University of Houston

In Fulfillment

of the requirements for the degree

Master of Arts

By

Meng Chen

December 2011

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ABSTRACT

Using a within/between experimental design, the current study attempted to examine 1) whether the ethnicity and call phone type can predict one's frequency of calling while driving; 2) to examine the mechanism of how personal attributes, including perceived behavioral control, subjective social norms, and classic/reversed third-person perception, interact with a fear appeal message regarding the issue of calling while driving.

ACKNOWLEDGEMENTS

I would like to take this opportunity to express my sincere thanks to those who have helped and supported me during my graduate study. First and foremost, I would like to thank my advisor, Dr. Zhiwen Xiao, for her guidance, trust and encouragement throughout the process of my thesis study and writing. I would also like to thank other members in my thesis committee, Dr. Jill Yamasaki and Dr. Norma Olvera, for their insightful comments and suggestions. All the professors in my thesis committee devoted a lot of time on reading and revising my thesis, I would like to express my deep appreciation to them again for all their efforts.

Moreover, I would also want to express my appreciation to my parents and husband for their support and encouragement. Special thanks to my husband Liang Zhao for his encouragement when I felt disappointed, comfort when I felt desperate, and love and support all the way

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Chapter One

Introduction

It is well-established that talking on a cell phone while driving poses substantial risks to drivers and others (Clayton, Hlems, & Simpson, 2006; Svenson & Patten, 2005). In a simulation experiment, Tornros and Bolling (2005) reported that using a handheld phone impaired study subjects' performances on the peripheral detection task because using a cell phone while driving increased their mental workload. In another controlled experiment, Hancock, Lesch, and Simmons (2003) found that the drivers who engaged in the dual-task condition (i.e., talking on the phone while driving) showed a slower response to the light change than those who did not. In addition, Svenson and Patten's (2005) systematic review of 61 studies further confirmed that a driver's control over a car became less precise and smooth when driver was talking over a cell phone due to the diminished attention to traffic. Overall, there are two primary potential dangers associated with talking over a cell phone behind the wheel, which substantially threaten driving safety. First, drivers' attention to the dynamic traffic will be diminished as a function of cell phone usage, such as disability of detecting lateral deviations of lanes (Lissy, Cohen, Park, & Graham, 2000). The other hazard involves longer reaction time upon situational factors, including emergencies on the road as well as lighted brake lights of preceding vehicles (Strayer, Drews, & Johnson, 2003; Svenson, & Patten, 2005).

Some statistics in reality is even more shocking. According to a recent report released by the National Safety Council (NSC) in January 2010, there are at least 1.6 million crashes each year (about 28 % of all crashes) caused by cell phone usage, including talking on a cell phone (1.4 million crashes) and texting (200,000 crashes). In

addition, the United States Transportation Department reported that in 2009, 5,474 people were killed and more than 500,000 people got injured in 4,898 crashes caused by driving distraction. Among driving distractions, cell phone use was number one distraction, followed by radios, palm pilots, laptops and others. However, regardless of the apparent risks and dangers underlying the behavior of talking over a cell phone behind the wheel, a large number of people still keep dialing or responding to a call while driving. A national study reported that approximately 73% of drivers surveyed reported that they had talked on a cell phone while driving (Insurance Information Institute, 2007). It is estimated that at a given moment in a day, 500, 000 drivers are using cell phones (Information Brief, 2002, cited in Orlowske & Luyben, 2009). Confronted with these horrible statistics, we cannot help asking a question: what makes these drivers constantly dial or respond to a call while ignoring the potential threats to the lives of their own and others?

Purpose of Study

Given the seriousness of using a cell phone while driving and the high accidents rates, scholars in various fields have conducted a number of research efforts in an attempt to examine the factors which may contribute to an individual's tendency of making a call while driving, including demographical, psychological, as well as social perspectives. While distracted driving campaigns launched to alleviate this problem and relevant research abound, few studies have been conducted to reveal how individual dispositions interact with these educational and informational messages. Therefore, the current study attempts 1) to testify whether demographic characteristics predict the frequency of calling while driving; 2) to examine the mechanism of how personality

traits in the aspect of control beliefs influence one's processing of educational messages after one is exposed to a fear appeal message. Specifically, questions will be addressed in this study are what variables would pose influence on one's perceptions of each factors, including perceived severity, perceived susceptibility, perceived self-response, and perceived response efficacy, in a fear appeal message regarding the severe consequences of talking on a cell phone while driving. The study further proposes that individual differences in the aspect of perceived behavioral control, perceived social norm, and third-person perception will interact with the fear appeal message.

Theoretical Rationale

Fear Appeal

For a long time, public health interventions regarding distracted driving always engage one type of persuasive tactic, named fear appeals. Essentially, in an attempt to arouse the fear emotion of target audience, fear appeal messages usually outline immediate and potential threats through portraying the severity of the threat, the audience member's susceptibility to that threat, an effective reaction to the threat, and the statement that the target audiences have the capacity of performing the recommended behavior (Witte, 1992). This persuasive device has been widely recognized and proven effective in addressing hazardous behaviors across a variety of pressing public health issues (Maddux & Rogers, 1993; Rogers, 1975; Rogers, 1983; Witte & Allen, 2000).

The Extended Parallel Process

The extended parallel process model, developed by Witte (1992), provides a theoretical framework to explain the mechanism of how an individual processes a fear appeal message, as well as an appropriate measurement to predict an individual's

response to a fear appeal message according to what constitute the message. As an extension of previous relevant models, the extended parallel process model focuses more on the internal dynamics upon receiving a fear appeal message rather than generalized prediction of the response.

Adopting a cognitive approach, Witte's extended parallel process model (Witte, 1992; 1994) has received widespread recognition in health intervention domains over the past two decades. Basically speaking, upon being presented with a fear appeal message, which consists of (1) the severity of a threat, (2) the audience member's susceptibility to the threat, (3) an effective way to reduce the threat, and (4) the statement that the target audiences have the capacity of performing the recommended behavior, there are two cognitive appraisal processes that an individual will initiate: the appraisal of threat and the appraisal of efficacy content of the message. How an individual processes these two types of appraisals substantially largely determines his/her response to the fear appeal message. If only the threat, including severity and susceptibility, is perceived high while the efficacy, including response efficacy and self-efficacy, is perceived relatively low, only the fear control process will take place. On the contrary, the danger control will dominate an individual's interpretation process of the persuasive message if he/she has high perceptions of both threat and efficacy. Witte (1992; 1994) further pointed out that the perceived threat determined the aroused intensity of the fear emotion while the perceived efficacy determined the nature of the interpretation process per se. This model has been frequently applied in health efforts as a measure to assess targeted audience's response to a fear appeal message as well as a guideline to develop educational messages.

Perceived Behavioral Control vs. Perceived Social Norm

Perceived behavioral control, as a novel antecedent of intentions and behaviors (Ajzen, 1991), refers to an individual's perceived ease or difficulty of adopting the recommended behavior. The addition of the perceived behavioral control in the theory of planned behavior's (Ajzen, 1991) greatly enhances the theory's predictive power in explaining reasons why people fail to adopt recommended behaviors. It is believed that the perceived behavioral control, as a predictive variable, does take into account some of the realistic constraints that may exist. For example, this personal disposition is assumed to reflect past experiences as well as anticipated impediments and obstacles.

Another predictive factor of individual intention, named perceived social norms, are posited as global perceptions of social pressure that derive from judgments of social pressure from salient others weighted by the motivation to comply with these groups or individuals (Armitage & Conner, 2001; Fishbein & Ajzen, 1975). These normative pressure come from two parts: one is from significant others, while another is from society in general. If the individual perceives that a certain behavior is endorsed by others, he/she is more likely to intend to perform it. However, if an individual perceives lots of social pressure regarding this behavior, he/she would inhibit himself/herself from performing it. These two variables are used as antecedent variables in the theory of planned behavior (Ajzen, 1990) to predict people's intentions and behaviors.

Third-Person Perception vs. First-Person Perception

Both theoretically and empirically, the third-person perception has been confined to the effects of mass communication (Peiser & Peter, 2000). Conceptually, it refers to people's tendency to believe others are more susceptible to media influences than they

are themselves, as well as the tendency to act accordingly (Davison, 1983). It is believed this perceptual bias is a function of maintenance of self-conception and self-esteem. That is, people tend to underestimate other's intelligence and education, and to see oneself in a more positive light than others (Brown 1986). Although this perceptual bias was a well-established phenomenon found in mass media effects, some researchers also observed a reversed third-person perception in some positive media messages, called reversed third-person perception or first-person perception. That is, people tend to perceive themselves as more influenced than others by media messages. Plus, this phenomenon is much manifested in positive messages. Overall, these two theoretical concepts have been proved as a universal perceptual tendency, and extended far beyond the original types of media message, such as politics, pornography.

Given the powerful prediction of these factors as well as high validity of the EPPM, the present study will use the EPPM as a major framework in an attempt to examine individual psychological interactions upon receiving a fear appeal message in the aspect of driving distraction.

Contributions of Study

This theoretically-guided study aims to identify the mechanism of how personalities in the aspect of perceived behavioral control, perceived social norm and perceptual bias influence one's processing of a fear appeal message. Adopting the extended parallel process model and two theoretical concepts, the present study will foster a solid understanding to the mechanism of how one's control abilities will interact with a fear appeal message, and mediate/moderate the outcomes of being exposed to a fear appeal messages about severe consequences of talking on a cell phone while driving.

The current study will have direct implications for future practical intervention design and promotion. Attempting to address the influences of personality traits on the response to a fear appeal message, this study has a hint that personal differences can exert considerable influences on his/her response to a fear appeal message. Therefore, government and health practitioners in this area should not only pay attention to developing fear appeal messages, but also be sensitive to personal differences.

This study will also provide significant implications for future research in the domain of road safety. This study initiates the research direction that how educational materials in the term of fear appeal pose influence on people's attitudes toward the issue of calling while driving. Plus, the current study looks into the interaction between external influences from a fear appeal message and individual internal beliefs and perceptions in the aspect of dialing and/or responding to a call, and helps set a research agenda to gain a detailed insight into how individual internal dispositions mediate/moderate the influence of a fear appeal message.

Scope of Study

The current study intends to explore how individual differences, including perceived behavioral control, perceived social norm and perceptual bias (third-person perception and first-person perception), interact with the outcomes of being exposed to a fear appeal message regarding severe consequences of talking on a cell phone behind the wheel. Therefore, the focus of this study will be 1) examining the influence of ethnicity and cell phone type on individual frequency of calling while driving, 2) testing the hypotheses that individuals' control beliefs and perceptions play a role of mediating/moderating the outcomes of a fear appeal message.

Based on the theoretical rationale of the extended parallel process model, plus perceived behavioral control, perceived social norm as well as perceptual bias, the independent variables are: 1) whether to be exposed to a fear appeal message regarding severe consequences of calling while driving, 2) level of perceived behavioral control, 3) level of perceived social norm, 4) third-person perception & first-person perception. Plus, the dependent variables are: 1) level of perceived self-efficacy, 2) level of perceived response efficacy, 3) level of fear, 4) attitudes, 5) intentions. This study will be a within/between-group experiment design involving 200 participants between 18-year-old to 30-year-old. The experiment will be conducted via online surveys, and the participation will be completely voluntary.

The following Chapter Two will be a literature review on previous study findings regarding the issue of using a cell phone while driving. In addition, the extended parallel process model, as a theoretical framework, and two theoretical concepts, the perceived behavioral control, perceived social norm and perceptual bias, will be discussed to provide suggestions of further research. Also, in this chapter, hypotheses and research questions that guide this thesis will be introduced based on previous literature review. Chapter Three will explicate the methods used in this study with details, including selection of sample and data collection procedure. Statistical results will be presented in Chapter Four after the performance of statistical analysis. Chapter Five will discuss the data obtained from Chapter Four and reach a final conclusion of previous hypotheses and research question. Study limitations as well as future implications will be discussed in the final Chapter.

Chapter Two

Literature Review

A number of studies in various fields have identified demographic, psychological and social factors that contribute to an individual's intention to use a cell phone while driving. For example, Brusque and Alauzet (2008) observed that people who intended to dial or respond to a call were more likely to be male, to be less than 45 years of age, and to be married or living in a couple. They also indicated that the intensity of an individual's cell phone use in daily life was an explanatory factor of the habit of calling while driving. Another study (Bianchi & Phillips, 2005), from a psychological perspective, demonstrated that personalities could contribute to his/her willingness to call while driving. For instance, extraversion, a personality defined as sociable, talkative, assertive, gregarious, and enjoying human interactions (Allsopp, Eysenck & Eysenck, 1991), plays an important role in predicting the problematic use of cell phones, because extraverts are more susceptible to risk-taking, problem behavior and sensation-seeking. Also, extraverts are expected to have broad social networks in which regular calls are needed. In addition, Allsopp, Eysenck & Eysenck, (1991) found that those people with low self-esteem or depression were more likely to get involved in inappropriate cell phone use with the purpose of seeking reassurance. A cross-sectional survey conducted by White, Eiser and Harris (2004) indicated that high-risk drivers generally had a tendency to perceive that they are less likely than others to get involved into an accident.

These studies implied that an individual's willingness to resist problematic cell phone usage was determined by a variety of personal factors in terms of demography and sociopsychology. Nevertheless, in spite of numerous interventions and campaigns

launched to alleviate this problem, no research has been conducted to uncover how personal dispositions influence the outcomes of being exposed to a fear appeal message which presents the severe consequences of calling while driving.

Fear Appeals Persuasion

Fear, as one of the most fundamental human emotions (Ekman, Friesen & Ellsworth, 1982; James, 1884; Watson, 1930), is defined as a negatively valenced response dispositions or action sets usually elicited by a threat which is perceived to be severe and personally relevant (Witte, 1998). Fear is usually accompanied by a high level of physiological arousal (Witte, 1998), which might be manifested through elevated heart rate, tension in the muscles, decreased skin temperature, and other physiological response (Lang, 1984). It is believed that upon exposure to a threat message, an individual usually initiates a process of appraising the threat contents, during which fear will be provoked no matter whether the individual is conscious or not (Lazarus, 1991a, 1991b).

Fear appeals are widely recognized and used as a potent persuasive device to disseminate various types of information to influence audiences' attitudes and behaviors. By definition, *fear appeal* is "a persuasive message that attempts to arouse the emotion of fear by outlining recommendations presented as effective response" (Witte, 1994, p.114). Specifically, fear appeals present negative consequences which occur when the targeted audiences do not follow the suggested actions, and convince them that they are susceptible to these negative consequences. Followed the fear message is the recommended response, assuming that targeted audiences' fear would be alleviated if they accept the recommendations (Perloff, 2003). As a matter of fact, fear, to a certain

extent, serves to facilitate attitude change only if reassuring recommendations are provided in the persuasive communication. Plus, in an attempt to maximize the persuasive effectiveness, a fear appeal message not only constitutes the descriptions of severity and susceptibility, but also needs to include response efficacy and self-efficacy factors (Witte, 1992; 1994). It is through such an approach involving both cognitive and affective level that fear appeal tactic achieves its persuasive effectiveness to influence targeted audiences' attitudes and intentions (Perloff, 2003). In the case of distracted driving, a fear appeal message would scare people into performing the recommended behavior of avoiding making calls at the wheel not only by describing the potentially serious consequences and susceptibility, but also by providing reassuring suggestions and the efficacy factors.

Application of Fear Appeals in Health Communication

The application of fear appeals can be traced back to several decades ago (Perloff, 2003). Nowadays, the well-developed persuasive strategy is widely adopted to address a variety of public health issues, such as HIV/AIDS prevention (Rhodes & Wolitski, 1990), smoking cessation (Rogers & Deckner, 1975), teen pregnancy prevention (Witte, 1997), breast self-examination (Meyerowitz & Chaiken, 1987).

A number of studies have examined the effectiveness of this scare tactic. For example, four meta-analyses (Boster & Mongeau, 1984; Mongeau, 1998; Sutton, 1982; Witte & Allen, 2000) on the effectiveness of fear appeals literature suggest that a significant positive relationship exists between the strength of fear appeal messages and attitude, intention as well as behavior change. That is, manipulating the strength of fear appeal messages would produce different levels of change in attitude and intention. On

average, the stronger the fear appeal message is, the greater the attitude and intention change is (Witte & Allen, 2000).

Despite of wide applications of this persuasion device in reality and in research, some scholars indicate that fear appeals can and do fail if they are used incorrectly (Witte & Morrison, 2000). For example, Janis & Feshbach (1953) and Janis (1967) documented evidence that the association between strength of fear appeal messages and targeted audiences' acceptance was negative and curvilinear. They believed that the higher a fear-arousing communication is, the more likely it would produce "defense against thinking about the material or toward minimizing the importance of the material contained in the persuasive communication" (Insko, Arkoff, & Insko, 1965, p. 256). To address this inconsistency among scholars, Witte (1992) developed the extended parallel process model to explain both successes and failures of fear appeals by specifying interactions among variables in fear appeal messages.

Extended Parallel Process Model

The most recent fear appeal theory, the extended parallel process model (EPPM) (Witte, 1992), integrated and further expanded three previous theoretical approaches regarding fear appeals: the fear-as-acquired-drive model (Hovland, Janis, & Kelly, 1953; Janis, 1967); the parallel process model (Leventhal, 1970); and protection motivation theory (Rogers, 1975, 1983). The extended parallel process model explicitly explains how people will go through different appraisal processes, respectively, upon being exposed to threat and/or efficacy constructs with regard to health issues, and how they will respond accordingly. The EPPM is widely recognized and used not only as a guideline to develop effective risk-tailored intervention messages (McMahan, Witte &

Meyer, 1998), but also as a theoretical framework to predict whether adaptive or maladaptive response will be elicited in the case of a fear appeal message (Witte, Meyer & Martell, 2001).

According to the EPPM, a persuasive fear appeal message must consist of two primary constructs: threat and efficacy. Simply put, threat can be considered as the problem; while efficacy, as a matter of fact, is the solutions to the problem (Perloff, 2003). The threat components in a risk-tailored communication message usually present an actual danger or harm that exists in the environment no matter whether an individual is aware of it or not. Description of the threat usually involves perceived severity and perceived susceptibility. Perceived severity refers to “an individual’s beliefs about the seriousness of the threat” (Witte, 1992, p. 114) (e.g., “talking on a cell phone while driving will expose me to great danger, and may cause an injury or death”), while perceived susceptibility is “an individual’s belief about his or her chances of experiencing the threat” (Witte, 1992, p. 332) (e.g., “I am at-risk of injury and/or death because I often make a call while driving”). Initially established in the health belief model (Beck, 1974), these two dimensions were proved as two critical factors to drive people’s attitudes and intentions change with regard to health issues.

The other construct of a fear appeal message attempts to increase targeted audiences’ perceived efficacy, defined as the “effectiveness, feasibility, and ease with which a recommended response impedes or averts a threat” (Witte, 1992, p. 332). Although the measure of efficacy has been recognized as the most recurrent and uncontested factor in prompting the acceptance of the recommended behavior and in predicting an individual’s willingness to change his/her behaviors in previous health theories (Dillard,

1994; Rogers, 1975), the EPPM was the first fear appeal model to overtly draw a distinction between response efficacy and self-efficacy (Witte, 1992, 1994). Perceived response efficacy refers to “an individual’s beliefs as to whether a response effectively prevents the threat” (Witte, 1992, p. 115) (e.g., “I believe that not calling while driving can substantially protect myself from a car accident”), and the perceived self-efficacy involves “an individual’s belief in his or her ability to perform the recommended response” (Witte, 1992, p. 332) (e.g., “I believe that I can easily avoid using my cell phone while driving”).

The EPPM adopts a dual/parallel approach explaining how people experience two cognitive appraisals when being exposed to a fear appeal message: the “appraisal of the threat” and the “appraisal of the efficacy of the recommended response in the message” (Witte, Meyer, & Martell, 2001, p. 24). In response to a threat message, an individual will initiate the *primary appraisal* first, which involves an evaluation of the threat presented in the message. If the threat of the message is perceived to be both significant and relevant, fear is provoked (Easterling & Leventhal, 1989; Lang, 1984), which further elicits the second process, termed as *second appraisal*. The more significant and relevant the threat is perceived to be, the more motivation one has to step into the second appraisal. Essentially, interactions between these two appraisal processes substantially determine an individual’s response upon exposure to a fear appeal message. Overall, there are three possible outcomes, accordingly, (1) no response, (2) acceptance, and (3) rejection of the message (Witte, 1992). If the threat is perceived insignificant and/or irrelevant, the appraisal ceases at the *primary appraisal* stage, and there is no motivation to process the efficacy information, resulting in no response to the fear appeal message

(Witte, 1992). In this condition of low threat, the least amount of attitude, intention, and behavior change was found, regardless of efficacy level (Witte, 1991; 1992; 1994).

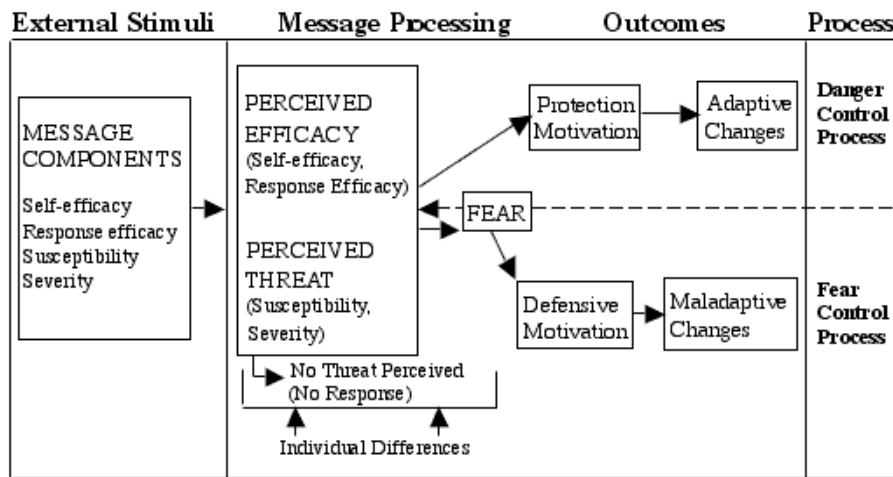


Figure 1: the Extended Parallel Process Model

Nevertheless, if the threat is perceived to be high and relevant, an individual will initiate the next evaluation- the appraisal of efficacy. Plus, depending on different level of perceived efficacy from the fear appeal message, an individual will follow one of the two pathways: danger control process or fear control process (Witte, 1992; Witte, Meyer, & Martell, 2001). If one perceives both of the threat and efficacy as high, he/she is more likely to follow the danger control process when he/she not only is aware of the high level of severity and susceptibility of the threat, but also believes that the recommended behavior can effectively protect him/her from the threat, and that himself/herself can easily and feasibly avert the threat by performing the recommended behavior. In this case, the danger control process will dominate, and a cognitive process will be elicited through which one accepts the fear appeal message and further seeks for possible solutions to avoid the threat. On the contrary, if the threat is perceived high and relevant, while the efficacy (response and/or self) is low, an individual will respond to the fear

appeal message by following fear control process due to insufficient confidence to avoid the threat. As a matter of fact, an individual copes with the fear appeal message by adopting maladaptive behaviors to allay fear, such as denial (e.g., “I am not going to be at-risk of car accidents even though I make calls during driving, because I am special”), reactance (e.g., “They are just manipulating me, I am not going to listen to them”), avoidance (e.g., “This sounds too scary, I am simply going to skip this information”), or aspersion (e. g., “This information is totally wrong, I am not going to think about it”) (Witte, 1992, 1994, 1998; Witte et al 2001). This emotional approach then substantially causes reduction of the persuasive power of the fear appeal message. To obtain a macro perspective of view, Witte and Allen (2000) conducted a meta-analysis to examine the influence of fear appeals on intended (i.e., attitude, intentions, and behaviors) and unintended (i.e., defensive avoidance, reaction) outcomes, they found that messages high in both threat and efficacy ($\mu = .40$, $SD = .49$) have greater persuasive power than those high in threat but low in efficacy ($\mu = .07$, $SD = .31$) and those low in threat while high in efficacy ($\mu = .03$, $SD = .30$). Messages low in both threat and efficacy, however, have negative influence on attitudes and intentions change ($\mu = -.27$, $SD = .44$) (Witte & Allen, 2000, p. 599). To conclude, a successful fear appeal message should lead individuals down the path of danger control which they will not to be guided solely by their emotions; plus, the critical point is whether the efficacy is perceived to outweigh the threat portion of the message.

Overall, to maximally elicit an individual’s motivation of performing the protective behaviors, a risk message must present both threat information (severity and susceptibility of the threat) and efficacy information (response efficacy and self-efficacy).

Indeed, a fear appeal message that presents efficacy information immediately following the appearance of a threat would be the most superior sequence to be accepted by target audience and to achieve the highest level of persuasive effects (Skilbeck, Tuplis & Ley, 1977).

Applications of the Extended Parallel Process Model in Health Communication

To date, the extended parallel process model has been widely utilized as a theoretical framework to develop fear appeal messages and predict whether people choose adaptive or maladaptive behaviors upon exposure to a fear appeal message. Overall, the EPPM is the theoretical framework that has been frequently employed to reveal an individual's tendency to adopt recommended behaviors pertaining to prevention of sexually transmitted disease, such as genital warts (Witte, Berkowitz, Cameron, McKeon; 1998) and HIV/AIDS (Witte, 1994; 2000; Witte & Morrison, 1995). Besides promoting safer sex, the EPPM has been utilized to address other health issues among and across different groups of people, such as preventing binge drinking among college students (Moscato et al, 2001), promoting testicular self-examination (Morman, 2000); motivating breast self-examination (Kline, 1995), preventing teen pregnancy (Witte, 1997) and others. The EPPM also serves as a theoretical rationale and guideline to develop educational and informational materials in various health interventions. McKay, Berkowitz, Blumberg and Goldberg (2004) adopted the EPPM as a theoretical framework to develop a fear appeal message in an attempt to prevent cardiovascular disease among aged people. In the study, they found that the aged who did not perform the suggested behavior previously would feel more confident to follow the suggestions

to prevent cardiovascular disease after being exposed to the high-threat/high-efficacy message they developed.

Implication of the Extended Parallel Process Model (Individual Differences in EPPM)

Although it is based on three previous health behavior change models (e.g., Drive Theory, Protection Motivation Theory) which explain when and why fear appeals work or fail, the EPPM differs from them “qualitatively” (Witte et al, 1998, p. 573) in terms of isolating three different responses to a campaign: (a) danger control process (i.e., attitude/intention change); (b) no response due to low perceived threat; and (c) fear control response such as denial. That is, fear can serve to either motivate or inhibit the recommended behavior depending on the perceived threat and efficacy levels. Witte (1998) suggested that facing an identical fear appeal message, an individual would evaluate the perceived threat verse perceived efficacy “in a multiplicative manner” (Witt, 1998, p. 430) during his/her appraisal processes. In an experiment using the EPPM as a theoretical framework, Witte et al (1998) found that even though exposed to an identical fear appeal message, individuals would react differently depending on their existing efficacy perceptions. Participants with high efficacy were more likely to adopt danger control responses, followed by attitude and intention change, while those with low efficacy perceptions would have less attitude and intention change, and some even exhibited fear control responses, such as defensively avoid, derogate, or deny the issue (Witte et al, 1998). That is, whether fear appeals work or fail largely relies on audiences’ perceptions of the efficacy portion of the fear appeal message. Plus, how an individual perceives the efficacy information may vary depending on the differences of any single person’s internal dispositions. For example, the level of anxiety would pose great

influence on his/her perceptions of threat and efficacy (Witte, 1998). Compared to normal people, a high-anxiety individual tends to perceive a threat as more severe and susceptible and recommended behaviors as more difficult to achieve. Hence, a high-anxiety individual is more likely to perceive that the level of threat exceeds the level of efficacy, which would elicit the fear control process.

A wide variety of personal variables do exist as moderators which are theoretically significant in the persuasive effect of fear appeals (Witte & Allen, 2000). Witte and Allen (2000)'s meta-analysis found significant heterogeneity among correlational relationships between effects of severity, susceptibility, response efficacy, and self-efficacy in fear appeal messages and attitudes, intentions as well as behaviors, respectively, which suggests some moderating variables do exist and can explain why different individuals would react differently (i.e., strong and weak) toward one fear appeal message. However, research on such moderators reveals mixed findings. For example, some studies found that factors such as gender, age, ethnicity, or group membership did not have an effect on the acceptance of fear appeal recommendations (Insko, Arkoff & Insko, 1965; Kirscht, Becker, Haefner & Mainman, 1978; Leventhal, Jones & Trembly, 1996; Rhodes & Woliski, 1990). Nevertheless, some other studies found personal need for cognition and uncertainty orientation had significant effects on the persuasive outcomes of fear appeal messages (Brouwers & Sorrentino, 1993; Stout & Sego, 1994). Given the scarcity of research on testing the influence of individual difference variables on persuasive effectiveness of fear appeals, Witte and Allen (2000) called for more research to identify personal differences which may serve as plausible moderators. Therefore, the current study proposes to study how personal dispositions in

the aspect of control belief and social norms moderate/mediate the outcomes of being exposed to a fear appeal message, as well as the correlation between perceived self-other differences and outcomes of a fear appeal message.

Perceived Behavioral Control vs. Subjective Social Norms

Derived from the social psychology setting, the theory of reasoned action (Ajzen & Fishbein, 1975, 1980) suggests that an individual's attitude towards a certain behavior and subjective norms regarding the behavior co-determine his/her behavioral intention. Later, Ajzen (1991) proposed the theory of planned behavior by including the concept of perceived behavioral control to increase the predictive power, especially for those behaviors over which individuals have insufficient volitional control. Conceptually, it refers to one's perceptions of easiness or difficulty to perform a certain targeted behavior (e.g., I believe I can avoid talking on a cell phone while I am driving, no matter responding or making a call.). Basically, an individual is capable of assessing the degree of the perceived behavior control according to his/her past relevant experiences and knowledge. Based on this assessment, one can judge the anticipated obstacles and impediments, which will result in a certain degree of psychological readiness to perform the desired behavior. As a matter of fact, the concept of perceived behavioral control, which is considered a synonym of self-efficacy by most researchers, serves as an indicator of one's confidence in his/her ability to carry out a particular behavior. This cognitive variable plays an important role theoretically under the circumstance when barriers on the action are perceived to be present, as well as when the formation of a positive attitude is insufficient to explain and predict the behavior. That is, even though one holds a positive attitude toward the recommended action, the existence of personal

and environmental barriers will serve as obstacles to alleviate individuals' willingness to perform the given action, mediating the predictive power of attitudes and subjective norms. Thus, as Ajzen stated (1991), "the predictive power of perceived behavioral control should become increasingly useful" as the prediction of attitude is hindered by the reduction of one's volitional control over a certain behavior (Ajzen, 1991, p. 185). In the case of driving distraction, even though individuals agree with the potential risks of using a cell phone while driving and intend to discard this risky behavior, it is likely that a lack of perceived behavioral control would still lead to a failure to adopt the recommended behavior.

In addition, another concept in social psychology, perceived social norms, also receives substantial attention in social cognition models designed to predict an individual's behaviors. It is defined as one's perceptions of social pressure to perform or not to perform the behavior (Fishbein & Ajzen, 1975). Typically, it is determined by the perceived expectations of salient referent individuals or groups (NB), and by the individual's motivation to comply (MC) with the expectations of these 'significant others' (spouse, medical doctor, etc.). Therefore, if an individual perceives that significant others (families, friends, & other referent groups) endorse (or disapprove of) a certain behavior, they will be more (or less) likely to intend to perform it. As a matter of fact, the predictive power of the subjective social norm is a function of underlying cognitive mechanism. That is, this social normative links a given behavior to a certain outcome, or to some other attribute, such as the cost incurred in performing the behavior (Armitage & Conner, 2001). Although it seems that the social norms stem from general social pressure, the underlying function of this pressure is related with the "likelihood

that specific individuals or groups (referents) with whom the individual is motivated to comply will approve or disapprove of the behavior” (Armitage & Conner, 2001, p. 474). Some researchers argued that this normative component was one of the weakest predictor of individual intentions and behaviors (Shepperd, Hartwick & Warshaw, 1988; Vanden, 1991), but Nunnally (1978) offered an explanation that the poor performance of the subjective norm component was most likely due to its measurement: many authors use single item measures, as opposed to more reliable multi-item scales. Empirically, this social psychological concept has been widely studied and used as a variable in health psychology domains, and it was proved as an effective variable in predicting individual behaviors, including dieting among adolescents (Conner, Martin, Silverdale & Grogan, 1996), physical activity (Collette, Godin, Bradet & Gionet, 1994), cancer screening (de Vellis, Blalock, & Sandler, 1990), smoking cessation (de Vries, H., Backbier, E., Kok, G., & Dijkstra, 1995). In the case of driving distraction, individuals who perceive that families and friends would approve them to use a cell phone while driving would be more likely to get involved into this dangerous behavior; while individuals who perceive a disapproved attitude from their families and friends would be more likely to avoid making a cell phone call while driving.

Third-Person Perception vs. First-Person Perception

The third-person perception, also known as third-person effect, adopts a social effects approach to examine people’s perceptions of media messages and public opinion (Paul, Salwen & Dupagne, 2000). This conceptual hypothesis predicts people tend to perceive the communication as being of more influence and more relevance on others (third persons) than on themselves (Davison, 1983). Specifically, this judgmental

contrast is a function of human being's self-serving nature that people tend to "maintain and enhance a positive self-conception" (Duck, Terry & Hogg, 1995). The theoretical underpinnings of this tendency can be found in two social-psychological theories: attribution theory (e.g., Gunther, 1991; Hoffner et al., 1997) and biased optimism (e.g. Brosius & Engel, 1996; Gunther & Mundy, 1993; Salwen & Dupagne, 2003) (see Paul, Salwen & Dupagne, 2000). For one thing, according to the attribution theory (Heider, 1958), people attribute behavior to a combination of internal or dispositions (e.g., motivation, knowledge, needs) and external or situational (e.g., luck, accidents) factors (Heider, 1958). However, an "actor-observer difference" (Paul, Salwen & Dupagne, 2000, p. 60) exists in some certain situations when people, as an actor, have "a tendency to attribute their actions to situational requirements, whereas, as an observer, "tend to attribute the same actions to stable personal dispositions" (Jones & Nisbett, 1972, p. 80). When it comes to a media message, this bias is manifested through people's judgment that others are less capable to understand the underlying persuasive factors of the message due to dispositional flaws (e.g., gullibility, naivete, etc.). For another, biased optimism, in its broadest sense, refers to "people perceive themselves less likely than others to experience negative consequences" (Gunther & Mundy, 1993). For example, people believe that they are better drivers than other (Svenson, 1981), that they receive better health care than others (Culbertson & Stempel, 1985), that their own chances of experiencing Y2K problems are less than others (Whitman, 1996). According to Weinstein & Klein (1996), this self-serving bias is motivated by people's attempt to enhance self-esteem. That is, people estimate themselves more favorably than others and perceive themselves less likely than others to have negative experiences (Weinstein &

Klein, 1996). Applied to a media message, biased optimism postulates that people would estimate themselves to be smart enough to disbelieve the persuasive part of the message whereas others to be influenced by the message (Gunther & Mundy, 1993). To conclude, motivated by a desire to maintain one's self-esteem and to preserve one's feeling of personal control, people typically tend to perceive their standings relative to others in a perceptual biased manner. Presumably, they would rate positive attributes as more characteristic of themselves than of others (Duck, Terry & Hogg, 1995) and perceive others as more susceptible to the persuasive aspects of media messages. Hence, the perceptual bias, to a certain degree, was found to predict the restriction to the campaign message (Chapin, 1999), and thus, prevent audience from taking the suggested behaviors.

In addition, although robust research supported the third-person effect, a study (Duck, Terry & Hogg, 1995) addressing AIDS/HIV problem found a reversed third-person effect in positive media messages. That is, being exposed to a piece of positive and desirable media message, people tend to perceive the message has greater influence on themselves than others in general, which they named first-person effect/perception (Duck, Terry & Hogg, 1995). They further pointed out that a positive or social-desirable valenced message would significantly reduce the magnitude of the third-person effect or even reverse it into a first-person effect, because a socially desirable message can reduce of the level of people's ego-threatening and ego-defensive response. However, not all empirical research studying positive messages supported the first-person effect. Some observed the first-person effect in message that advocate beneficial and intelligent outcome (Duck & Mullin, 1995; Duck, Terry & Hogg, 1995), while some other studies found no significant self-other differences in perceptions of the effects of beneficial

PSAs (Gunther & Thorson, 1992). Although researchers (Gunther & Thorson, 1992; Duck, TERRY & Hogg, 1995) provided evidence suggesting it was the features of the message rather than the intentions of the message that determined whether the first-person perception was pronounced or not, but it still remains empirically unclear whether there is a first-person effect in a fear appeal message. That is, a fear appeal message cannot be considered either completely positive or completely negative, because the threat part in the message presents severe consequences which are considered as scary and undesirable (e.g., car accidents) and can probably provoke third-person perception, whereas the efficacy part provides solutions and treatments to the problem (e.g., drive safely and not talking on a cell phone behind the wheel) which are considered as beneficial and favorable. Therefore, what is of particular interest is which, the third-person perception or first-person perception, would be provoked by a fear appeal message.

Hypotheses and Research Questions

First, two research questions are proposed to gain an insight into whether ethnicity and type of cell phone can predict individual frequency of calling while driving as follows:

RQ1: Is there any significant difference regarding the frequency of calling while driving among different ethnicity?

RQ2: Is there any significant difference regarding the frequency of calling while driving among different cell phone type users?

In addition, the EPPM's theoretical stance is that fear appeal tactic does work, but only when individuals have strong perceptions of both threat and efficacy. Thus, an

effective fear appeal message should present the potential risks of a problematic behavior along with feasible treatments and solutions. Upon exposure to such a message, an individual will initiate the process of threat appraisal and efficacy appraisal. If the efficacy is perceived strong enough to address the threat, he/she is likely to activate the danger control along with attitude and intention change; otherwise, fear control would dominate, resulting in defensive avoidance, message denial, and perceived manipulation. Thus, consistent with this major tenet of the EPPM, the first hypothesis is formulated as follows:

H1a: Individuals will experience danger control process (favorable change of attitudes and intentions) after being exposed to a fear appeal message regarding severe consequences of talking over a cell phone while driving.

H1b: Individuals who are exposed to a fear appeal message regarding severe consequences of talking over a cell phone while driving are more likely to experience danger control process (favorable change of attitudes and intentions) than those who are not.

Furthermore, based on the TPB (Ajzen, 1991), the perceived behavioral control refers to an individual's perceptions of his/her ability to perform a given behavior. This conceptual variable is powerful to predict one's intentions of a certain behavior, especially for the behavior over which one has insufficient volitional control. Given the fact that calling while driving is a problematic behavior that individuals always have weak volitional control over, the current study adopts the perceived behavioral control as one independent variable to increase the predictive power of this certain behavior. First, a hypothesis is formulated to look into the interaction between individuals' perceived

behavioral control and the perceived efficacy (including self efficacy and response efficacy) of the fear appeal message as follows:

H2: The greater one's perceived behavioral control is, the greater the perceived efficacy (including perceived response efficacy and perceived self-efficacy) is.

As mentioned earlier, the meta-analysis research (Witte & Allen, 2000) found that an individual would perceive the threat verse efficacy “in a multiplicative manner” depending on his/her personal dispositions. That is why different people would react differently toward an identical fear appeal message. Plus, literature reviewed above demonstrates that one's perceived behavioral control, as a type of personal disposition, is partially based on past experiences with the behavior. More judgment about one's own perceived behavioral control of a certain behavior is made through learning experiences of acquaintances and friends as well as second-hand information, such as a health intervention. In the present study, a fear appeal message will serve as a second-hand message, through which one's perceived behavioral control would increase or reduce. Given the fact that perceived behavioral control is substantially related with one's intention, the third hypothesis is proposed to look into the association between perceived behavioral control and one's intention after exposure to the fear appeal message. Since perceived efficacy consists of perceived response efficacy and perceived self-efficacy, the third hypothesis is divided into two sub-hypotheses.

H3a: Individual intention of stopping calling while driving is significantly correlated with the perceived behavioral control, mediated by perceived response efficacy of a fear appeal message regarding severe consequences of talking over a cell phone while driving.

H3b: Individual intention of stopping calling while driving is significantly correlated with the perceived behavioral control, mediated by perceived self-efficacy of a fear appeal message regarding severe consequences of talking over a cell phone while driving.

In addition, perceived social norms, another predictor also proposed in the theory of reasoned action (Ajzen & Fishbein, 1980), is a “summed product of each normative belief multiplied by the individual’s motivation to comply with these perceived expectations to perform some certain behaviors” (Quine & Rubin, 1997 p. 200). As a general rule, this normative beliefs result in perceived social pressure or subjective norm. Plus, the more favorable one perceives the social norm, the stronger should be the individual’s intention to perform the behavior in question. Therefore, it is assumed that one’s perceived social norms would pose influence on his/her perceptions of the severity and susceptibility factors in the fear appeal message. Based on this rationale, the forth hypothesis is postulated as follows:

H4a: The greater one’s perceived social norm is, the greater the perceived severity.

H4b: The greater one’s perceived social norm is, the greater the perceived susceptibility.

Plus, according to the theory of planned behavior (Ajzen, 1991), the social norms can be measured by asking to what extent the participants are affected by their perceptions of salient others’ attitudes to a certain behavior in question, and how much participants care about how salient others think. In another words, one’s perceived social norms are developed through various communications with his/her families, friends and other referent groups. It is the significant others’ opinions and pressure that determine one’s normative belief regarding performing a certain behavior, rather than the “correct

knowledge” regarding the behavior in a certain campaign. Consistent with this rationale, the study proposes the following hypothesis. Since the perceived threat consists of perceived severity and perceived susceptibility, the fifth hypothesis is divided into two sub-hypotheses

H5a: The perceived social norm moderates the relationship between the perceived severity and attitude regarding the issue of making cell phone calls while driving.

H5b: The perceived social norm moderates the relationship between the perceived susceptibility with attitude regarding the issue of making cell phone calls while driving.

Last but not the least, the literature above reviewed two types of perceptual bias which may emerge and alter the influence of a media message. One is third-person effect, referring to the misperceptions that others are more affected than oneself by media messages. On the contrary, another perceptual bias, named first-person effect, occurs when one believes they are more influenced by media messages than others, which can be considered as a reversed third-person effect. Plus, empirical research suggested that which perceptual bias may emerge largely depended on whether the media message is positive/social-desirable or negative/social-undesirable. However, it seems difficult to answer which perception would occur when it comes to a fear appeal message which consist of both threat and efficacy factors. Plus, given the fact that third-person effect would restrict the persuasive power whereas the first-person effect can increase the persuasion, it is of much importance to be clear what type of misperception that a fear appeal message would provoke. Therefore, it will be ascertained whether a fear appeal message is associated with classic or reversed third-person effects as follows:

RQ3: What type of perceptual bias, the third-person perception or first-person perception will participants exhibit when they are exposed to a high-threat/high-efficacy fear appeal message regarding the severe consequences of talking over a cell phone while driving?

Consistent with the function of third-person effect and first-person effect, I propose the following hypothesis:

H6: Both attitude and intention are significantly related with the third-person/first-person perception.

Chapter Three

Methods

Based on literature reviewed above, the current study offers insight into whether the outcomes of being exposed to a fear appeal message would vary because of different personalities (including perceived behavioral control, perceived social norm and perceptual bias). Therefore, a within/between-group experiment design was employed to examine into how a fear appeal message channels individuals' fear into positive actions, and how individual differences influence this process.

Sampling and Procedures

A survey was conducted during fall of 2011 from 200 people online and in hard copy version. Those who are eligible to participate should (1) be between 18 and 30 years old and (2) hold a current driver's license. It was a convenience sample recruited through word of mouth and personal referrals. Participants completed the survey on a voluntary basis. To motivate people to participate, they will be assured them that their

participation is totally voluntary and confidential. Also, participants will receive a result report. In addition, ten \$25 gift cards were raffled as an incentive to participate.

It involved an experimental design with two fear appeal message conditions (present/absent), and both groups took a pretest and an immediate posttest after exposure to the stimulus material. All participants were first given a Cover Letter of this study (Appendix A) and then were asked to take the pretest, which has three sections in the questionnaire (Appendix B). First, participants answered questions related with (1) level of fear toward the issue of calling while driving; (2) initial attitudes toward the issue; (3) intentions of discarding the behavior in the future. Then, the levels of their perceived behavioral control, and perceived social norms were identified through the second section of the questionnaire. The last section asked their frequency of making calls while driving in daily life as well as standard demographic questions on age, gender, ethnicity, marriage status. Participants' email addresses were derived in the pretest in order to track them for the posttest.

After the pretest, participants were randomly divided into two groups, treatment group and control group, each with equal number of participants. To be specific, all participants' names were listed in a Microsoft Excel. Those ranked as odd number went to treatment group while those ranked as even number went to control group. The posttest was conducted one week after the pretest. The treatment group were first be exposed to a fear appeal message about the severe consequences of calling while driving and several tips to prevent this risky behavior (Appendix C), then, they were asked to fill out an immediate posttest (Appendix D) asking about (1) perceived efficacy and perceived threat of the message (including perceived severity, perceived susceptibility,

perceived response efficacy and perceived self-efficacy); (2) third-person perception/first-person perception; (3) variables same as those in the pretest questionnaire, again. The control group was asked to fill in the same questionnaire with the pretest (Appendix B). To preserve anonymity, no identifying data was obtained and participants returned the questionnaire online to maintain confidentiality of their responses.

Stimulus Materials

Participants in the treatment group received a high-threat/high-efficacy risk message in the term of video and reading materials (Appendix C). The first part of the message involves a PSA derived from Youtube.com. It was developed by California government in an attempt to prevent the behavior of calling while driving. The fear appeal video presents the severe consequences of calling while driving through a vivid, graphic, but threatening manner. The second part of the message includes several tips to prevent from performing the risky behavior of calling while driving. It addresses barriers to performing the recommended response, and gives evidence of the recommended response's effectiveness and easiness to carry it out in order to help participants build confidence. The reading message was developed by compiling documents from National Safety Council. This stimulus message was presented to participants through an online link via email.

The fear appeal message was subjected to extensive pilot testing and validation, and a separate study was undertaken to validate that the fear appeal message has high-level of threat and high-level of efficacy. Ten participants, who were different than those who participated in the actual study, were recruited. Then, they were asked to evaluate the

message on three items: 1) I feel that the consequences of talking on a cell phone while driving is frightening after reading the message, 2) I feel that the consequences of talking on a cell phone while driving is scary after reading the message, and 3) Talking on a cell phone while driving would make me feel anxious after reading the message. Then they were asked them to carefully read/watch the message. After that, they evaluated the message on three items which are similar with the previous ones. The questions included: 1) After reading the message, I feel that the consequences of talking on a cell phone while driving is frightening, 2) After reading the message, I feel that the consequences of talking on a cell phone while driving is scary, and 3) After reading the message, talking on a cell phone while driving would make me feel anxious. The scales range from 1 = strongly disagree to 5 = strongly agree. Combining the three threat items into one fear index, the results revealed that compared with the first questionnaire ($\mu = 2.45$), the high-threat/high-efficacy message aroused significantly high levels of fear about distracted driving in the questionnaire after the message ($\mu = 4.06$) ($t = .368$, $p < .01$).

Measures

All of the questions, unless otherwise noted, used five-point Likert-type response formats. Participants were asked to indicate their degree of agreement with various statements on five-point rating scales, the end points of which are *strongly disagree* and *strong agree*. All questionnaires were pilot-tested on a separate sample of same-age people and revised based on their questions and comments. All measures are described briefly below.

Independent Measures

Independent variables which were measured include: (a) perceived behavioral control; (b) perceived social norms; and (c) classic third-person perception/reversed third-person perception as follows:

Perceived Behavioral Control. A direct measure of perceived behavioral control was obtained by measuring responses to three items. Two of them were derived from a study examining the TPB's (Ajzen, 1991) explanation of the issue of alcohol consumptions among adolescents (Marcoux & Shope, 1997); the third was derived from a study examining effectiveness of the TPB (Ajzen, 1991) in predicting weight reduction among college women (Schifter & Ajzen; 1985). The reliability was 0.745, which was acceptable. Necessary changes were made to fit in current study. Each of these items employed a five-point scale. These items are: 1) In the next year, I feel it would be very difficult for me not to talk on a cell phone while driving, 2) Whether or not I avert talking on a cell phone while driving in the next month is entirely up to me, 3) Your best estimate that an attempt on your part to reduce the chance of calling while driving over the next six weeks would be successful. The scales range from 1 = strongly disagree to 5 = strongly agree.

Perceived Social Norm. Perceived social norm was assessed with five items derived from previous studies. Three of them were derived from a study examining variables in TPB (Ajzen, 1991) predicting health-protective behaviors (McCaul, Sandgren, O'Neill & Hinsz, 1993), and these three items measured the normative belief derived from families, friends and other salient others; the last two were derived from a study examining effectiveness of a smoking cessation campaign (Babrow, Black, & TiVany, 1990) under

the theoretical framework of TPB (Ajzen, 1991), and they measured the social pressure in general. The reliability was 0.826, which was acceptable. Necessary changes were made to fit in current study. Each of these items employed a five-point scale. These items are: 1) Most people who are important to me think that I should never make calls while driving, 2) It is very likely that significant others would stop me from answering an incoming call when I drive, 3) Most people who are important to me do not make cell phone calls while driving, 4) I feel pressure from society in general to stop making calls while driving, 5) It happens very frequently that other drivers would honk at me when I am talking on a cell phone while driving. The scales range from 1 = strongly disagree to 5 = strongly agree.

Third-Person Perception/First-Person Perception. The third-person perception/first-person perception consist perceptions of a media message's influence on oneself as well as others. Therefore, consistent with previous research (e.g., Duck, Terry & Hogg, 1995; Gunther & Mundy, 1993) each of these perceptions will be measured. These items are: 1) How much do you think this message influenced your attitudes toward the behavior, and 2) How much do you think this message influenced other people's attitudes toward the behavior of calling behind the wheel? The third-person/first-person differential perception score was calculated by subtracting the score obtained for "Perceived influence on others in general" from the score obtained for "Perceived influence on yourself". Since both of these items were measured on a 5-point scale ranging from Not influenced at all (1) to Extremely influenced (5), the third-person/first-person differential perception score ranged from -4 to 4. Positive scores denotes that self is perceived as more influenced than others, indicating a reversed third-

person perception (first-person effect), whereas negative scores denotes that self is perceived as less influenced than others, indicating a classic third-person perception.

Dependent Measures

Dependent variables included: (a) perceived efficacy, including self-efficacy and perceived response efficacy; (b) perceived severity; (c) perceived susceptibility; (d) fear; (e) attitudes; (f) intentions. The dependent variables of fear, attitudes, and intentions all suggest the danger control outcomes; while the variables of defensive avoidance, message denial, and perceived manipulation indicated the fear control outcomes.

Perceived Efficacy. Since the perceived efficacy includes perceived response efficacy and perceived self-efficacy. This variable was mean of the perceived response efficacy and perceived self-efficacy. Participants' perceived self-efficacy was assessed with three items adapted from the Risk Behavior Diagnosis (RBD) (Witte, Cameron, McKeon & Berkowitz, 1996). This 12-item, 7-point Likert-type scale is theoretically supported, enabling a research study to determine whether an individual is in danger control or fear control processes before or after exposure to a health risk message (Gore & Bracken, 2005). There were twelve questions totally asking individual's perceived susceptibility, severity, self-efficacy, and response efficacy toward a certain behavior or topic, each with three questions. Three questions measuring self-efficacy were adapted to assess participants' perceived self-efficacy. These items are: 1) This message makes me feel that I can manage to avoid making a call or answering an incoming call while driving, 2) This message makes me feel that I am able to stop making calls at the wheel to prevent a car accident, 3) This message gives me much confidence that I can easily take control of my own behaviors, which is to pull over my car when there is a need to

use my cell phone. Items measuring participants' perceived response efficacy were also adapted from the Risk Behavior Diagnosis (RBD) (Witte, Cameron, McKeon & Berkowitz, 1996). These three items are the ones measuring individual's response efficacy: 1) This message makes me feel averting to talk behind wheel can effectively keep me away from car accidents, 2) According to the message, inhibition of the usage of cell phone while driving is easy to reduce the rate of car accidents, 3) According to the message, if I stop calling behind the wheel, I am less likely to get involved into a car accident. The reliability was 0.870, which was acceptable. Each item was changed into a 5-point Likert scale to be consistent with other items, hence, the scales range from 1 = strongly disagree to 5 = strongly agree.

Perceived Severity. Items measuring participants' perceived severity are also adapted from the Risk Behavior Diagnosis (RBD) (Witte, Cameron, McKeon & Berkowitz, 1996). These three items are the ones measuring individual's perceived severity: 1) After reading this message, I feel that talking on a cell phone while driving is a severe threat, 2) This message makes me to believe that the issue of using a cell phone while driving is significant, 3) According to this message, talking on a cell phone at the wheel is really a serious issue. The reliability was 0.700, which was acceptable. Each item was changed into a 5-point Likert scale to be consistent with other items, hence, the scales range from 1 = strongly disagree to 5 = strongly agree.

Perceived Susceptibility. Items measuring participants' perceived severity were also adapted from the Risk Behavior Diagnosis (RBD) (Witte, Cameron, McKeon & Berkowitz, 1996). These three items are the ones measuring individual's perceived susceptibility: 1) From this theory, I learned that it is possible that I will get involved

into a car accident if I keep talking on a cell phone while driving, 2) Reading this message makes me feel that I am at risk of getting involved into a car accident if I call during driving, 3) I feel it is likely to encounter a car crash if I make a call while driving when I read this message. The reliability was 0.860, which was acceptable. Each item was changed into a 5-point Likert scale to be consistent with other items, hence, the scales range from 1 = strongly disagree to 5 = strongly agree.

Fear. Fear arousal was measured with three semantic different items. These items were derived from a study using the EPPM to prevent of the spread genital warts (Witte, Berkowitz, Cameron & Lillie, 1998) and necessary changes were made to fit in the current study. These items are: 1) I think that the consequences of on a cell phone behind the wheel are frightening, 2) I think that the consequences of talking on a cell phone behind the wheel are really scary, 3) If I see someone making a call while driving, I would feel anxious. The reliability was 0.931, which was acceptable. The scales range from 1 = strongly disagree to 5 = strongly agree.

Attitudes. Participants' attitude toward the behavior of calling while driving was measured by three items. These three items were derived from a study examining the relationship between attitude and social behavior (Ajzen, & Fishbein, 1980). And necessary changes were made to fit in the current study. These items are: 1) Making cell phone calls while driving is harmful, 2) Making cell phone calls while driving is foolish, 3) Making cell phone calls while driving is desirable. The reliability was 0.674, which was acceptable. Each item was changed into a 5-point Likert scale to be consistent with other items, hence, the scales range from 1 = strongly disagree to 5 = strongly agree.

Intention. Participants' intention was assessed with three items. These three items were derived from a study (McClenahan, Shevlin, Adamson, Bennett & O'Neill, 2007) which examined the utility of the TPB (Ajzen, 1991) in predicting testicular self-examination (TSE) behavior. Necessary changes were made to fit in the current study. The three items are: 1) I intend to avoid calling while driving, 2) I plan to pull over my car while driving if there is an incoming call, 3) I am not going to make a call while driving any more, because it is really dangerous. The reliability was 0.836, which was acceptable. The scales range from 1 = strongly disagree to 5 = strongly agree.

Message Confound Checks

Potentially confounding issues with respect to the message itself were assessed with two items: 1) The message is objective and believable, 2) I do understand what the message talks about, and do learn a lot from it. The reliability was 0.722, which was acceptable. The scales range from 1 = strongly disagree to 5 = strongly agree.

Demographical Characteristics

Demographic variables including gender, age, marriage status and ethnicity were assessed. For the items of gender, marriage status and ethnicity, participants were asked to check the appropriate answer category. For the item of age, participants were asked to write their age.

Behavior of Talking on a Phone Behind Wheel

Participants were asked how frequently they talk on a cell phone while driving on a five-point Likert scale ranging from 1 = very frequently to 5 = never.

Data analysis

Since the present study is a between-group design comparing individuals in two separate groups (treatment group and control group), and a within-group design comparing data between pretest and posttest, the data analysis were conducted through a variety of univariate and multivariate techniques. SPSS 18 for Windows version was used to perform all statistical analyses.

For Research Question 1, Research Question 2, Hypothesis 1, data collected from the pretest and posttest for both the treatment group and control group was analyzed using ANOVA to examine: 1) whether there is a significant difference in the aspect of individuals' fear levels, attitudes and intentions between the treatment group who are exposed to a fear appeal message about severe consequences of talking on cell phones while driving and the control group who are not exposed to any message, 2) whether there is a difference between the pretest and posttest of the treatment group.

For Hypothesis 2, Hypothesis 4, and Hypothesis 6, data collected from the treatment group was analyzed via bivariate correlation to identify the correlation between individuals' perceived behavioral control and perceived response efficacy/perceived self-efficacy of the message.

In addition, multiple regression analyses were employed to test Hypothesis 3 and Hypothesis 5.

Chapter Four

Results

The current study aimed to examine the major tenets of the Extended Parallel Process Model as well as the mechanism of how personal differences interact with a fear appeal message regarding calling while driving. The hypotheses and research questions were tested with t-test, bivariate correlation, and multiple regression.

Demographic Statistics

Of the 200 participants in the study, 178 (89%) reported that they once made a call while driving in the past. Among the 200 participants, 27 (13.5%) reported they made cell phone calls while driving more than once per day, 41 (20.5%) several times per week, 42 (21%) several times per month. There were 112 (56%) male participants and 88 (44%) females in the study. No significant difference was found regarding the frequency of calling while driving between males and females (See Table 1).

Table 1

Treatment Group & Control Group Gender & Frequency Independent Samples t-Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Frequency	.394	.531	.276	198	.783	.04872	.17657	-.29948	.39692

The mean age for all participants was 24-year-old, with the minimum of 18-year-old and maximum of 30-year-old. The age spectrum is uniformly distributed. No significant difference was found regarding the frequency of calling while driving among groups of different age (See Table 2).

Table 2

Treatment Group & Control Group Age & Frequency ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	51.794	27	1.918	1.311	.153
Within Groups	251.761	172	1.464		
Total	303.555	199			

Of the 200 participants, 150 (75%) reported they were single, while 50 (25%) reported they were married. Plus, a significant difference was found regarding the frequency of calling while driving between groups of different marital status ($t = 4.44$, $p < .05$). Of the 200 participants in the study 49 (24.5%) were Caucasian, 34 (17%) were African American, 54 (27%) were Asian, 44 (22%) were Hispanic, 2 (1%) were Pacific Islander, and 17 (8.5%) were other ethnicities. A significant difference was found regarding the frequency of calling while driving among groups of different ethnicity. For example, Caucasian ($\mu = 3.65$, $SD = 1.05$) and Asian ($\mu = 3.35$, $SD = 1.18$) reported the least frequency of calling while driving, while Hispanic ($\mu = 2.25$, $SD = 1.06$) and African American ($\mu = 2.88$, $SD = 1.23$) reported the most frequency of calling while driving ($F = 8.29$; $p < .001$). Other reported a medium frequency of calling while driving ($\mu = 3.06$, $SD = 1.25$). Pacific Islanders ($\mu = 4.00$, $SD = 0.00$) who reported the least frequency were not considered because the sample was too small to represent the actual situation. ANOVA and descriptive are presented in Table 3, 4 and 5.

Table 3

Treatment Group & Control Group Ethnicity & Frequency ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	53.418	5	10.684	8.286	.000
Within Groups	250.137	194	1.289		
Total	303.555	199			

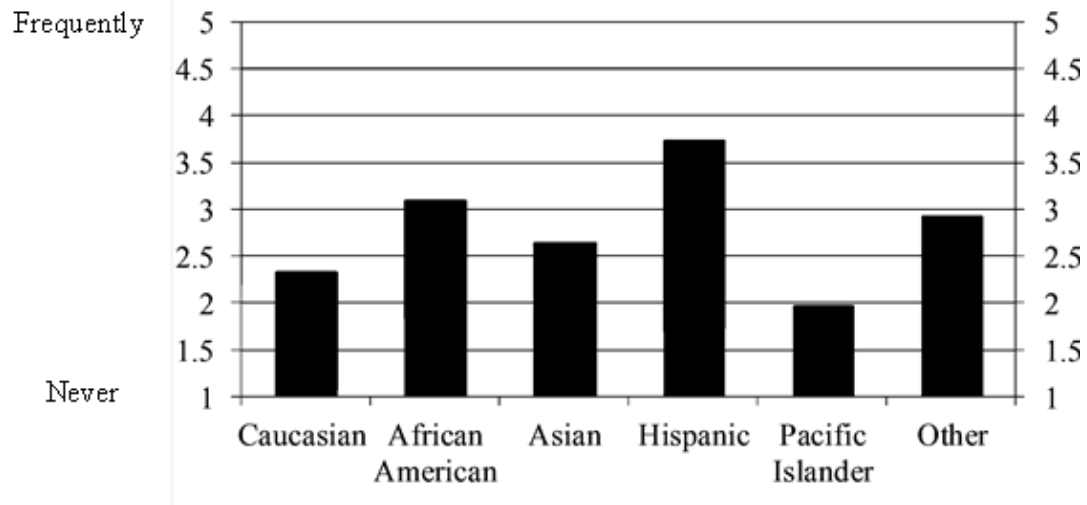
Table 4

Treatment Group & Control Group Ethnicity & Frequency Descriptives

	N	Minimum	Maximum	Mean	Std. Deviation
Caucasian	49	1.00	5.00	3.6531	1.05180
African American	34	1.00	5.00	2.8824	1.22511
Asian	54	1.00	5.00	3.3519	1.18413
Hispanic	44	1.00	4.00	2.2500	1.05929
Pacific Islander	2	4.00	4.00	4.0000	.00000
Other	17	1.00	5.00	3.0588	1.24853

Table 5

Histogram of Frequency among Groups of Ethnicity



For the treatment group, there were 54 (54%) male participants and 46 (46%) females in the study. Of the 100 participants, 70 (70%) reported they were single, while 30 (30%) reported they were married. Of the 100 participants in the treatment group, 27 (27%) were Caucasian, 14 (14%) were African American, 31 (31%) were Asian, 18 (18%) were Hispanic, 1 (1%) were Pacific Islander, and 9 (9%) were other ethnicities. For the control group, there were 58 (59%) male participants and 42 (42%) females in the study. Of the 100 participants, 80 (80%) reported they were single, while 20 (20%) reported they were married. Of the 100

participants in the treatment group, 22 (22%) were Caucasian, 20 (20%) were African American, 23 (23%) were Asian, 26 (26%) were Hispanic, 1 (1%) were Pacific Islander, and 8 (8%) were other ethnicities.

T-Test

Before analysis of the data, a composite score of each variable was created by summing the standardized scores of those three items measuring this variable. An independent sample t-test was computed to determine whether there were any significant differences in the five main measured variables (i.e., fear, attitude, intention, perceived social norm and perceived behavioral control) between participants in the treatment group and participants in the control group. No significant results were found from the t-test (see Table 6), indicating that participants were randomly divided into treatment group and control group. Therefore, the data for both groups would not be subject to nonrandom sampling.

Table 6
Treatment Group & Control Group Pretest Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Fear	2.020	0.157	-0.322	198	0.748	-0.04667	0.14513	-0.33287	0.23953
Attitude	0.995	0.320	0.051	198	0.959	0.00667	0.12956	-0.24882	0.26216
Intention	0.669	0.414	1.487	198	0.139	0.22000	0.14795	-0.07175	0.51175
PBC	1.370	0.243	-0.085	198	0.932	-0.01000	0.11711	-0.24094	0.22094
PSN	2.508	0.115	0.462	198	0.644	0.05400	0.11681	-0.17636	0.28436

PBC = perceived behavioral control; PSN = perceived social norm.

In addition, paired sample t-test was computed to determine whether there were any significant differences in the five main measured variables (i.e., fear, attitude, intention, perceived social norm and perceived behavioral control) between the control group's pretest and posttest. No significant results were found from the t-test (see Table 7), indicating any change between pretest and posttest occurring in the treatment group was caused by the message, rather than the pretest.

Table 7
Control Group Pretest & Posttest Paired Samples Test

Group				Paired Differences					t	df	Sig. (2-tailed)
				Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
							Lower	Upper			
Pretest	Posttest										
control	Fear	3.5100	3.4400	.07000	.42454	.04245	-.01424	.15423	1.649	99	.102
	Attitude	3.5333	3.4767	.05666	.42390	.04239	-.02745	.14077	1.337	99	.184
	Intention	2.8933	2.9167	-.02333	.37081	.03708	-.09691	.05024	-.629	99	.531

A paired samples t-test was conducted to test hypothesis 1a that postulates that individuals will experience danger control process (favorable change of attitude and intention) after being exposed to a fear appeal message regarding severe consequences of talking over a cell phone while driving. The hypothesis was supported. Descriptive statistics and results of paired samples t-test between treatment group's pretest and posttest are presented in Table 8. The paired samples t-test showed a significant message effect. That is, for one thing, participants' attitudes regarding the behavior of talking on a cell phone while driving measured in the posttest (after the exposure to the fear appeal message regarding severe consequences of talking over a cell phone while driving) ($\mu = 3.83$, $SD = 1.05$) were more favorable than those measured in the pretest ($\mu = 3.54$, $SD = .92$) ($t = -4.71$, $p < .001$); for another, participants' intentions regarding the behavior of talking on a cell phone while

driving measured in the posttest ($\mu = 3.37$, $SD = 1.91$) were more favorable than those measured in the pretest ($\mu = 3.11$, $SD = .91$), ($t = -3.63$, $p < .001$). Therefore, it can be inferred that the high-threat/high-efficacy fear appeal message regarding distracted driving moved the treatment group toward danger control (favorable change of attitude and intention), confirming the Hypothesis 1a.

Table 8
Treatment Group Pretest & Posttest Paired Samples T-test

Group				Paired Differences					t	df	Sig. (2-tailed)
				Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
							Lower	Upper			
Treatment	Fear	3.4633	3.5600	-.09667	.91046	.09105	-.27732	.08399	-1.062	99	.291
	Attitude	3.5400	3.8267	-.28667	.60862	.06086	-.40743	-.16590	-4.710	99	.000
	Intention	3.1133	3.3667	-.25333	.69650	.06965	-.39153	-.11513	-3.637	99	.000

Hypothesis 1b, that individuals who are exposed to a fear appeal message regarding severe consequences of talking over a cell phone while driving are more likely to experience danger control process (favorable change of attitudes and intentions) than those who are not, was supported. Descriptive statistics and independent samples t-test of the posttest between treatment group and control group are presented in Table 9 and Table 10. The independent samples t-test showed a significant message effect. That is, for one thing, those participants exposed to the fear appeal message exhibited a more favorable attitude regarding this behavior ($\mu = 3.83$, $SD = 0.81$) than those participants not exposed to the fear appeal ($\mu = 3.48$, $SD = 1.00$) ($F = 3.946$, $p < .01$); for another, the participants exposed to the fear appeal message exhibited a more favorable intention regarding this behavior ($\mu = 3.37$, $SD = 1.03$) than those not exposed to the fear appeal ($\mu = 2.92$, $SD = 1.11$), ($F = .042$, $p < .01$). Therefore, it can be determined that the high-threat/high-efficacy fear appeal message regarding

distracted driving has a significant positive influence on the treatment group's attitude and intention on this issue, confirming the Hypothesis 1b.

Table 9

Treatment Group & Control Group Posttest Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Fear	.662	.417	.810	198	.419	.12000	.14815	-.17215	.41214
Attitude	3.946	.048	2.737	198	.007	.34999	.12790	.09778	.60221
Intention	.042	.837	2.976	198	.003	.45000	.15123	.15177	.74823

Table 10

Treatment Group & Control Group Posttest Descriptives

Treatment Group & Control Group Posttest Descriptives		N	Mean	Std. Deviation	Std. Error Mean
Fear	treatment	100	3.5600	1.00043	.10004
	control	100	3.4400	1.09266	.10927
Attitude	treatment	100	3.8267	.80609	.08061
	control	100	3.4767	.99297	.09930
Intention	treatment	100	3.3667	1.02658	.10266
	control	100	2.9167	1.11048	.11105

Analysis of Variance

Analysis of variance was conducted to determine whether there is a significant difference among different cell phone types with regard to the frequency of making calls while driving the participants reported (Research Question 2). Descriptive statistics for the measured variables are presented in Table 11 , 12 and 13. The ANOVA test (see Table 11)

showed a significant difference among various cell phone types in The aspect of frequency of making calls while driving ($F = 6.68$; $P < .001$). According to the descriptive statistics (see Table 12), iPhone holders reported the least frequency of calling while driving ($\mu = 3.74$, $SD = .91$), while Android holders reported the most frequency of calling while driving ($\mu = 2.65$, $SD = 1.29$).

Table 11

Treatment Group & Control Group Cell Phone Type & Frequency ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	36.596	4	9.149	6.683	.000
Within Groups	266.959	195	1.369		
Total	303.555	199			

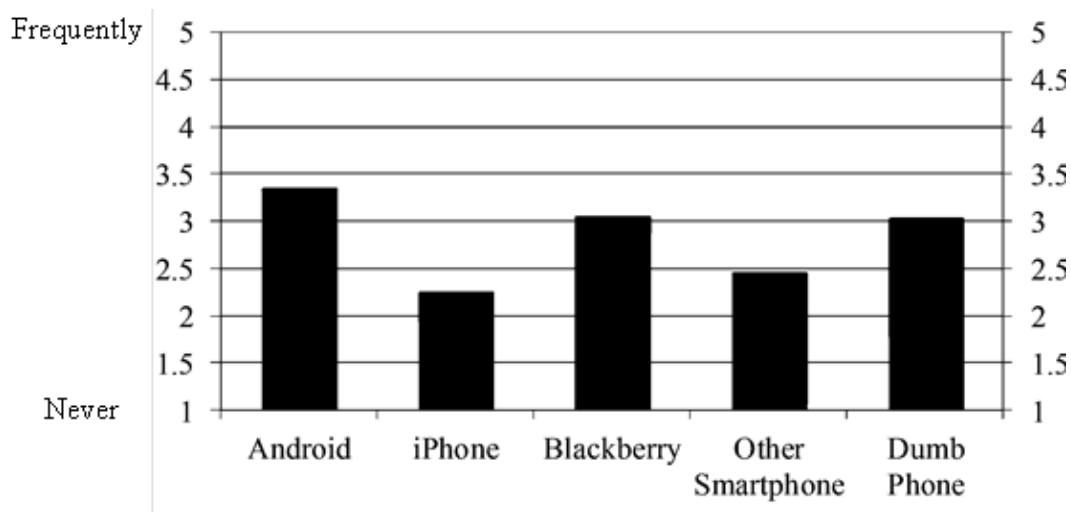
Table 12

Treatment Group & Control Group Cell Phone Type & Frequency Descriptives

	N	Minimum	Maximum	Mean	Std. Deviation
Android	66	1.00	5.00	2.6515	1.05180
iPhone	46	1.00	5.00	3.7391	1.22511
Blackberry	18	1.00	5.00	2.9444	1.18413
Other	17	1.00	4.00	3.5294	1.05929
Dumb Phones	53	4.00	4.00	2.9623	.00000

Table 13

Histogram of Frequency among Different Cell Type Users

***Bivariate Correlation***

Bivariate correlation analysis was conducted to test both Hypothesis 2 and Hypothesis 4. Hypothesis 2, which posits that one's perceived behavioral control positively correlates with the perceived efficacy (including perceived response efficacy and perceived self-efficacy), was supported. Descriptive statistics and bivariate correlations among the measured variables are presented in Table 14. As expected, the perceived behavioral control was positively correlation with the perceived efficacy ($r = .420$, $p < .01$) (see Table 14). In other words, the data supported Hypothesis 2.

Table 14

Correlation among Efficacy Variables in Treatment Group Posttest

Efficacy variable	1	2
1. Perceived behavioral control	—	.420**
2. Perceived efficacy		—

Note. N = 100.

** $p < .01$

Hypothesis 4 (i.e., one's perceived social norm positively correlates with the perceived threat, including perceived severity and perceived susceptibility) was tested by bivariate correlation. The data supported the hypothesis. Descriptive statistics and bivariate correlations for the measured variables are presented in Table 15. As illustrated, the perceived social norm is positively correlated with the perceived severity ($r = .35, p < .01$) (see Table 15). A positive relationship was also found between the perceived social norm and perceived susceptibility, ($r = .325, p < .01$). Therefore, it can be concluded that both the perceived severity and perceived susceptibility are positively correlated with the perceived social norm regarding the issue of making cell phone calls while driving. Thus, the data supported Hypothesis 4.

Table 15

Correlation among Threat Variables in Treatment Group Posttest

Threat variable	1	2	3
1. Perceived social norm	—	.348**	.325**
2. Perceived severity	—	—	.576**
3. Perceived susceptibility	—	—	—

Note. N = 100.

** $p < .01$

Hypothesis 6 predicting a relationship between first-person perception and individual attitude as well as intention regarding the risk taking behavior of making cell phone calls while driving were tested by a bivariate correlation. The hypothesis was partially supported. Specifically, it was predicted that participants exhibiting higher degrees of first-person perception would report a more favorable change in attitude and intention regarding talking on a cell phone while driving than participants exhibiting less or no first-person perception. Descriptive statistics and bivariate correlations for the measured variables are presented in Table 16. For one thing, no significant correlation was found between first-person perception

and attitude ($r = .12$, $p = .11$). For another, significant correlation was found between first-person perception and intention ($r = .25$, $p < .01$). Additionally, it was found that the intention was positively correlated with the first-person perception. Therefore, only the prediction of the correlation between intention and first-person perception in the sixth hypothesis was supported.

Table 16

Correlation among First-person Effect, Attitude, and Intention in Treatment Group Posttest

Variable	1	2	3
1. First-person Effect	—	.124	.250**
2. Attitude	—	—	.676**
3. Intention	—	—	—

Note. $N = 100$.

** $p < .01$

Multiple Regression

Mediation. Multiple regression was conducted to test the mediation role of the perceived behavioral control as well as the moderation role of perceived social norm. The mediation effect of perceived efficacies on the relationship between perceived behavioral control and intention to stop making cell phone calls while driving was tested using the causal steps methods developed by Baron and Kenny (1986). First, it was observed that age, knowledge of friend's experiences (KFE), and one's frequency of calling while driving were significantly related to the intention (see Table 17).

Table 17

Means, Standard Deviations, Coefficient Alphas, and Intercorrelations between Variables in the Present Study

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Attitude	3.83	.81	—															
2. Intention	3.37	1.03	.68**	—														
3. Perceived Severity	3.90	.78	.59**	.61**	—													
4. Perceived Susceptibility	3.79	.91	.55**	.56**	.58**	—												
5. Perceived Response Efficacy	3.81	.73	.60**	.56**	.66**	.71**	—											
6. Perceived Self-efficacy	3.60	.89	.61**	.69**	.58**	.69**	.73**	—										
7. Perceived Social Norm	2.91	.92	.29**	.47**	.35**	.33**	.36**	.58**	—									
8. PBC	3.64	.73	.47**	.38**	.34**	.37**	.46**	.34**	.08	—								
9. First-person Perception	.31	1.15	.12	.25**	.02	.13	.12	.08	.18	.02	—							
1. Gender (1 = male, 2 = female)	1.46	.50	.15	.06	.06	-.02	.01	.12	.12	.01	-.22*	—						
11. Age	27.99	8.33	.20	.28**	.04	.00	-.04	.12	.13	.09	.11	.06	—					
12. Ethnicity	2.79	1.49	-.05	.29	-.06	.01	-.04	.01	-.11	.13	-.03	-.15	-.22*	—				
13. Marital Status	1.30	.46	.05	.16	.08	-.05	-.05	.00	.23*	-.04	.07	.23*	.48**	-.09	—			
14. Cellphone Type	2.77	1.52	.00	.07	-.04	.06	-.06	.05	.12	-.03	.15	-.06	-.02	.18	-.07	—		
15. Friend	1.76	.43	.04	.26*	.00	-.05	-.07	.07	.13	.13	.05	.05	.10	.24*	.01	.15	—	
16. Frequency	3.26	1.14	.43**	.47*	.35**	.26*	.29**	.25	.20*	.22*	.05	-.02	.00	-.03	-.02	.06	.27*	—

*

The mediation role of perceived response efficacy was first analyzed, with results shown in Table 18. In Model 1 of Table 18, the results showed that when the significant effect of age ($r = .28, p < .01$), KFE ($r = .26, p < .05$), and frequency ($r = .47, p < .05$) was controlled for, PBC still had a positive and significant effect on individual intention ($r = .32, p < .01$).

Plus, as shown in Model 3 (see Table 18), PBC also had a positive and significant effect on perceived response efficacy ($r = .45, p < .01$). Secondly, after including the perceived response efficacy in Model 2 (see Table 18), the results suggested that the perceived response efficacy was significantly correlated to intention ($r = .60, p < .01$). Plus, when the significant effect of perceived response efficacy was controlled for, it was observed that the effect of PBC became insignificant ($r = .85, p = .41$). Therefore, hypothesis H3a, that the positive and significant correlation between individual intention and perceived behavioral control was mediated by perceived response efficacy, was supported.

Table 18

Results of Random Coefficient Modeling Analysis with Intention and Perceived Response Efficacy (Treatment group/posttest)

Predictor	Intention (Y)		Perceived Response Efficacy
	Model 1	Model 2	Model 3
Gender	.18	.20*	.03
Age	.28**	.28**	-.04
Ethnicity	.11	.13	.00
Marital Status	.04	.08	-.04
Cellphone Type	.02	.08	-.09
KFE	.26*	.26*	-.07
Frequency	.47*	.47*	.29**
PBC (X)	.32**	.85	.45**
Perceived Response Efficacy		.60**	

Note. Treatment N = 100. In all models, gamma coefficients are presented.

PBC = perceived behavioral control; KFE = knowledge of friend's experiences

* $p < .05$, two-tailed. ** $p < .01$, two-tailed

In order to examine the mediation role of perceived self-efficacy, similar steps were followed to test its mediation effect. First, as shown in Model 4 of Table 19, as the significant effects of age ($r = .28, p < .01$), KFE ($r = .26, p < .05$), and frequency ($r = .47, p < .05$) were controlled for, PBC still had a positive and significant effect on individual intention ($r = .32, p < .01$). In addition, as shown in Model 6 (Table 19), PBC also had positive and significant effects on perceived self-efficacy ($r = .29, p < .01$). Secondly, for Model 5 (see Table 19) in which the perceived self-efficacy is included, the results suggested that the perceived self-efficacy was significantly related to intention ($r = .68, p < .01$). Also, when the significant effect of perceived self-efficacy was controlled for, it was observed that the effect of PBC became insignificant ($r = .17, p = .11$). Therefore, hypothesis H3b, that the positive and significant correlation between individual intention and the perceived behavioral control was mediated by perceived self-efficacy, was supported.

Table 19

Results of Random Coefficient Modeling Analysis with Intention and Perceived Self-Efficacy (Treatment group/posttest)

Predictor	Intention (Y)		Perceived Self- Efficacy
	Model 4	Model 5	Model 6
Gender	.18	.15	.12
Age	.28**	.28**	.12
Ethnicity	.11	.10	.05
Marital Status	.04	.11	-.56
Cellphone Type	.02	.00	.29
KFE	.26*	.26*	.07
Frequency	.47*	.47*	.25
PBC (X)	.32**	.17	.29**
Perceived Self-Efficacy		.68**	

Note. Treatment N = 100. In all models, gamma coefficients are presented.

PBC = perceived behavioral control; KFE = knowledge of friend's experiences

* $p < .05$, two-tailed. ** $p < .01$, two-tailed

In conclusion, it was observed that both the perceived response efficacy and perceived self-efficacy mediated the effects of perceived behavioral control on intention, providing support for Hypothesis 3.

Moderation. The moderation effect of perceived social norm on the relationship between perceived severity/perceived susceptibility and attitude was tested using the two steps method suggested by Baron and Kenny (1986). The moderation role of perceived social norm in relationship between perceived severity and attitude was first examined by regression analysis, with results shown in Table 20 and 21. For these analyses, all variable were centralized and standardized so that they had a mean of 0 and a standard deviation of 1 to control for possible multi-collinearity among variables (Barron & Kenny, 1986). An interaction term was created by calculating the product of the predictor (perceived severity) and the supposed moderator (perceived social norm), labeled as perceived severity X perceived social norm. In Step 1, the standardized predictor (perceived severity) and the supposed moderator (perceived social norm) were entered into the independent block of the regression model. In Step 2, the interaction variable between perceived severity and perceived social norm was added to the regression equation. If the paths from the interaction variables (perceived severity and perceived social norm) to attitude were statistically significant, a moderation effect of perceived social norm would have been confirmed. However, the overall incremental change ($\Delta R^2 = .016$, $p = 1.27$) did not reach the required significance level. Therefore, no moderation effect of perceived social norm was found in the relationship between perceived severity and attitude.

Table 20

A Hierarchical Multiple Regression Analysis Testing Moderating Effects of Perceived Social Norm on the Relationship between Perceived Severity and Attitude

Variable	B	SE B	β
Step 1: Predictor & Moderator			
Perceived Severity	.576	.090	.555***
Perceived Social Norm	.087	.076	.099
Step 2: Adding the interaction			
Perceived Susceptibility	.538	.093	.518***
Perceived Social Norm	.121	.079	.138*
Perceived Susceptibility X Perceived Social Norm	-.129	.084	-.132

Table 21

Model Summary of Testing Moderating Effects of Perceived Social Norm on the Relationship between Perceived Severity and Attitude

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.597 ^a	.356	.343	.65340	.356	26.839	2	97	.000
2	.610 ^b	.372	.352	.64881	.016	2.376	1	96	.127

a. Predictors: (Constant), Perceived social norm(Standardized); Perceived severity (Standardized)

b. Predictors: (Constant), Perceived social norm (Standardized); Perceived severity (Standardized); Perceived social norm (Standardized) X Perceived severity (Standardized).

On the other hand, the moderation effect of the perceived social norm on the relationship between perceived susceptibility and attitude was analyzed as well. Following similar steps as the previous test, regression analyses were performed to test the hypothesis 5b. The results are summarized in Table 22 and 23. Similarly, an interaction term was created by calculating the product of the predictor (perceived susceptibility) and the supposed moderator (perceived

social norm), labeled as perceived susceptibility X perceived social norm. For step 1, the standardized predictor (perceived susceptibility) and the supposed moderator (perceived social norm) were entered into the independent block of the regression equation. In the next step, the interaction variable between perceived susceptibility and perceived social norm was added into the regression equation. The results ($\Delta R^2 = .027$, $p < .05$) indicated the perceived social norm did moderate the relationship between the perceived susceptibility and attitude, supporting Hypothesis 5b.

Table 22

A Hierarchical Multiple Regression Analysis Testing Moderating Effects of Perceived Social Norm on the Relationship between Perceived Susceptibility and Attitude

Variable	B	SE B	β
Step 1: Predictor & Moderator			
Perceived Susceptibility	.449	.078	.508***
Perceived Social Norm	.112	.078	.127
Step 2: Adding the interaction			
Perceived Susceptibility	.409	.080	.463***
Perceived Social Norm	.175	.083	.199*
Perceived Susceptibility X Perceived Social Norm	.154	.077	.180*

Note. N = 100. R square change = .356, $p < .001$, for Step 1;

R Square Change = .027, $p < .05$. for Step 2.

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

Table 23

Model Summary of Testing Moderating Effects of Perceived Social Norm on the Relationship between Perceived Susceptibility and Attitude

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. F Change	
dimension	1	.562 ^a	.316	.302	.67352	.316	22.404	2	97	.000
	2	.586 ^b	.343	.323	.66336	.027	3.995	1	96	.048

a. Predictors: (Constant), Perceived social norm(Standardized); Perceived susceptibility (Standardized)

b. Predictors: (Constant), Perceived social norm (Standardized); Perceived susceptibility (Standardized); Perceived social norm(Standardized)x Perceived susceptibility (Standardized)

Descriptive Statistics of Third-Person Perception

Analyses were conducted to examining the bias perceptions of influence, including the classic third-person perception and the first-person perception (Hypothesis 6). The third-person/first-person differential perception score was calculated by subtracting the score obtained for “Perceived influence on others in general” from the score obtained for “Perceived influence on yourself”. Positive scores denoted that oneself is perceived as more influenced than others, indicating a reversed third-person perception (first-person effect), whereas negative scores denotes that self is perceived as less influenced than others, indicating a classic third-person perception. Descriptive statistics for the measured variables are presented in Table 24 and Table 25. The mean third-person differential perception score was positive ($\mu = .31$, $SD = 1.15$), indicating that as a group, the participants exhibited a reversed third-person perception (first-person perception). Participants believed they themselves ($\mu = 3.74$, $SD = .88$) were less influenced than others ($\mu = 3.43$, $SD = .77$) by the

distracted driving message. Specifically, 51% of the participants exhibited reversed third-person perception, in other words, perceived themselves to be more influenced than other people in the United States by the distracted driving message), 22% exhibited classic third-person perception (perceive themselves to be less influenced than other students in the United States by the distracted driving message), and 27% perceived no difference between themselves and other students in the United States in terms of perceived message influence. Thus, the first research question was answered: a reversed third-person perception (first-person perception) was observed among these participants.

Table 24
Third-person/First-person Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Third-person/First-person perception	100	-3.00	2.00	.3100	1.15203
Perception of Influence on Oneself	100	1.00	5.00	3.7400	.88329
Perception of Influence on Others	100	2.00	5.00	3.4300	.76877

Table 25
Third-person/First-person Frequency Statistics

Third-person/First-person variable	Frequency	Percentage	Valid Percentage	Cumulative Percentage
-3.00	1	1.0	1.0	1.0
-2.00	8	8.0	8.0	9.0
-1.00	13	13.0	13.0	22.0
0.00	27	27.0	27.0	49.0
1.00	39	39.0	39.0	88.0
2.00	12	12.0	12.0	100.0
Total	100	100.0	100.0	

Chapter Five

Discussion

The current experimental study was designed to testify the EPPM's major tenets as well as to investigate the underlying mechanism of how some specific individual differences interact with the outcomes of being exposed to a fear appeal message. Distracted driving was used as the health threat to examine hypotheses and research questions proposed in this study.

Descriptive Statistics

First, the research revealed that the frequency of using cell phones while driving varies between different ethnic groups. Also the frequency of users of different types phone varies. In the aspect of ethnicity, the Caucasian was identified to have the lowest frequency of calling while driving, while the Hispanic reported the highest frequency. This observation raises the question of how the ethnicity and culture backgrounds influence one's road safety perceptions and actual behaviors. The possible explanation for the ethnicity-related tendency is that social norm may vary from one ethnicity to another. Therefore, the issue is quite critical for those ethnicities of which the social norms are relatively unfavorable, such as the Hispanics demonstrated in the current study. However, given the fact that no other studies supported this viewpoint, more studies in the future are needed to further consolidate this assumption.

The current study also examined whether the type of cell phone were relevant to the frequency of calling while driving. The results confirmed this assumption that there was a significant difference between groups of users of different types of cell phone. To be specific, individuals using Android and Blackberry smart phones were more likely to report high frequency of making calls while driving; while iPhone users were more likely to report low

frequency of such a behavior. The identification of the cell phone type may indicate that iPhone is superior to other types of cell phone in the aspect of automatic and intelligent response to an incoming call. Given that assumption, cell phone designers and manufacturers should be encouraged to take this factor into account in the future. It is also possible that one's choice of cell phone has considerable dependence on his age and social status. For example, young people with stronger enthusiasm on technology and open-source software are more likely to buy Android phones while business people generally prefer the Blackberry. It can be expected that the former group has less concern about the danger of distracted driving than average, and the latter one has more demand on answering emergent calls during travels. As a result, the frequency of calling while driving is supposed to be higher in those two groups, affecting the overall statistics on Android and Blackberry user groups.

However, the current study did not found a significant difference regarding the frequency of calling while driving between males and females. It was supposed to have a significant difference regarding the frequency of calling while driving because of the general different dispositions between males and females. Failure to test the significant difference might be a function of relatively small sample. It is possible that a significant difference might be testified if the sample size were enlarged. Secondly, the study did not manage to testify the significant difference regarding the frequency of calling while driving among groups of different age. One possible explanation was that the age spectrum of participants was from 18-year-old to 30-year-old. A significant difference might be found by extending the age spectrum.

Major Tenets of the Extended Parallel Process Model

According to the EPPM, a fear appeal with high levels of both threat and efficacy component can effectively channel fear into a motivator by driving individuals into danger control. This theoretical stance has received support in the first hypothesis tested in this study. For one thing, after being exposed to the fear appeal message, the participants in the treatment group exhibited a much more favorable change in attitude and intention regarding the behavior of calling while driving. For another, the cross-sectional posttest between the participants who have received the fear appeal message (treatment group) and those who have not (control group) showed that the treatment group demonstrates a more favorable attitude and intention regarding this issue than the control group.

The EPPM stresses that fear can be motivated or inhibited, and a carefully developed risk message with high-threat/efficacy can effectively trigger not only the emotion of fear, but also self-protective behaviors to prevent the perceived hazard. The results of the present study indicated that this was exactly the case. A high-threat/ efficacy message regarding the issue of calling while driving is capable of eliciting participants' emotion of fear in an affective manner, and provides solutions and efficacy factors at the same time. In this way, individuals are motivated to appraise the threat in a cognitive manner, and to adopt an adaptive response in a rational way. Elaborately speaking, after receiving the portrayal of the severe consequences of destructive behaviors, individuals emotionally appraise the severity and susceptibility. As expected, they first feel susceptible to the threat before any actions are motivated. As a result, fear is elicited and individuals are motivated to further appraise the efficacy message, including the response efficacy and self efficacy. As expected, they believe that the recommended behaviors can effectively prevent them from the risks. As a

consequence, their self-motivation is elicited and protective behaviors are adopted. In this light, the perceived efficacy outweighs the perceived threat so that the emotion of fear is counteracted. As a result, danger control dominates, leading to favorable changes of attitude and intention.

In addition, based on the observations, although significant differences in the variables of attitude and intention were found, there was no significant difference in the variable of fear between either treatment group pretest and posttest, or the posttests performed on treatment and control group. It can be explained that, as stated above perceptions of a high level of efficacy counteracted the threat perception, then the emotion of fear was discouraged. Since the fear appeal message in this study incorporates the efficacy factors immediately after the threat, it is quite possible that participants' fear has been eliminated by the followed efficacy descriptions. That is why no fear change was found between the pretest and posttest. To be specific, as participants appraised the efficacy components, response efficacy would heighten their perceptions of the effectiveness of the recommended behaviors, and self-efficacy would enhance their confidence on allaying the threat through their endeavors. In this way, the perceived fear toward the issue of calling while driving was eliminated. As noted above, the critical point of a fear appeal message is reached when perceptions of efficacy begin to outweigh perceptions of threat, causing the cognitive actions to take control. Therefore, in order to move individuals toward danger control and adaptive reactions, a fear appeal message should not only increase awareness of the severity and susceptibility, but also provide easy-to-accomplish recommendations and try every effort to increase the belief of response efficacy and self-efficacy. Only if a risk message couples with high-efficacy

components, fear can be eliminated and the most effective persuasion effect can be achieved through moving individuals toward protection motivation.

Perceived Behavioral Control

Furthermore, suggested by Witte (1994, 2001), this study also aims to explore the role of personal attributes, including perceived behavioral control, perceived social norm and first-person perception, in one's processing of a fear appeal message. First, it examined a model linking the perceived behavioral control to individual intention of averting distracted driving, with perceived response efficacy and perceived self-efficacy functioning as two mediators. Prior to the discussion on the mediation role, the correlation between the predictor (perceived behavioral control) and the assumed mediators (perceived response efficacy and perceived self-efficacy) was tested. The result showed that both perceived response efficacy and perceived self-efficacy were positively correlated with one's perceived behavioral control with statistical significance. It has been well-established that perceived behavioral control is developed through past experiences and relevant knowledge. If one perceives his/her past experiences of controlling the hazardous behavior as relatively successful, his/her perceived behavioral control will be strengthened. Hence, when one receives a fear appeal message regarding the issue of distracted driving, the perceived behavioral control will exert an influence on how he/she perceives the response efficacy and self-efficacy components in the message. Simply put, a higher level of perceived behavioral control is associated with establishing a higher level of perceived response efficacy and self-efficacy.

Secondly, it is found that both perceived response efficacy and perceived self-efficacy mediate the correlation between perceived behavioral control and one's future intention of not talking on a cell phone while driving. The results showed that perceived behavioral

control has a significant correlation with both perceived response efficacy and perceived self-efficacy. In addition, a significant and positive correlation between perceived behavioral control and intention of averting calling while driving was found. For one thing, the significant correlation between perceived behavioral control and perceived efficacy can be explained in the following way: people with positive perceived behavioral control tend to have a positive perception on regarding their ability of overcoming obstacles (perceived self-efficacy), as well as the easiness of averting threat by performing the recommended suggestions offered by the message (perceived response-efficacy). For another, the correlation between one's perceived behavioral control and intention can be explained by the theory of planned behavior (Ajzen, 1991). That is, higher level of perceived behavioral control coupled with a favorable attitude has greater potential in predicting favorable intention of a certain behavior. Hence, individuals with higher level of perceived behavioral control of distracted driving are motivated to adopt a favorable change in intention of not using a cell phone while driving.

However, it was found that when either perceived response efficacy or self-efficacy was controlled, the significant correlation between perceived behavioral control and intention vanished. This conditional correlation indicates the perceived efficacy, including response efficacy and self-efficacy, is a prerequisite to the correlation between perceived behavioral control and intention. The effect of perceived behavioral control on intention can be observed only when perceived response efficacy and perceived self-efficacy are taken into account. This result is consistent with the EPPM. According to this model, one's perceived response efficacy and self efficacy co-determine whether one will act in a health-protective manner to control the danger by changing his/her attitude and intention. To be specific, a fear appeal

message can produce desired outcomes only when the levels of perceived response efficacy and perceived self-efficacy are high enough to outweigh the perceived threat. Thus, perceived behavioral control, as an individual disposition, does have an influence on the outcomes of a fear appeal message, but the effect can be observed only if the perceptions of response efficacy and self-efficacy are taken into account. In conclusion, it is proved that one's perceptions of efficacy components in the message serves as a linking mechanism, providing an explanation to the observation that higher perceived behavioral control predicts favorable intention regarding the behavior of talking on a cell phone while driving.

Perceived Social Norm

Additionally, the moderation role of perceived social norm on the correlation between perceived severity/perceived susceptibility and attitude was also examined. As a starting point, the correlations between perceived social norm and perceived severity/perceived susceptibility were measured and confirmed to be positive with statistical significance. In other words, the more favorable one's social norm is, the higher level of perceptions of severity and susceptibility he/she has. This can be easily explained as that one has the ability to be sensitive to the opinion climate regarding the issue of making calls while driving. If he/she feels general pressure from his/her families, friends, and the whole society regarding this issue, he/she tends to perceive the behavior of calling while driving as severe and risky. There is no doubt that constant warning from families and friends will gradually cultivate one into a self-protective manner. Thus, no wonder the person is more likely to perceive the severity and susceptibility as high.

Plus, in terms of the moderation role of perceived social norm, the findings partially supported perceived social norm as a moderator between perceived threat (perceived severity

and perceived susceptibility) and attitude. To be specific, the results demonstrated a moderation role of perceived social norm between perceived susceptibility and attitude, while did not support the moderation role of perceived social norm between perceived severity and attitude. One possible explanation for the results is regarding the specific topic of making cell phone calls while driving. The severe consequences (perceived severity) of the risky behavior have been widely recognized by every single person. Hence, speaking of calling behind the wheel, families and friends would focus on the aspect that one is much vulnerable and susceptible to a car accident if he/she does not stop calling while driving, rather than the severe consequences. Therefore, the interaction between the perceived social norm and perceived severity has no significant influence on attitude.

However, when it comes to the susceptibility, it is a different story. Generally speaking, most of people have the alleged biased optimism that they would be less vulnerable to the severe consequences of making calls behind the wheel than others. What their families and friends substantially stress is the susceptibility aspect of distracted driving, resulting in high level of perceived social norm regarding the susceptibility. From this perspective, when one encounters a fear appeal message regarding the distracted driving, the susceptibility part will interact with his/her perceived social norm. The interaction then further has an impact on one's attitude change regarding this issue. This finding contributes to the perceived social norm literature by illustrating the enhancement effect of perceived susceptibility in a fear appeal message on one's attitude regarding the behavior of calling while driving with the perceived social norm as an enduring individual characteristic moderator.

It is important to note that the current study only explored the role of subjective social norms on one's evaluation of a fear appeal regarding a road safety issue. However, Riquelme,

Al-Sammak and Rios (2010) indicated social influence could be divided into four types of social norms, namely injunctive, subjective, verbal and behavioral norm. Various social norms concentrate on different perspectives of social influence. Thus, future research may be directed to address the roles of other kinds of social norms in one's processing of a fear appeal message.

Classic/Reversed Third-Person Perception

Classic/reversed third-person effect has always been taken into account when a media message is involved. The current study is no exception. Testing classic/reversed first-person perception in this study was related to a couple of purposes: (a) examining whether people would exhibit a classic third-person perception or reversed third-person perception upon receiving a fear appeal message representing negative consequences but with positive expectations, (b) testing whether the classic/reversed third-person perception would be significantly related to the change of attitude and intention. Although third-person effect was well documented in the literatures regarding politics and pornography (Chapin, 1999), few studies testified this personal media effect within the context of a fear appeal message regarding health or safety issues. It is quite necessary to have a clear picture of which biased perception, third-person or first-person, people would exhibit in the context of a health message, since the biased perception has much to do with the effectiveness of persuasion that can be achieved through a health campaign message. This study sought to rectify this problem by extending media message to a fear appeal message regarding a road safety issue: making calls behind the wheel. In general, the results indicated that the majority of participants exhibited a reversed third-person (first-person) perception, believing themselves to be more influenced by the safe-driving message than others. However, it is also important

to note that 22% of participants exhibited a classic third-person perception, believing themselves to be less influenced by the risky message than others.

Plus, an ANOVA test was conducted and the results indicated a significant difference existing among different ethnicities with regard to their classic/reversed third-person perception. To be specific, it was observed that African Americans were most likely to report a classic third-person perception, while Asians were most likely to report a reversed first-person perception. In other words,, there is a significant cultural difference in classic/reversed third-person perception that future research and practical fear appeal applications should be aware of. For one thing, a cultural perspective needs to be adopted in an attempt to explore why there would be a difference of third-person/first person effect within a fear appeal message among different races and ethnicities. For another, health intervention practitioners should be careful of the cultural differences when developing and launching any health campaigns in the manner of fear appeals. Specifically, formative studies and audience segmentation are seriously needed.

More importantly, this study provided evidence for motivational accounts of perceived self-other differences regarding the influence of a fear appeal message. Correlations between first-person perception and attitude /intention were measured respectively in the posttest. The plots of the interaction suggested that the intention was significantly and positively correlated with the first-person effect, while surprisingly no significant correlation was found between the first-person perception and attitude. One possible explanation of this inconsistency might rely on a function of human being's self-serving nature (Duck, Terry & Hogg, 1995). That is, people tend to estimate themselves to be more intelligent than others. Being exposed to a fear appeal message with positive expectation, one would feel himself/herself being more

influenced by the message than others in general. It can be best manifested in the aspect of one's intention, rather than the attitude. Since the intention is a further expected step beyond the attitude, correlation between the intention and the first-person perception was more significant and obvious. However, more explanation and evidence are needed to demonstrate and explain the correlation.

Limitations and Implications

This study has several limitations that should be noted. First, failure to testify a significant difference regarding the frequency of calling while driving between males and females indicated that the sample might not be large enough. Future research could successfully predict the gender's function on the frequency of calling while driving by enlarging the sample size.

Moreover, the data were collected on self-report instruments and were naturally subject to personal biases, especially for those variables measuring one's control ability and the frequency of making calls while driving. Some participants might not be willing to report scores that reflect their situations best. Furthermore, this study only measured the change of one's attitude and intention after being exposed to a fear appeal message, while the actual behavior was not directly observed. Although participants generally reported a favorable change in their attitude and intention, some of them might not follow it in real practice. Therefore, future studies should also incorporate a long-term follow-up report of the actual behavioral change in order to reduce the effect of personal biases.

Another primary weakness of the study is that the posttest questionnaire was taken immediately after the message, rather than after a period of time (e.g., a one-week interval). Failure to include an interval might expose the study to the risk of neglecting the sleeping

effect. Future studies should include a one-week follow-up posttest for the purpose of ruling out potential bias induced by the sleeping effect.

Plus, the current study failed to take the driving experience into account as an independent variable. Presumably, inexperienced drivers should have low tendency to call while driving. This variable may have significant correlation with one's attitude and intention regarding this issue. Future studies should incorporate this individual difference as an independent variable and control for it in an attempt to optimize the results of drivers' perception about the road safety.

Furthermore, researchers should be cautious with the generalizability of the findings. The current study only focused on the young people aging from 18 to 30, which only counted for part of the age spectrum. As people of different ages may have different perceptions on the issue distracted driving, the generalizability of the results is not guaranteed for the overall population. Therefore, the study can be further optimized by acquiring samples from a more heterogeneous population.

In spite of certain limitations, this study has some important implications for future research and practical applications. First, it paves the way for understanding how personal attributes interact with the outcomes of a fear appeal message under the theoretical framework of the EPPM. Two variables, namely the perceived behavioral control and perceived social norm, are found to interact with two important appraisal steps of processing a fear appeal message, i.e. appraisal of threat and efficacy. As the current study only counts the subjective social norm as the social influence, it would be worth optimizing the result by examining and comparing all four types of social norms in future studies.

Secondly, first-person perception was generally observed within the context of a fear appeal message regarding distracted driving. However, not all participants exhibited a first-person perception, and their perceptions varied with their ethnicity. Future studies can adopt a culturally sensitive model for the purpose of gaining a detailed insight into the function of ethnicity as one evaluates a fear appeal message.

In practice, our results consolidated the powerful persuasive effectiveness by including both efficacy and threat components in a fear appeal message. Therefore, in an attempt to achieve the best persuasion, future campaigns regarding this road safety issue should always couple efficacy with threat when adopting fear appeal tactics.

In addition, future practitioners may be directed to emphasize the target audiences about the false norms when developing a fear appeal message. The interaction between the perceived social norm and perceived susceptibility has a moderation effect on the outcomes of the fear appeal message; campaigners must therefore try to emphasize the potential costs and susceptibilities of maintaining the unlawful behavior. Furthermore, considering the fact that perceived response efficacy and self-efficacy mediate the correlation between perceived behavioral control and outcomes of a fear appeal message, practitioners are likely to encounter a difficulty in attempts to induce a favorable change of attitude and intention among individuals whose levels of perceived behavioral control are relevant low. Therefore, it is important to emphasize the significance of enhancing one's perceived behavioral control.

In addition, our findings pointed to the importance of cultural and ethnicity backgrounds which have a great impact on one's frequency of calling while driving as well as on perceived self-other differences. Thus, in order to achieve the best persuasion effect,

practitioners should take account of the cultural differences by adopting a culturally sensitivity model and segmenting perspective audience in their campaigns

Last but not the least, our findings illustrated the significant difference in frequency of calling while driving between users of different types of cell phones. It is important to call for more intelligent applications that can automatically handle the incoming calls while the users are driving, which will definitely alleviate this road safety problem.

Conclusion

The current study contributes to the evolution of the EPPM model. Witte (1992; 2002) called for future studies to identify and investigate robust personal dispositions that may interact with the outcomes of being exposed to a fear appeal message. Drawing from a relational approach, the study provides a detailed underlying mechanism of how a fear appeal message works. Plus, the correlation results contribute to the efforts of identification of certain individual attributes that influence one's reactions to a fear appeal message. Specifically, it was found that perceived social norm serves as a moderator in the association between the perceived susceptibility and attitude. Plus, perceived efficacy (response efficacy and self-efficacy) serves as a linking mediator between the perceived behavioral control and intention. Furthermore, first-person perception was observed in the context of a fear appeal message regarding the issue of calling while driving, and it is positively and significantly with one's future intention of not calling while driving.

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Appendix A: Cover Letter

UNIVERSITY OF HOUSTON

CONSENT TO PARTICIPATE IN RESEARCH

PROJECT TITLE: A study examining the influence of perceived behavioral control and locus of control on individuals' reactions to fear appeals

You are being invited to participate in a research project conducted by Meng Chen from the Jack J. Valenti School of Communication at the University of Houston. This project is a part of her master thesis and is being conducted under the supervision of Dr. Zhiwen Xiao.

✧ NON-PARTICIPATION STATEMENT

Your participation is voluntary and you may refuse to participate or withdraw at any time without penalty or loss of benefits to which you are otherwise entitled. You may also refuse to answer any question.

✧ PURPOSE OF THE STUDY

This study aims to look insight into how individual personalities in the aspect of control ability, including perceived behavioral control and locus of control, influence one's processing of a fear appeal message regarding the risky factors of calling while driving. The present study will foster a solid understanding to the mechanism of these personal

dispositions will interact with fear appeal messages and mediate/moderate the outcomes of being exposed to a fear appeal messages in the aspect of calling behind the wheel. These understandings will definitely be helpful to future health campaign design and promotion.

✧ **PROCEDURES**

You will be one of approximately 200 subjects to be asked to participate in this project.

If you agree to participate, you will be randomly assigned to one of two groups. One group will need to watch/read a message and then fill in an online questionnaire; the other group will only need to fill the questionnaire. The questionnaire will ask about your perceptions about the behavior of calling while driving and some general information about yourself (such as your age range etc.) for us to better understand the problem. You will also be asked to provide an email address if you want to get the results of the study and to win a chance of a \$25 gift card. The survey will last about 15-25 minutes.

✧ **CONFIDENTIALITY**

Your participation in this project is anonymous. Please do not write your name on any of the research materials to be returned to the principal investigator.

✧ **RISKS/DISCOMFORTS**

There are no foreseeable risks associated with your participation in this project.

✧ **BENEFITS**

You will have chance to win \$25 gift card.

✧ **ALTERNATIVES**

Participation in this project is voluntary and the only alternative to this project is non-participation.

✧ **INCENTIVES/REMUNERATION**

Five participants will be randomly drawn from each group of the study. Each of them will receive a \$25 gift card. You will be notified through email once you win and asked about your address, which the gift card will be mailed to.

✧ **PUBLICATION STATEMENT**

The results of this study may be published in professional and/or scientific journals. It may also be used for educational purposes or for professional presentations. However, no individual subject will be identified.

If you have any questions, you may contact Meng Chen at (832)380-0963 or mchen16@uh.edu. You may also contact Dr. Zhiwen Xiao, faculty sponsor, at (713)743-2243

ANY QUESTIONS REGARDING YOUR RIGHTS AS A RESEARCH SUBJECT MAY BE ADDRESSED TO THE UNIVERSITY OF HOUSTON COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (713-743-9204).

Principal Investigator's Name: _____Meng Chen_____

Signature of Principal Investigator: _____

Appendix B: Questionnaire for Pretest of All Participants

Section 1:

This questionnaire is designed to assess your general feelings about distracted driving; there are no right or wrong answers. Please choose a number that best describe your feeling. Please circle ONE answer choice for each question.

Measures of Perceived Behavioral Control

1. In the next year, I feel it would be very difficult for me not to talk on a cell phone while driving.

Strongly disagree 1 2 3 4 5 Strongly agree

2. Whether or not I avert talking on a cell phone while driving in the next month is entirely up to me.

Strongly disagree 1 2 3 4 5 Strongly agree

3. Your best estimate that an attempt on your part to reduce the chance of calling while driving over the next six weeks would be successful.

Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Perceived Social Norms

4. Most people who are important to me think that I should never make calls while driving.

Strongly disagree 1 2 3 4 5 Strongly agree

5. It is very likely that significant others would stop me from answering an incoming call when I drive.

Strongly disagree 1 2 3 4 5 Strongly agree

6. Most people who are important to me do not make cell phone calls while driving.

Strongly disagree 1 2 3 4 5 Strongly agree

7. I feel pressure from society in general to stop making calls while driving.

Strongly disagree 1 2 3 4 5 Strongly agree

8. It happens very frequently that other drivers would honk at me when I am talking on a cell phone while driving.

Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Fear

9. I think that the consequences of talking on a cell phone behind the wheel are frightening.

Strongly disagree 1 2 3 4 5 Strongly agree

10. I think that the consequences of talking on a cell phone behind the wheel are really scared.
Strongly disagree 1 2 3 4 5 Strongly agree

11. If I see someone making a call while driving, I would feel anxious.
Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Attitudes

12. Making cell phone calls while driving is harmful.
Strongly disagree 1 2 3 4 5 Strongly agree

13. Making cell phone calls while driving is foolish.
Strongly disagree 1 2 3 4 5 Strongly agree

14. Making cell phone calls while driving is desirable.
Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Intentions

15. I intend to avoid calling while driving.
Strongly disagree 1 2 3 4 5 Strongly agree

16. I plan to pull over my car while driving if there is an incoming call.
Strongly disagree 1 2 3 4 5 Strongly agree

17. I am not going to make a call while driving any more, because it is really dangerous.
Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Defensive Avoidance

18. When I hear the consequences of calling while driving, I spend additional time thinking about it.
Strongly disagree 1 2 3 4 5 Strongly agree

19. When I knew what this study was about, my first instinct was to want to think about it.
Strongly disagree 1 2 3 4 5 Strongly agree

20. When I heard anything about distracted driving, my first instinct was to want to do something to keep myself from getting them.
Strongly disagree 1 2 3 4 5 Strongly agree

Section 2:

To help the researcher better understand the problem, please answer each of the questions below by checking the appropriate answer category or by writing in the relevant information. All your information will be held as confidential.

1. Gender: __Male __Female

2. Age: _____

3. Your ethnicity is:

- 1) Caucasian. 2) African American. 3) Asian. 4) Hispanic.
5) Pacific Islander. 6) Other.

4. Your marital status is:

- 1) single 2) married

5. The type of your cell phone is

- 1) Android, 2) iPhone, 3) Blackberry, 4) Other Smartphones, 5) Dumb phones

6. Did anyone you know once get involved into a car accident because the driver was making a cell phone while driving?

- 1) Yes
2) No

7. How often do you talk on cell phone behind the wheel?

- 1) Very frequently (More than once per day)
2) Frequently (Several times per week)
3) Sometimes (Several times per month)
4) Not frequently (Several times I can remember)
5) Never

8. Please write down your email address _____

Appendix C: Video and Article Assigned to Treatment Group

Please take your time. Click the link to the video and watch it. Then, read the article. After that, you will be asked about several related questions.

1. http://www.youtube.com/watch?v=jrkiWhtLOhE&feature=grec_index
2. As you can see in the video, calling while driving is a fatal multitask. Research found that talking on the cell phone while driving increases the risk of an accident by 400%. Here are some tips that could help you to prevent the distracted driving:
 - 1) Keep your phone out of reach, such as below the front passenger seat or on back seats behind yours.
 - 2) If there is an incoming call, please wait until you get to your destination.
 - 3) If all else fails, pull over and finish it.
 - 4) Do not think Bluetooth will help you prevent distracted driving. What really matters is where your mind is, but not hands.

We understand there certainly are some barriers that may prevent you from performing our suggested behavior: not calling while driving. You may say I have broad social network, regular calls are needed; or you may say I am busy, and the time during driving is the only period of time free for me to get connected with others, etc; You may think you can well handle multitask, but you cannot. As a matter of fact, that call you can't wait to make could kill. Too much task is at stake: **YOUR LIFE, THE LIFE OF YOUR FAMILY, and THE LIFE OF OTHERS.**

All of these can be under your control. Your primary responsibility as a driver is to operate your motor vehicle and to do so safely! Just “PUT IT DOWN” and concentrate on the road. Then, you can easily get far away from accidents.

Finally, don't risk your life, and become a statistic.

Appendix D: Questionnaire for Pretest for Treatment Group

Section 1:

This questionnaire is designed to assess your general feelings about distracted driving; there are no right or wrong answers. Please choose a number that best describe your feeling. Please circle ONE answer choice for each question.

Measures of Perceived Behavioral Control

1. In the next year, I feel it would be very difficult for me not to talk on a cell phone while driving.
Strongly disagree 1 2 3 4 5 Strongly agree
2. Whether or not I avert talking on a cell phone while driving in the next month is entirely up to me.
Strongly disagree 1 2 3 4 5 Strongly agree
3. Your best estimate that an attempt on your part to reduce the chance of calling while driving over the next six weeks would be successful.
Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Perceived Social Norms

4. Most people who are important to me think that I should never make calls while driving.
Strongly disagree 1 2 3 4 5 Strongly agree
5. It is very likely that significant others would stop me from answering an incoming call when I drive.
Strongly disagree 1 2 3 4 5 Strongly agree
6. Most people who are important to me do not make cell phone calls while driving.
Strongly disagree 1 2 3 4 5 Strongly agree
7. I feel pressure from society in general to stop making calls while driving.
Strongly disagree 1 2 3 4 5 Strongly agree
8. It happens very frequently that other drivers would honk at me when I am talking on a cell phone while driving.
Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Third-Person Perception & First-Person Perception

9. How much do you think this message influenced your attitudes toward the behavior of calling behind the wheel?
Not influenced at all 1 2 3 4 5 Extremely influenced

10. How much do you think this message influenced other people's attitudes toward the behavior of calling behind the wheel?

Not influenced at all 1 2 3 4 5 Extremely influenced

Measures of Perceived Threat & Susceptibility

11. After reading this message, I feel that talking on a cell phone while driving is a severe threat.

Strongly disagree 1 2 3 4 5 Strongly agree

12. This message makes me to believe that the issue of using a cell phone while driving is significant.

Strongly disagree 1 2 3 4 5 Strongly agree

13. According to this message, talking on a cell phone at the wheel is really a serious issue.

Strongly disagree 1 2 3 4 5 Strongly agree

14. From this theory, I learned that it is possible that I will get involved into a car accident if I keep talking on a cell phone while driving.

Strongly disagree 1 2 3 4 5 Strongly agree

15. Reading this message makes me feel that I am at risk of getting involved into a car accident if I call during driving.

Strongly disagree 1 2 3 4 5 Strongly agree

16. I feel it is likely to encounter a car crash if I make a call while driving when I read this message.

Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Perceived Response Efficacy & Self-efficacy

17. This message makes me feel averting to talk behind wheel can effectively keep me away from car accidents.

Strongly disagree 1 2 3 4 5 Strongly agree

18. According to the message, inhibition of the usage of cell phone while driving is easy to reduce the rate of car accidents.

Strongly disagree 1 2 3 4 5 Strongly agree

19. According to the message, if I stop calling behind the wheel, I am less likely to get involved into a car accident.

Strongly disagree 1 2 3 4 5 Strongly agree

20. This message makes me feel that I can manage to avoid making a call or answering an incoming call while driving.

Strongly disagree 1 2 3 4 5 Strongly agree

21. This message makes me feel that I am able to stop making calls at the wheel to prevent a car accident.

Strongly disagree 1 2 3 4 5 Strongly agree

22. This message gives me much confidence that I can easily take control of my own behaviors, which is to pull over my car when there is a need to use my cell phone.

Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Fear

23. I think that the consequences of talking on a cell phone behind the wheel is frightening

Strongly disagree 1 2 3 4 5 Strongly agree

24. I think that the behavior of talking on a cell phone behind the wheel is really scared.

Strongly disagree 1 2 3 4 5 Strongly agree

25. If I see someone making a call while driving, I would feel anxious.

Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Attitudes

26. Making cell phone calls while driving is harmful.

Strongly disagree 1 2 3 4 5 Strongly agree

27. Making cell phone calls while driving is foolish.

Strongly disagree 1 2 3 4 5 Strongly agree

28. Making cell phone calls while driving is desirable.

Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Intentions

29. I intend to avoid calling while driving.

Strongly disagree 1 2 3 4 5 Strongly agree

30. I plan to pull over my car while driving if there is an incoming call.

Strongly disagree 1 2 3 4 5 Strongly agree

31. I am not going to make a call while driving any more, because it is really dangerous.

Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Defensive Avoidance

32. When I hear the consequences of calling while driving, I spend additional time thinking about it.

Strongly disagree 1 2 3 4 5 Strongly agree

33. When I knew what this study was about, my first instinct was to want to think about it.

Strongly disagree 1 2 3 4 5 Strongly agree

34. When I heard anything about distracted driving, my first instinct was to want to do something to keep myself from getting them.

Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Message Denial

35. I think the message is exaggerated.

Strongly disagree 1 2 3 4 5 Strongly agree

36. I think the message is overblown.

Strongly disagree 1 2 3 4 5 Strongly agree

37. I think the message is overstated.

Strongly disagree 1 2 3 4 5 Strongly agree

Measures of Perceived Manipulation

38. I feel that the message is manipulative.

Strongly disagree 1 2 3 4 5 Strongly agree

39. I feel that the message is distorted.

Strongly disagree 1 2 3 4 5 Strongly agree

40. I feel that the message is misleading.

Strongly disagree 1 2 3 4 5 Strongly agree

Message Confound Checks

41. The message is objective and believable.

Strongly disagree 1 2 3 4 5 Strongly agree

42. I do understand what the message talks about, and do learn a lot from it.

Strongly disagree 1 2 3 4 5 Strongly agree

Section 2:

To help the researcher better understand the problem, please answer each of the questions below by checking the appropriate answer category or by writing in the relevant information. All your information will be held as confidential.

1. Gender: __Male __Female

2. Age: ____

3. Your ethnicity is:

- 1) Caucasian 2) African American 3) Asian 4) Hispanic
5) Pacific Islander 6) Other

4. Your marital status is:

- 1) single 2) married

5. The type of your cell phone is

- 1) Android, 2) iPhone, 3) Blackberry, 4) Other Smartphones, 5) Dumb phones

6. How often do you talk on cell phone behind the wheel?

- 1) Very frequently (More than once per day)
2) Frequently (Several times per week)
3) Sometimes (Several times per month)
4) Not frequently (Several times I can remember)
5) Never

7. Please write down your email address _____