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The Use of Emotional Shifts in Health Messages as a Strategy for Generating Talk
and Promoting Attitude, Belief, and Behavior Change

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Communication

by

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March 2016

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December 2015

The Use of Emotional Shifts in Health Messages as a Strategy for Generating Talk
and Promoting Attitude, Belief, and Behavior Change

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Susana Carrie Peinado

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I would also like to thank my parents, Arthur and Susan Peinado, for their love and encouragement throughout my graduate studies and in all things. It makes me very sad that my dad did not live to see me complete my degree, but his health struggles have fueled my

commitment to the field of health communication and my dedication to improving disease prevention and management efforts.

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VITA OF SUSANA C. PEINADO
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ABSTRACT

The Use of Emotional Shifts in Health Messages as a Strategy for Generating Talk and Promoting Attitude, Belief, and Behavior Change

by

Susana C. Peinado

Although there is a large body of research on the effectiveness of a variety of strategies for designing health messages, much of this research consists of experimental studies concerned with the immediate persuasive effects of message exposure on isolated individuals. Thus, these studies typically do not measure talk as an outcome of health message exposure. However, research suggests that talk about health messages can influence message effects. Specifically, the nature of talk in response to health messages (i.e., whether it is supportive or unsupportive of the message) and the degree of message elaboration generated by talk have important implications for the effects of messages on attitudes, beliefs, and behavior. Research also suggests that intense emotion plays an important role in generating talk about health messages.

The purpose of this dissertation was to investigate the effects of health messages containing shifts in emotional valence on the likelihood of talk, features of the talk generated, as well as psychological and behavioral outcomes, when compared to messages that were singular in their emotional valence. This research was the first to conduct an experiment to compare the effects of two persuasive health messages containing shifts in emotional valence

– from a positive to a negative emotion (pos-neg) or from a negative to a positive emotion (neg-pos) – with two single-valence emotional messages, one negative and one positive, on outcomes related to talk and persuasion. Attitudes, beliefs, and behavioral outcomes were measured at two time points, immediately following message exposure and again one week later. Information about conversations related to the message and/or behavior were also collected at the one-week follow-up.

Emotional shift messages were found to generate more talk than single-valence messages because they were more emotionally intense and elicited greater message processing. These mediating variables were also responsible for the effect of emotional shift messages on persuasive outcomes at Time 1 and Time 2. This demonstrates the potential of emotional shift messages to promote both talk and persuasion. Additionally, messages ending with negative emotion were more effective in influencing beliefs and attitudes at Time 1 as well as generating not only more talk but more positive talk compared to messages that ended with positive emotion. This research also revealed that intention to avoid texting while driving immediately following message exposure had a greater influence on beliefs and behavior at Time 2 than talk. This suggests that the characteristics of talk may be a more important determinant of message effects than whether talk occurred.

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Chapter I: Introduction

A primary concern of health communication scholars and professionals is to develop strategies for creating more effective messages for risk and disease prevention efforts.

Improving the effectiveness of health messages means increasing the likelihood that they will capture the audience's attention, influence their attitudes, alter their behavior, as well as get them talking with others about the information and behavior advocated in the message. This last measure of influence – talking about and sharing the message with others, specifically in a way that supports compliance with the message – is one of the least investigated message effects, yet it has the potential to play a critical role in affecting persuasive outcomes.

Although there is a large body of research on the effectiveness of a variety of strategies for designing health messages, much of this research consists of experimental studies concerned with the immediate persuasive effects of message exposure on isolated individuals. Thus, these studies typically do not measure talk about messages. Most of the research that does measure talk in response to health message exposure consists of health campaign evaluations, which measure outcomes some time after exposure and interaction with one's social environment. These studies tend to simply measure talk about campaign messages without attention to the nature or content of conversations (e.g., whether they are supportive or unsupportive of the message). However, they find that people do often talk about messages and that this talk has two effects: it either independently contributes to persuasive outcomes or it mediates the effects of message exposure on persuasive outcomes (e.g., see Dunlop, 2011; Dunlop, Wakefield, & Kashima, 2009; Durkin & Wakefield, 2006; Frank et al., 2012; Hafstad & Aarø, 1997; Hafstad, Stray-Pedersen, & Langmark, 1997; Hwang, 2012; Rimal, Flora, & Schooler, 1999; Valente & Saba, 2001; van den Putte, Yzer,

Southwell, de Bruijn, & Willemsen, 2011). Talk about health messages clearly has important implications for message effectiveness. Thus, it is important to know what message features generate talk about messages and how they might influence the nature of that talk.

Research in a variety of areas – including health communication, the social sharing of emotion, viral marketing, word-of-mouth communication, and urban legends – has identified several message features that lead to talk. In a variety of contexts, messages tend to stimulate talk and sharing with others when they: 1) are emotionally intense (Berger, 2011; Dobele, Lindgreen, Beverland, Vanhmmme, & van Wijk, 2007; Dunlop, Kashima, & Wakefield, 2010; Dunlop, Wakefield, & Kashima, 2009; Hafstad & Aarø, 1997; Luminet, Bouts, Delie, Manstead, & Rimé, 2000; Rimé, 2009); 2) are novel and surprising (e.g., Berger & Milkman, 2012; Dobele, Lindgreen, Beverland, Vanhmmme, & van Wijk, 2007; Heath, Bell, & Sternberg, 2001; Ibrahim, Ye, & Hoffner, 2008); and 3) are presented as narratives (Helme, Noar, Allard, Zimmerman, Palmgreen, & McClanahan, 2011; Singhal & Rogers, 2002; Valente & Saba, 1998). These three message features have one clear characteristic in common: they all involve the arousal of emotion.

Based on this research, there is substantial evidence that emotion, especially intense emotion, plays a central role in generating talk. Although health messages can evoke multiple emotions (Dillard, Plotnick, Godbold, Freimuth, & Edgar, 1996), they are typically designed to evoke emotions of a single valence, either negative or positive (e.g., guilt or humor appeals). However, messages containing shifts in the valence of emotions do exist and are not uncommon. In narratives, for example, shifts in emotion occur as the story unfolds and progresses from a conflict or problem to a resolution or “happy ending.” Fear appeals are

another example of a message that can evoke an emotional shift, from fear to relief or to another positive emotion (Rossiter & Thornton, 2001).

Although there are only a couple of studies that specifically investigate the effects of health messages containing emotional shifts – and therefore knowledge of their effects is limited – research and theory suggest that including an emotional shift in a health message may generate responses that can increase the likelihood of talk and producing positive persuasive outcomes. Incorporating emotional shifts into health messages may therefore be an effective strategy for generating and influencing talk about the message. This dissertation will present and test a model of the effects of an emotional shift within a health message. Including an emotional shift within a health message is expected to produce greater emotional intensity and message processing than a single-valence emotional message and therefore be more likely to generate talk. Talk about the message generated by an emotional shift is then hypothesized to further increase message elaboration and produce talk is supportive of the message, thus promoting persuasion. Therefore, an important component of this research will be to examine how emotional shifts influence not only whether talk occurs but also characteristics of talk.

Due to the gaps in our knowledge of how to design effective health messages that not only encourage talk, but also encourage talk that promotes persuasion, this dissertation seeks to investigate the effects of messages containing shifts in emotional valence on talk about the message and on persuasive outcomes. Emotional intensity and message processing in response to messages evoking emotional shifts will be examined as mechanisms by which emotional shifts lead to talk. The primary goals of this research will be to investigate the following questions:

- 1) Do health messages that contain a shift in the valence of emotions generate more talk than messages that evoke emotions of primarily a single valence?
- 2) If so, what mechanism(s) might account for this? Do messages containing emotional shifts produce greater emotional intensity and message processing than messages designed to evoke emotions that are consistent in valence? Does this vary by emotional sequence (e.g., a shift from positive to negative emotion vs. a shift from negative to positive emotion)?
- 3) Is one sequence of emotions more likely to lead to conversation that is more supportive of the message?
- 4) Does talk produced by shift messages or a particular sequence of emotions in a shift message influence attitude and behavior change beyond immediate post-exposure measures?

To provide a foundation for answering these questions, I will review literature on talk as an outcome of exposure to health messages and how the nature of this talk can influence persuasive outcomes, including attitudes and behavior. I will then discuss literature that points to emotion as playing a central role in generating talk, specifically identifying greater emotional intensity and emotion-generated message processing as increasing the likelihood of talk. I then discuss research on the effects of messages containing emotional shifts and present hypotheses regarding the ability of emotional shifts to produce more intense emotion and deeper message processing, thereby increasing the likelihood of generating talk. Finally, I propose hypotheses regarding the effects of emotional shift messages on the nature of talk and persuasive outcomes.

Chapter II: Literature Review

The Influence of Talk on Health Message Effects

Researchers have acknowledged that interpersonal communication plays an important role in influencing the effects of health and other mass media campaign messages (e.g., see Southwell & Yzer, 2007). Specifically, there are two important ways in which talk can influence the effectiveness of health messages (Hornik, 2006; Hornik & Yanovitzky, 2003; Southwell & Yzer, 2007). First, talk can facilitate the diffusion of messages. That is, it can spread messages and information to individuals who were not originally exposed to the media messages thereby extending the reach of a campaign. Second, talk can influence how messages are processed and interpreted, thereby reinforcing, encouraging, or discouraging a change in attitudes and behavior. As a result, conversation with others can affect whether media messages are accepted or rejected.

Health Messages Generate Talk

Although most health campaign evaluation research investigates the direct effects of message exposure on persuasive outcomes, evaluations that investigate talk about messages often find that health campaign exposure predicts interpersonal communication about health messages (Boulay, Storey, & Sood, 2002; Chatterjee, Bhanot, Frank, Murphy, & Power, 2009; Geary, Burke, Castelnuovo, Neupane, Sall, Wong, & Tucker, 2007; Helme et al. 2011; Hwang, 2012; Rimal, Flora, & Schooler, 1999; van den Putte, Yzer, Southwell, Bruijn, & Willemsen, 2011). This interpersonal communication tends to occur most often with close others, such as family members, friends, and partners, and less often with co-workers and health professionals (Geary et al., 2007; Korhonen, Uutela, Korhonen, & Puska, 1998).

However, health campaign messages have been found to generate talk to varying degrees. For example, an evaluation of two anti-smoking campaigns by van den Putte, Yzer, Southwell, de Bruijn, and Willemsen (2011) found that 72% of those who had been exposed to one campaign and 39% of those exposed to the other campaign had discussed campaign messages. In other studies, Dunlop (2011) found that 33% of participants talked about anti-smoking messages and Dunlop, Wakefield, and Kashima (2009) found that 28% of those exposed to a skin cancer prevention message had discussed it. In evaluating an anti-smoking campaign that targeted girls, Hafstad, Aarø, and Langmark (1996) found that among girls, 86% of smokers and 54% of nonsmokers discussed campaign messages, whereas for boys, discussion occurred among 61% of smokers and 31% of nonsmokers. The variation in the likelihood of talking about messages is likely due in part to differences in individual characteristics and message characteristics. As will be discussed shortly, some message features may increase the likelihood of generating talk.

Talk Influences Persuasive Outcomes

The reason a message designer would want to generate talk in response to messages is that research in this area often finds that talk about health messages can positively influence their effects on persuasive outcomes, including beliefs, attitudes, behavioral intentions, and behavior. Studies find that messages can have direct effects on persuasive outcomes as well as indirect effects through talk about messages (Dunlop et al., 2009; Frank et al., 2012; Hafstad & Aarø, 1997; Hwang, 2012; Valente & Saba, 2001; van den Putte et al., 2011). A number of studies have found that people who talked about messages were more likely to have beliefs, attitudes, intentions, and behavior aligned with the message (Boulay et al., 2002; Chatterjee et al., 2009; Dunlop, 2011; Dunlop, Kashima, & Wakefield, 2010; Dunlop

et al., 2008; Durkin & Wakefield, 2006; Frank et al., 2012; Geary et al., 2007; Hafstad, Stray-Pedersen, et al., 1997; Korhonen et al., 1998; Rimal, Flora, & Schooler, 1999; Valente & Saba, 1998). Further, several studies have found that even when individuals had a negative reaction to health campaign messages (i.e., they felt offended, angry, bullied, and thought the message was bad), discussing those messages resulted in positive persuasive outcomes (Hafstad & Aarø, 1997; Hafstad, Stray-Pedersen, et al., 1997). In contrast, negative reactions reduced the likelihood of positive behavioral outcomes among those who did not discuss messages (Hafstad & Aarø, 1997). Therefore, it appears that talk can sometimes contribute to preventing message rejection.

However, in other cases, talk has been found to contribute to attitudes that are contrary to health messages (e.g., see David, Cappella, & Fishbein, 2006; Dunlop, 2011; Stephenson et al., 2009; van den Putte, Monshouwer, de Bruijn, & Swart, 2010). For example, in an experiment, David, Cappella, and Fishbein found that talk about anti-marijuana messages among small groups of adolescents produced greater pro-marijuana beliefs and attitudes compared to adolescents who did not discuss the anti-marijuana messages. Additionally, Dunlop (2011), Stephenson et al. (2009), and van den Putte et al. (2010) all found that talk could negatively influence persuasive outcomes, but only under certain conditions, such as when one engages in talk that is not supportive of the message, which will be discussed in greater depth in the following section. Under other conditions, talk could have a positive effect, as mentioned above. These studies indicate that a key factor in determining how talk influences persuasive outcomes is the nature of the conversation – whether it supports or undermines the message.

The Nature of Talk: Supportive or Unsupportive of the Message

Research that has examined how talk following exposure to health messages influences persuasive outcomes indicates that talk can support or undermine a message and that this can influence attitudes and behavior (David, Cappella, & Fishbein, 2006; Dunlop, Kahima, & Wakefield, 2010; Frank, Chatterjee, Chaudhuri, Lapsansky, Bhanot, & Murphy, 2012; Hendriks, de Bruijn, & van den Putte, 2012; van den Putte, Monshouwer, de Bruijn, & Swart, 2010). In conversations generated by health messages, people express their attitudes, attempt to clarify and make sense of information, and reveal their behavior, which can influence those taking part in the conversation. Research also suggests that whether conversation supports the message is more important in determining persuasive outcomes than the frequency of conversation (Frank et al., 2012; van den Putte, Monshouwer, de Bruijn, & Swart, 2010). Therefore, it is not just the number of times people talk, but specifically the nature of that talk that has a greater influence on attitudes and behaviors.

It is possible to define the nature of talk many different ways since there is a wide range of information that can be conveyed during talk. For example, Christophe, Delelis, Antoine, and Nandrino (2008) discussed the different motivations behind talk generated by emotional experiences that can influence the character of conversations as well as the particular information that is communicated during them. They suggested that talk is often initiated to seek or provide information, compare experiences, or provide emotional support, among other functions. There are many potential characteristics of the nature of talk that research can explore. The research described in this dissertation, however, defines the nature of talk specifically in terms of valence and the degree to which it is aligned with the message.

In other words, more positive talk is talk that is more supportive of the message and more negative talk is talk that is less supportive of the message.

There are many factors that likely determine the nature of talk as well as many factors that are determined by the nature of talk that could influence persuasive outcomes. Some of these factors are discussed below.

Factors that can influence the nature of talk. The literature on talk in response to health messages has identified at least three factors that can influence the nature of talk about health messages. First, the nature of conversation about a health message can differ depending on one's conversational partner. For example, in evaluating the effects of an anti-marijuana campaign, van den Putte, Monshouwer, de Bruijn, and Swart (2010) found that discussions with teachers, parents, and siblings were more likely to be about the negative consequences of marijuana use, which was associated with more negative attitudes and intentions regarding marijuana use. However, discussions with friends were equally likely to be about the negative or positive consequences and so could potentially influence attitudes and behaviors either way depending on the attitudes expressed by friends.

Second, one's evaluation of a message as positive or negative may also influence the nature of talk (Dunlop, 2011; Helme, Noar, Allard, Zimmerman, Palmgreen, & McClanahan, 2011). As such, talk presents an opportunity to reinforce or to reverse one's evaluation of the message. For example, Dunlop (2011) found that among smokers, talk reinforced their evaluation of campaign messages, such that those who had a negative evaluation of the messages and talked were more likely to have beliefs and attitudes counter to the messages, whereas those who had a positive evaluation of campaign messages and talked were more likely to have beliefs and attitudes aligned with campaign messages. However, among non-

smokers, regardless of their campaign evaluation, talk produced more positive outcomes. This means that among non-smokers with a negative evaluation of campaign messages, talk reversed their evaluation.

Despite the large body of research on message effects, little is known about the specific message features that may be more likely to have a positive influence on the nature of talk and to produce conversation aligned with the message. Dunlop, Kashima, and Wakefield (2010) suggested that narrative (as opposed to advocacy) messages may be more likely to produce talk that is supportive of the message, perhaps because narratives may reduce counterarguing or other defensive responses to messages. Thus, in addition to the two factors mentioned in previous paragraphs, a third message-related factor that might influence the nature of talk is the valence of the emotion or the discrete emotion evoked by a message. It seems possible that emotions that are less likely to elicit reactance or defensive responses to messages might produce talk that is more aligned with the message. However, the effects of valence or discrete emotions on conversation are still unclear. For example, in an assessment of a campaign to prevent hearing loss among coal miners, Stephenson et al. (2009) found that talk in the positive and neutral affective message conditions predicted more positive persuasive outcomes, whereas talk in the negative affective message condition predicted more negative persuasive outcomes. In another study, Hendriks, van den Putte, and de Bruijn (2014) found that fear elicited by anti-binge drinking ads produced more negative conversations about alcohol (i.e., talk aligned with the message), which was significantly related to negative attitudes and intentions regarding binge drinking as well as a decrease in binge drinking behaviors. In the same study, humor and disgust did not significantly influence the nature of conversations about alcohol. These studies suggest that both positive

and negative emotional responses to messages have the potential to elicit talk aligned with the message. However, not all emotions are likely to have an equal effect on the nature of talk.

Although some negative emotions may have the potential to produce conversations that are supportive of the message, as found in the study by Hendriks et al. (2014), there is also the potential for negative emotion – particularly intense negative emotion – to produce reactance or other defensive responses (Witte, 1998; Witte & Allen, 2000). Therefore, it may be that the three factors discussed in this section interact to influence outcomes. For example, positive emotional responses to messages may generally be more likely to produce talk aligned with the message because they may decrease the likelihood of generating defensive responses to the message and increase positive message evaluations. In contrast, a negative emotional response may be more likely to produce positive talk and positive persuasive outcomes when one’s evaluation of the message is positive and/or one’s conversational partner expresses attitudes aligned with the message. Therefore, the effects of one’s message evaluation or one’s conversational partner on the nature of talk may be particularly important when talk is elicited by a negative emotional message.

Based on the research discussed above, it appears that messages that produce certain responses such as a positive emotional response and a positive evaluation of the message may be more likely to result in talk that is supportive of the message. In addition, talking with conversational partners who have attitudes aligned with the message or who desire to influence one’s attitudes so they are aligned with the message (e.g., parents, teachers, and older siblings) may also be more likely to result in talk that is supportive of the message.

How the nature of talk influences persuasive outcomes. Once talk is generated, the literature has identified four explanations for how talk about health messages might influence attitudes and behavior. All factors can potentially be influenced either positively or negatively through talk about health messages. First, during a conversation participants can provide each other with information, which can be useful in performing a behavior as well as forming attitudes. Accordingly, talk can be both a source of information exchange (Ackerson & Viswanath, 2009) and informational influence, which involves influence to accept information shared within a conversation as “evidence about reality” (Eagly & Chaiken, 1993). Second, talk provides an additional context beyond the individual in which messages are interpreted and processed (Hornik, 2006). Therefore, it can influence how information in the message is evaluated, thus positively or negatively influencing attitudes.

A third explanation identified in the literature is that talk about health campaign messages can influence perceptions of self-efficacy for performing a behavior (Chatterjee, Bhanot, Frank, Murphy, & Power, 2009; Frank et al., 2012; van den Putte, Yzer, & Southwell, 2007). Most studies thus far have found only positive effects of talk in response to health messages on self-efficacy. However, just as it is possible to negatively influence attitudes about engaging in health behaviors through talk, it is also possible to convey information about the difficulty of engaging in or maintaining a health behavior that could negatively influence the self-efficacy of others. Therefore, information and influence conveyed through talk has the potential to increase or decrease people’s expectations of their ability to successfully carry out a behavior.

Fourth, talk can also positively or negatively influence perceptions of social norms, including both subjective and descriptive norms, regarding the behavior addressed in the

message (David, Cappella, & Fishbein, 2006; Dunlop, Kashima, & Wakefield, 2010; Frank et al., 2012). Perceptions of social norms produced by talk may not always be in support of the behavior advocated in the message, however, as found in a study of talk about anti-marijuana messages by David, Cappella, and Fishbein.

Discussion-Generated Elaboration

In addition to the nature of talk, another characteristic of talk that has the potential to influence persuasive outcomes is the degree of message elaboration generated by talk. Eveland (2004) described discussion-generated elaboration as meaningful information processing that occurs during discussion about a topic. He proposed discussion-generated elaboration as a potential explanation for how the discussion of news content from media sources might increase political knowledge. This hypothesis was supported by the finding that discussion of a political campaign strongly predicted news elaboration, which in turn predicted knowledge (Eveland, 2004). Thus, this research suggests that engaging in talk with others can increase message elaboration.

Although the concept of discussion-generated elaboration has mainly been applied in the context of news media and understanding the effects of political discussion, it seems that it could make a similar contribution to understanding the effects of persuasive health messages and the talk they generate. Message elaboration during and following talk might involve referencing one's personal experience and/or the personal experience of one's conversational partner, integrating new information into one's response to the message content, solidifying one's thoughts and beliefs about the message content, and rehearsing arguments made by the message (Eveland & Thomson, 2006). Given that greater message elaboration has previously been associated with increased persuasion (Chaiken, 1980; Petty

& Cacioppo, 1986), it is likely that discussion-generated elaboration may also increase the persuasive impact of a message.

In summary, the literature reviewed up to this point has provided evidence that people talk about health messages to varying degrees and that this talk influences persuasive outcomes. Furthermore, people's evaluation of and emotional response to messages as well as the attitude conveyed by their conversational partner can influence the nature of talk about messages (i.e., whether it supports or undermines the message). Finally, the nature of talk about health messages can influence attitudes and behavior by providing information, influencing message interpretation and evaluation, and affecting perceptions of self-efficacy and social norms. Thus, whether the effect of talk is positive or negative is a function of the nature of talk and how it influences the above outcomes, which can then affect attitudes and behavior. Additionally, talk that supports message elaboration may be more likely to produce attitudes and behavior aligned with the message.

Now that it is clear that talk about health messages can be a positive (or negative) influence on persuasive outcomes, from a message design standpoint it is important to know how we might increase a message's ability to not only generate talk but to increase the likelihood that talk will be supportive of the message and will stimulate message processing. I will thus address one factor that receives consistent and strong support in the literature as generating talk: emotion.

The Role of Emotion in Generating Talk About Health Messages

Emotions are physiological and psychological responses to the appraisal of a personally relevant stimulus that can vary in valence (i.e., positive, negative, or neutral) and intensity based on the degree to which the stimulus is perceived to benefit or harm one's

values or goals (Brehm, 1999; Izard, 1977). One's appraisal process determines which emotion is evoked (Lazarus, 1991). The literature frequently discusses two dimensions of emotion: valence and arousal (Clore & Schnall, 2005; Ortony, Clore, & Collins, 1988; Smith & Ellsworth, 1985). The valence of the emotion is derived from an evaluation of whether the stimulus is congruent (positive) or incongruent (negative) with one's goal (Lazarus, 1991). The extent of arousal (i.e., intensity) is determined by the perceived importance or significance of the stimulus to one's goals. Emotions then serve to motivate and direct behavior (Izard, 1977; Lazarus, 1991).

Persuasive health messages are often designed to evoke emotion because of its powerful ability to motivate action and produce positive behavior change (Dillard & Nabi, 2006; Lazarus, 1991; Witte, 1992). It has traditionally been common to design persuasive health messages to evoke negative emotions, such as fear. A reason for this is that negative emotions and the actions they produce are more clearly defined than positive emotions. Negative emotions are also naturally seen to be more appropriate for providing the motivation needed to engage in protective health behaviors. Many negative emotions – such as fear, disgust, and guilt – tend to motivate people to change their behavior because their emotional response provides a cue that a behavior or outcome is not aligned with their goals. For example, health messages often attempt to point out that certain behaviors and negative health outcomes are incongruous with one's goals, such as one's self-identity or wellbeing. Therefore, most research on emotional appeals and the persuasive effects of emotion has focused on explaining the effects of fear and other negative emotions. Although there has been some research in advertising on positive emotional appeals, in the context of health, very little focus has been placed on examining the effects of positive emotional messages or

messages that might evoke emotions of different valences (Dillard et al., 1996; Dunlop, Wakefield, & Kashima, 2008; Kang & Cappella, 2008; Witte & Allen, 2000).

Not only can emotions elicited by health messages motivate attitude and behavior change they can also motivate talk. Research on the social sharing of emotion has revealed that when people experience an emotional event or are exposed to emotional information, they tend to talk about it and share it with others, usually friends and family members (e.g., see Dunlop et al., 2009; Luminet, Bouts, Delie, Manstead, Rimé, 2000; Rimé, 2009). Studies have found that approximately 88% to 96% of experimental participants talked with others following an emotional experience (Rimé, 1995; Rimé, Philippot, Boca, & Mesquita, 1992). The initial sharing of an emotional episode can, in turn, elicit an emotional response in the listener, who is often inclined to share that emotional experience with yet other friends or family members (Christophe, Delelis, Antoine, & Nandrino, 2008; Rimé, 2009). People also tend to share emotional messages soon after the emotional experience (Rimé, 2007), so this information spreads quickly. This body of research presents a strong case for emotion as a driving force behind interpersonal communication.

In the remainder of this section, I will discuss the influence of two dimensions of emotion (valence and intensity) as well as emotion-generated message processing on the elicitation of talk about health messages.

Emotional Valence

Studies typically do not find any differences between positive and negative emotions in their likelihood of generating talk. Research on the social sharing of emotion consistently supports this finding (Christophe, Delelis, Antoine, & Nandrino, 2008; Rimé, 1995; Rimé, Mesquita, Philippot, & Boca, 1991; Rimé, 2009). In research on health, an evaluation of a

campaign that included provocative emotional appeals found that both positive and negative affective responses to campaign messages stimulated talk about the campaign, whereas no emotional reaction decreased the likelihood of discussion (Hafstad & Aarø, 1997). Another study that investigated the effects of messages about hearing protection designed to elicit negative or positive emotion on discussion among coal miners also found that the likelihood of discussion did not differ depending on the emotion elicited by the message (Stephenson et al., 2009).

Other research in viral marketing and social sharing indicates that some emotions may be more likely to generate talk than others, but this may be due to the level of arousal or activation associated with the emotion rather than its valence (Berger, 2011; Berger & Milkman, 2012; Peters, Kashima, & Clark, 2009).

Although emotional valence does not appear to influence the likelihood of talk, research on the social sharing of emotion suggests there may be different motivations for talk depending on whether that talk is initiated by positive or negative emotions (Christophe, Delelis, Antoine, & Nandrino, 2008; Rimé, 2009). Negative emotions may be more likely to produce talk for the purpose of seeking or providing information, sensemaking, clarification, comparing experiences, affiliation, and social support (emotional and informational support). On the other hand, positive emotions may be more likely to generate talk for the purpose of rumination or savoring the experience, enhancing social bonds, providing informational support, and entertaining. Therefore, these different motivations for talk driven by the valence of the emotion are likely to affect the content of conversation. However, knowing these motivations does not necessarily help us predict whether the talk will be message-consistent or message-inconsistent and how it will affect attitudes and behaviors.

Emotional Intensity

Many studies have found that emotional intensity plays a much larger role in motivating talk and sharing than the valence or specific emotion (e.g., see Berger, 2011; Dobele, Lindgreen, Beverland, Vanhamme, & van Wijk, 2007; Eckler & Bolls, 2001; Rimé, 2009). In fact, across a variety of research fields – including viral marketing, social sharing, and health communication – a high level of emotional intensity is the message feature most consistently found to generate talk. Literature on the social sharing of emotion consistently supports the notion that high-intensity emotion results in more frequent sharing with more people than low-intensity emotion (Christophe, Delelis, Antoine, & Nandrino, 2008; Christophe & Rimé, 1997; Curci & Bellelli, 2004; Luminet et al., 2000; Peters, Kashima, & Clark, 2009; Rimé, 1995; Rimé, 2009).

Similarly, studies of health message effects that have investigated both emotional intensity and talk have found that health messages that elicit more intense emotional responses are more likely to stimulate talk. For example, studies by Dunlop and colleagues (2009; 2010) found that more intense emotional responses to messages about cancer prevention increased the likelihood of talking about those messages. Based on this research, it is clear that emotional intensity plays an important role in motivating people to talk about messages and share their emotional response to them.

Emotion-Generated Message Processing

Health messages that elicit emotion have the potential to increase message processing. An emotional response to a message can increase the recipient's motivation to process the message (Lang, 2006; Nabi, 1999). Emotional intensity is one dimension of emotion that has been associated with depth of message processing. However, while some

research has found that more intense (typically negative) emotional responses can increase message processing (Baron, Logan, Lilly, Inman, & Brennan, 1994; Keller & Block, 1996), when the intensity of emotion is too high, this has the potential to inhibit message processing (Keller & Block, 1996; Lang, 2000; Witte, 1998).

Theory and research suggest some variation may exist among discrete negative emotions in terms of the depth of message processing they produce (Nabi, 1999; Nabi, 2002). For example, Nabi (1999) proposed that classification as an approach or an avoidance emotion is one characteristic of discrete emotions that may influence message processing depth. This classification is determined by whether the action motivated by the emotion involves engaging with or disengaging from the source of the emotion. As hypothesized, Nabi (2002) found that anger (an approach emotion) promoted deeper message processing than fear (an avoidance emotion). Although Baron, Logan, Lilly, Inman, and Brennan (1994) did not compare multiple discrete negative emotions on depth of message processing, they nonetheless found that fear, especially when intense, could promote message processing. However, the reality is that messages often evoke multiple emotions, so it is unclear how they may operate in combination to motivate message processing.

Research on the influence of emotional valence on depth of message processing is fairly limited. However, both Fredrickson (1998) and Lang (2006) have suggested that negative emotion produces more careful message processing than positive emotion. Fredrickson (1998) proposed that negative emotions narrow or focus thoughts and actions because quick and decisive action is often needed, whereas positive emotions function to broaden thoughts and actions because there is not the same need for an immediate focused response. This suggests that negative emotions produce more careful processing than positive

emotions. Similarly, Lang (2006) proposed that negative stimuli require more careful processing because emotional and cognitive responses to negative stimuli serve an immediate function, such as protecting an individual from danger. In contrast, the processing of positive stimuli is not as immediate and is less careful and focused because mistaking a neutral stimulus for a positive stimulus does not have such potentially devastating consequences. Indeed, Lang and Yeghyan (2008) confirmed that health messages that evoked negative emotions resulted in greater message processing than messages that evoked positive messages.

Emotion, particularly intense emotion, can increase message processing, but how does this relate to talk? Messages that generate greater message processing may be expected to generate more talk. Engaging in conversations with others may constitute part of process of engaging with a message and elaborating on that message (Eveland & Thomson, 2006). There may be a lingering need to process and understand the message content, to make sense of it in the context of one's own beliefs and behaviors as well as within the context of one's social environment. This desire to further elaborate on message content may lead to talk with others about the content. To date, no research has specifically examined how message processing may influence talk about messages. However, research on the social sharing of emotion suggests that part of the motivation behind talking with others about emotional experiences is that it provides an opportunity to continue processing the experience (Christophe, Delelis, Antoine, & Nandrino, 2008; Rimé, 2009). As discussed previously, negative emotions may be more likely to be shared for the purpose of seeking or providing information, sensemaking, clarification, and comparing experiences, all of which are related to message processing.

To summarize, literature in a variety of fields has identified emotion – specifically, intense emotion – as generating talk. The next step is to consider how to design a message in such a way as to increase the likelihood of eliciting intense emotions that increase message processing. Messages containing emotional shifts, which will be described next, may be one strategy for accomplishing this.

The Use of Emotional Shifts in Health Messages

The previous section reviewed literature on the important role that emotion plays in generating talk. In designing health messages that increase the likelihood that people will discuss them, it will be important that they evoke an intense emotional response and a deep level of message processing in the message recipient, since these responses are associated with a greater likelihood of talk. One way to produce greater emotional intensity and message processing may be to design messages containing shifts in emotion. Although most health messages to date are designed to evoke emotions that are uniform in valence, as I will explain in the next section, messages designed to evoke a shift between emotions of opposing valence may be more likely to elicit intense emotions and deep message processing, thereby generating talk. As a result, messages designed to evoke a shift in the valence of emotions may be more likely to consistently generate talk than messages designed to evoke emotions of a single valence. Prior research on the inclusion of emotional shifts in health messages suggests that these messages may also be more likely to produce talk that is supportive of the message compared to a single-valence emotional message. However, before explaining how emotional shifts may elicit these responses, it is first necessary to describe what an emotional shift message is, where they can be found at present, as well as what previous research has found regarding their effects on persuasive outcomes.

Defining Emotional Shifts

Although messages can be designed to evoke multiple shifts in emotional valence or shifts between emotions of the same valence, in this research, emotional shifts are defined as a single shift in emotional valence from a positive to a negative emotion (pos-neg) or from a negative to a positive emotion (neg-pos). In fact, previous studies that have investigated the effects of emotional shifts within health messages operationalized these messages as narratives that shifted from one emotional valence to another (Carrera, Caballero, & Muñoz, 2008; Carrera, Muñoz, & Caballero, 2010). Narratives are a logical format for designing health messages that contain emotional shifts as they naturally include shifts in emotion as the story unfolds. Dramatic sequences of events within narratives present challenges and solutions and evoke shifts in emotions over the course of the storyline to increase interest and engagement (Larkey & Hill, 2012). In fact, emotion is central to the persuasive effects of narratives (Green, 2006). Emotional shifts within the narrative likely contribute to the experience of transportation into the story and identification with the characters as we follow the story of characters' challenges and triumphs.

Another message format that may include an emotional shift is a fear appeal. Although not intended to evoke an emotional shift per se, fear appeals may sometimes accomplish this in shifting from the threat and fear evoked in the first part of a message to building efficacy perceptions in the next part, which may evoke positive emotions such as relief or even hope if the message receiver accepts the recommended behavior as a way to avert the threat. In their study, Rossiter and Thornton (2004) conceptualized fear appeals as containing an emotional shift from fear to relief when a negative outcome nearly, but did not,

occur. When they examined emotional responses, they found that at the point at which the recommendation was stated, participants experienced relief.

Overall, there has been very little research on the use of emotional shifts in health messages. However, two somewhat recent studies have investigated the effects of emotional shifts in health messages on persuasive outcomes (Carrera, Caballero, & Muñoz, 2008; Carrera, Muñoz, & Caballero, 2010). This section will discuss these two studies on emotional shifts as well as an additional study that investigated the effect of emotional shift messages on perceptions of threat and efficacy.

Previous Research on Emotional Shifts

Two studies by the same team of researchers involved experiments in which an emotional shift message was compared with a negative emotional message in terms of their effects on attitudes and behavioral intentions (Carrera, Caballero, & Muñoz, 2008; Carrera, Muñoz, & Caballero, 2010). In the shift condition, narrative messages described a story in which an emotionally valenced event occurred followed by an oppositely valenced event. In one study, the emotional shift message was a story about the joy a character experienced after an academic accomplishment followed by a shift to the fatal consequences of drinking too much to celebrate the accomplishment (pos-neg). In the other study, the message was about a potentially life-threatening consequence of excessive drinking, followed by the character's fortunate and joyful recovery (neg-pos). In each study, the shift message was compared with a single-valence negative emotional message that was similar to the negative emotional component of the shift message.

In both studies, though there were no significant effects on attitudes, the emotional shift messages resulted in more positive behavioral intentions (i.e., to avoid excessive

drinking and to drink in moderation) than the negative emotional messages to which they were compared. Further, in both studies, attitudes toward excessive drinking or toward the advocated behavior (drinking in moderation) were more in the undesired direction in the negative emotion condition and more in the desired direction in the emotional shift conditions. Based on these findings, the authors concluded that emotional shift messages may reduce negative or defensive responses and increase message acceptance compared with a negative emotional message. In the study that included a message evoking a neg-pos shift, the researchers found that the positive emotion at the end of the narrative resulted in lower post-message discomfort and improved the attitude toward the healthy recommendation (Carrera, Muñoz, & Caballero, 2010).

In addition to attitudes and intentions, several studies investigated perceptions of threat and efficacy in response to emotional shift messages (Carrera, Muñoz, & Caballero, 2010; Olsen & Pracejus, 2004). The neg-pos message was found to elicit similar perceptions of threat as single-valence negative emotional messages, but produced greater perceptions of response efficacy (although not self-efficacy) and hope. Therefore, neg-pos emotional shifts appear to potentially be able to elicit the same level of perceived threat while increasing perceived efficacy, compared to other emotional message conditions.

As these few studies suggest, emotional shifts may reduce defensive responses and positively influence behavioral intentions. Also, based on this research it seems possible that the presence of positive emotion following negative emotion (in a neg-pos shift) does not reduce the motivating effect of negative emotion, but may in fact enhance its effect on persuasive outcomes by reducing negative and defensive responses to a message.

The existing research provides a useful start to investigating the effects of health messages containing shifts in emotional valence. However, some gaps remain in our knowledge of how emotional shift messages can influence talk. This previous research did not investigate the effects of emotional shifts on talk about the messages. It also did not compare shifts with each other to determine how the order of emotions within a shift may differently affect attitudes and behavioral intentions. In addition, these studies did not compare shifts with positive emotional messages. Therefore, it will be important to attempt to fill some of these gaps in the present research, which will extend as well as replicate previous research.

Emotional Shifts, Intensity, Message Processing, Talk, and Persuasion (Hypotheses)

In this section, I will explain and propose a series of hypotheses about the effects of health messages containing emotional shifts on talk and persuasive outcomes, as depicted in Figure 1. First, I will address the immediate effects of emotional shift messages, including their potential for increasing the intensity of one's emotional response and the depth of message processing, as well as immediate effects on cognitive and persuasive outcomes (Time 1). Second, I will describe how and why these responses to emotional shifts may increase the likelihood of generating talk (Time 2). Finally, I will discuss how emotional shift messages may affect the nature of talk about a message as well as persuasive outcomes following talk.

Emotional Shifts and Emotional Intensity

Messages containing an emotional shift may produce a more intense emotional experience than messages designed to evoke solely negative or positive emotion. Indeed, two well-documented psychological phenomena – excitation transfer and contrast effects –

provide support for the prediction that the second emotion within a shift may be experienced more intensely than that same emotion alone.

In the context of media effects, excitation transfer theory describes how emotional excitation (i.e., arousal) can transfer between media exposures (Cantor, Bryant, & Zillmann, 1974; Zillmann, Mody, & Cantor, 1974). The emotional excitation of one media encounter can linger, thereby affecting and intensifying the emotional response to a subsequent media encounter. Because the emotional arousal does not decay immediately, it can affect one's reaction to subsequent stimuli (Zillmann, 1971; 1983). Therefore, the residual response from the first stimulus can intensify the emotional reaction to the second stimulus.

This can also apply to the transfer of emotional experience within a single message, particularly one that shifts from the arousal of one emotion to another oppositely-valenced emotion. Although this occurs within one message, there are two different emotional experiences. Therefore, emotional excitation could transfer from the first emotional experience to the second. As a result, one's emotional response to the first part of a message may intensify the emotional response to the later part of the message.

Contrast effects, a commonly observed cognitive bias in which a stimulus is judged to be more extreme in contrast with an anchor or prior stimulus, would predict a similar outcome to excitation transfer effects (Plous, 1993). As a consequence, it is often difficult to distinguish contrast effects from excitation transfer. However, research on contrast effects in the context of emotion focuses specifically on the experience of exposure to a sequence of oppositely-valenced (i.e., contrasting) emotions, whereas the excitation transfer literature investigates the effects of sequences of emotional experiences that carry either the same or opposite valences.

In contrast to the first emotion evoked within an emotional shift message, the second emotion may be perceived as more intensely positive or negative. The idea is that the contrast between the first and the second emotion would produce a more intense emotional response than would exposure to either a positive or negative emotion alone. Empirical evidence has provided support for this effect (Manstead, Wagner, & MacDonald, 1983; Thayer, 1980a; 1980b). In one particular experiment, participants viewed either a series of comedy clips followed by a series of horror clips or the reverse order (Manstead, Wagner, & MacDonald, 1983). In both conditions, the clips viewed second were rated as more intense (i.e., more humorous or more frightening) than the first set of clips. Other research on judgments of facial expressions of emotion has found that happy expressions were judged to be more intense when they followed photographs of sad expressions and vice versa (Thayer, 1980a; 1980b).

Most of the literature supports these predictions. However, a few studies have produced contradictory or inconsistent findings. For example, Olsen and Pracejus (2004) investigated the effects of oppositely valenced emotional sequences in a radio ad for detecting and treating diabetes. They found that the neg-pos sequence of emotion intensified the positive emotion more than when the positive emotion was experienced alone. However, the pos-neg sequence of emotion did not produce a more intense experience of the negative emotion than the negative emotional message. Similarly, Carrera, Caballero, and Muñoz (2008) found no difference in the intensity of the negative emotion between a negative emotion condition and a pos-neg emotional shift condition.

The excitation transfer literature has also raised the question of whether and to what extent arousal can transfer between oppositely valenced emotional experiences (Zillmann,

1996). Although some research in excitation transfer supports that idea that the transfer of arousal may be greater when the sequence of emotions are of the same valence (e.g., Zillmann, Mody, & Cantor, 1974), other research finds transfer effects regardless of valence (e.g., Cantor, Bryant, & Zillmann, 1974). In spite of this inconsistency in findings, it seems that the large body of research confirming excitation transfer effects in a variety of contexts provides the most reasonable basis on which to make predictions. Indeed, Zillmann (1996) addressed this issue in an overview of excitation transfer theory and research. He stated that although there are some exceptions in the research, there is also a great deal of support for transfer between oppositely-valenced emotions and that there is no reason to assume that transfer effects will vary depending on whether the transfer occurs between emotions of the same or of different valences.

Based on predictions by excitation transfer theory and contrast effects, the following hypothesis is proposed:

H1a: Emotional shift messages will more emotionally intense than single-valence messages.

The review of the literature also suggested that the second emotion within an emotional shift is likely to be experienced more intensely than that emotion alone. Therefore, the following additional hypothesis is proposed:

H1b: The second emotion within an emotional shift message will be experienced more intensely than that same emotion in a single-valence message.

Since there is little previous research comparing different sequences of emotion (i.e., pos-neg and neg-pos) within persuasive messages and predictions about differences between

them would generally be based more on guesswork than theory, the following research question is proposed:

RQ1: How do the two shift messages differ from each other on the following outcomes: emotional intensity, depth of message processing, cognitive and persuasive outcomes at Time 1, intention to talk, talk behavior, the nature of talk, and discussion-generated elaboration?

Emotional Shifts and Message Processing

According to the Elaboration Likelihood Model (ELM), the degree to which people elaborate on a message can affect the strength of their attitude (Booth-Butterfield & Welbourne, 2002; Petty & Cacioppo, 1986). Since greater elaboration leads to more enduring and meaningful attitude change, from a message design perspective it would be preferable to employ message design strategies that encourage deeper message processing. Because emotional shift messages are expected to elicit more intense emotional responses than single-valence messages, they may also generate deeper message processing than single-valence messages (Baron, Logan, Lilly, Inman, & Brennan, 1994; Keller & Block, 1996).

At first glance, a body of research on social influence that has investigated the effects of a “seesaw of emotions” (i.e., emotional shifts) on compliance seems to be at odds with the idea of increased cognitive processing in response to emotional shifts. This research has suggested that compared with a single emotional experience, experiences that induce a shift in emotion (from negative to positive and vice versa) produce a state of cognitive impairment or mindlessness in which people are more likely to comply with a request (e.g., see Dolinski, 2001; Dolinski, Ciszek, Godlewski, & Zawadzki, 2002; Nawrat & Dolinski, 2007). The researchers initially proposed that during this state of mindlessness, people operate

automatically and not engaging in cognitive processing, so they are more likely to comply with a request.

However, it has also been suggested that this apparent “mindlessness” occurs because the majority of one’s cognitive resources are allocated to processing the emotional shift experience (Dolinski, 2001). Therefore, insufficient resources remain for processing other stimuli (e.g., the request presented to participants shortly after the seesaw experience). This shift or change in emotions may also be unexpected by participants, which can result in greater attention and allocation of cognitive resources to process the event, leaving limited resources available for processing any other stimulus (Lang, 2000; 2006). This explanation suggests that emotional shift messages may result in deeper message processing than single-valence messages.

Based on this rationale as well as the research mentioned above that identified increased message processing as an outcome of exposure to emotionally intense messages, the following hypothesis is proposed:

H2: Emotional shift messages are more likely to produce greater message processing immediately following message exposure than single-valence emotional messages.

Emotional Shifts and Immediate Cognitive and Persuasive Outcomes (Time 1)

Although this dissertation focuses on talk as an outcome of exposure to health messages and how talk influences persuasive outcomes, in line with previous research it is worthwhile to examine the immediate effects of emotional shifts on persuasion following message exposure (measured at Time 1). It is also important to measure attitudes and

behavioral intentions prior to talk to determine how they might influence and be influenced by talk.

Previous research on emotional shifts found that they produced more positive persuasive outcomes and reduced defensive responses compared to single-valence negative emotional messages. Although this research did not include a positive emotional message as a comparison condition, because emotional shift messages are hypothesized to produce more intense emotional experiences and greater message processing, both of which are associated with persuasion, the following hypothesis is proposed regarding the effects of emotional shifts immediately following message exposure:

H3: Emotional shift messages will produce attitudes, self-efficacy, and behavioral intentions that are more aligned with the message than single-valence emotional messages.

Emotional Shifts and Talk

As discussed previously, intense emotional experiences have been found to generate talk. If messages containing emotional shifts are found to produce a more intense emotional experience than single-valence emotional messages, this will increase the likelihood these messages will generate talk. Additionally, increased message processing may also increase the likelihood of talk because talk provides an opportunity to engage in continued message elaboration. Therefore, because messages containing emotional shifts are predicted to produce more intense emotion and greater message processing than single-valence emotional messages, it follows that:

H4: Compared to single-valence emotional messages, emotional shift messages will (a) produce greater intentions to talk with a friend or family member

about the message and/or behavior and (b) be more likely to generate talk about the message and/or behavior.

H5: The effect of shift messages on talk will be mediated by (a) emotional intensity and (b) depth of message processing.

The Effect of Cognitive and Persuasive Outcomes at Time 1 on Talk

H3 predicted that emotional shift messages would produce attitudes, self-efficacy, and behavioral intentions at Time 1 that are more aligned with the message than single-valence emotional messages. Additionally, H4 proposed that emotional shift messages would generate more talk than single-valence messages. Based on these predictions, we would also expect that attitudes, self-efficacy, and behavioral intentions that are more aligned with the message at Time 1 would also be associated with a greater likelihood of talk. This then forms the basis for the following hypothesis:

H6: Attitudes, self-efficacy, and behavioral intentions that are more aligned with the message at Time 1 will be associated with a greater likelihood of talking with others at Time 2.

The Effect of Talk Behavior on Cognitive and Persuasive Outcomes at Time 2

As discussed previously, a number of studies have found that talk about messages was associated with attitudes, beliefs, intentions, and behavior aligned with the message (e.g., Chatterjee et al., 2009; Dunlop, 2011; Dunlop, Kashima, & Wakefield, 2010; Frank et al., 2012; Hafstad, Stray-Pedersen, et al., 1997; Rimal, Flora, & Schooler, 1999; Valente & Saba, 1998). Additionally, H6 predicted that cognitive and persuasive outcomes that are more aligned with the message at Time 1 would be associated with a greater likelihood of talking at Time 2. Based on this prediction, those who report talking at Time 2 will have reported

attitudes, self-efficacy, and intentions at Time 1 that are more aligned with the message. Therefore, it is likely that these attitudes, self-efficacy beliefs, and intentions will be expressed and reinforced during talk. Those with attitudes, self-efficacy beliefs, and behavioral intentions that are more aligned with the message may also be more motivated to talk and share their strong views with others.

In addition to attitudes and behavior, several beliefs are likely to be influenced by talk about the message, as mentioned above. These include beliefs about self-efficacy, social norms, and susceptibility. Self-efficacy plays an important role in behavior change (Bandura, 1977). Without sufficient self-efficacy – defined as the degree to which an individual believes he or she is capable of carrying out a behavior – individuals are unlikely to be able to adopt and perform the behavior advocated in a health message (Witte, 1994). Social norms also play an important role in influencing behavior (Ajzen, 1991; Ajzen & Fishbein, 1980; Rimal & Real, 2005). Finally, beliefs about susceptibility to the negative consequences of a risky behavior can also influence behavior (Hochbaum, 1958; Rosenstock, 1974; Witte, 1992). Beliefs about self-efficacy, social norms regarding a behavior advocated in a message, and susceptibility can be influenced by talk about a message as well as talk about the behavior advocated in the message (e.g., Dunlop, Kashima, & Wakefield, 2010; van den Putte, Yzer, & Southwell, 2007).

This research on the effects of talk on beliefs and persuasive outcomes leads to the following hypothesis:

- H7: Those who talk with others about the message and/or behavior addressed in the message will report self-efficacy, social norms, susceptibility, attitudes,

and behavior at Time 2 that are more aligned with the message than those who do not talk with others about the message and/or behavior.

Since attitudes and beliefs about susceptibility, self-efficacy, and social norms are expected to influence behavioral intentions and behavior (Fishbein, 2000; Fishbein & Ajzen, 2010; Hochbaum, 1958; Rosenstock, 1974; Witte, 1992), the following hypothesis will be tested:

H8: More supportive attitudes and positive beliefs regarding susceptibility, self-efficacy, and social norms at Time 2 will predict more positive behavior at Time 2.

Emotional Shifts, the Nature of Talk, and Outcomes at Time 2

Previous research has found that both types of emotional shifts messages (i.e., neg-pos and pos-neg) produce more positive persuasive outcomes and reduce defensive responses compared to negative emotional messages (Carrera, Caballero, & Muñoz, 2008; Carrera, Muñoz, & Caballero, 2010). It is reasonable to speculate that messages that result in more positive immediate effects on attitudes and behavioral intentions may produce more supportive talk about the message. When talking with others, people often express their attitudes, solicit as well as share information and personal experiences with others, and reveal their intentions and behavior, which can influence those participating in the conversation. If attitudes, beliefs, intentions, and behavior discussed in these conversations are supportive of the message, this will likely overall result in talk that is more supportive of the message. Therefore, emotional shift messages may be more likely to produce talk aligned with the message than a single-valence emotional message.

H9: Emotional shift messages are more likely to produce talk aligned with the message than single-valence messages.

As discussed previously, talk has the potential to either positive or negatively influence cognitive and persuasive outcomes. However, when talk is supportive of the message, it is expected to have a positive influence on these outcomes. Therefore, the following hypothesis is proposed:

H10: Talk aligned with the message will produce beliefs about self-efficacy, social norms, and susceptibility, as well as attitudes and behavior that are more aligned with the message.

Discussion-Generated Elaboration and Outcomes at Time 2

Talk can also engage individuals in deeper message processing and elaboration beyond what occurs at the individual level. Because talking about messages often involves engaging in more extensive message processing (Eveland, 2004; Rimé, 2009), this can influence message effects. Deeper message processing is associated with increased persuasion (Chaiken, 1980; Petty & Cacioppo, 1986). Therefore, message elaboration through talk (i.e., thinking, expressing, and solidifying one's thoughts and beliefs about the message content during and following talk) is expected to lead to greater attitude, belief, and behavior change (Eveland, 2004; Wirtz, 2008).

H11: Greater discussion-generated elaboration will predict attitudes, beliefs about self-efficacy and susceptibility, as well as behavior that are more aligned with the message.

Chapter III: Method

This dissertation examines the effects of four types of emotional messages (i.e., neg-pos shift, pos-neg shift, negative, and positive) on talk about the message as well as cognitive and persuasive outcomes related to texting while driving behavior. Participants were randomly assigned to one of five conditions that included four message conditions and the control condition, in which no message was viewed. Participant data was collected at two time points: immediately following exposure to the message (Time 1) and at a follow-up one week after message exposure (Time 2).

Participants

A sample of 409 participants was recruited from the Communication department undergraduate research pool. Of the 409 participants who completed a questionnaire at Time 1, only six did not complete the Time 2 questionnaire, leaving 403 participants who provided responses at both time points. Participants ranged in age from 18 to 26 ($M = 19.62$, $SD = 1.40$); however, most (90%) were between the ages of 18-21. In total, 315 participants (77%) were female and 94 (23%) were male.

Participants were asked about their texting and driving behavior at the beginning of the study prior to message exposure. Among the 52.8% ($n = 216$) of participants who reported having driven at least one day during the previous week, the mean number of days they reported having read or sent at least one text message while driving during the previous week was 1.54 ($SD = 1.68$). Additionally, 30.8% ($n = 65$) reported not having texted while driving during the previous week, 62.6% ($n = 132$) reported texting while driving rarely or sometimes, and 9% ($n = 19$) reported texting while driving frequently or every time they drove. Regarding general texting while driving behavior in the larger sample, not only among

those who had driven during the previous week, 24.5% ($n = 100$) reported never texting while driving, 67.2% ($n = 274$) reported rarely or sometimes texting while driving, and 8.4% ($n = 34$) reported texting while driving frequently or every time they drove.

To determine whether past negative experiences with texting while driving may influence their responses during the study, participants were asked if they or anyone they know has ever been negatively affected by texting while driving. These negative experiences ranged from getting a ticket or warning for texting while driving to getting into a minor or major accident. Overall, 51.6% ($n = 211$) reported they or someone they knew had been negatively affected in some way by texting while driving.

Procedure

Participants first completed a brief questionnaire with demographic measures, information about texting while driving behaviors, as well as several individual difference measures. Based on the condition to which they were randomly assigned, participants then viewed a message about texting while driving in one of the four emotion conditions (84 viewed a negative message, 85 viewed a positive message, 87 viewed a neg-pos shift message, and 83 viewed a pos-neg shift message) or were assigned to the control condition ($n = 70$) in which they did not view a message. Participants then answered a series of questions assessing their initial responses to the message (see Appendix B for the Time 1 questionnaire), including emotional intensity, depth of message processing, perceived susceptibility, self-efficacy, social norms (descriptive and subjective), valence of the descriptive norm, attitude toward texting while driving, and behavioral intention. Participants were then informed that in one week they would be sent an e-mail with a link to a brief follow-up questionnaire that they would be required to complete in order to receive full credit

for their participation in this research. Otherwise, they would receive half credit for completing the Time 1 questionnaire only.

After one week, participants were sent and asked to complete an online follow-up questionnaire (see Appendix C for the Time 2 questionnaire) assessing whether they had talked about the message and the behavior, who they talked with, how many conversations they had, the nature of the talk (whether it was supportive of the message) with each conversational partner as well as overall, a brief description of the conversation with each partner, the extent of discussion-generated elaboration in which they engaged, perceived susceptibility, self-efficacy, social norms, valence of the norm, attitude, behavioral intention, and behavior. Questions about the message were not asked of those in the control group. However, all other questions were the same in all conditions.

Stimuli

Target behavior. The behavior addressed in the messages was texting while driving. Texting while driving is one of a number of distracted driving behaviors, which encompass any activities performed while driving that can distract the driver's attention away from the road and create an unsafe situation. These activities include reading and sending text or e-mail messages, making and accepting phone calls, eating, interacting with other passengers, adjusting the car radio, and personal grooming, such as applying makeup (Schroeder, Meyers, & Kostyniuk, 2013). In a recent national survey by the National Highway Traffic Safety Administration (NHTSA), 71% of respondents ages 16-20 and 69% of those ages 21-24 reported sending text messages or e-mail messages while driving (Schroeder, Meyers, & Kostyniuk, 2013). The highest proportion of distracted drivers involved in fatal car crashes is among those ages 29 and under (NHTSA, 2015). According to NHTSA (2015), 10% of

drivers under the age of 20 and 13% of drivers ages 20-29 involved in fatal car crashes in 2013 were reported to be distracted while driving. The most risky distracted driving behavior is texting while driving (U.S. Department of Transportation, 2009). Also according to the U.S. Department of Transportation (2009), drivers who text while driving are 23 times more likely to be involved in a car accident than those not texting while driving.

A brief survey of an undergraduate class in the Communication department during Summer 2013 provided some information about the prevalence of texting and driving among the target audience, young adults ages 18-23. Of the 50 students who participated in the survey, 74% ($n = 37$) were female and 26% ($n = 13$) were male. Responses indicated that 88% ($n = 44$) of participants had texted while driving. Of the participants who reported they had texted while driving, 16% ($n = 7$) reported texting most of the time or every time they drove, 55% ($n = 24$) reported sometimes texting while driving, and 30% ($n = 13$) reported rarely texting while driving. The majority (93%; $n = 41$) indicated they were more likely to text while driving alone in the car, as opposed to texting while driving with others in the car. This information informed message development.

Messages. This study compares the effects of four strategies for designing emotional messages: 1) a neg-pos emotional shift message, 2) a pos-neg emotional shift message, 3) a single-valence negative emotional message, and 4) a single-valence positive emotional message. The strategy used to design the emotional shift messages was to present alternate scenarios in which the outcome varies depending on the choice one makes. Following is a brief description of the messages designed to discourage texting while driving behavior and promote safe driving behavior (see Appendix D for storyboards).

All messages begin with a screen that says, “Life is full of choices.” The neg-pos shift message begins with music intended to create suspense and induce anxiety. The message then shows a typical texting while driving scenario in which a young woman is driving, receives a text message, and chooses to respond. This takes her eyes off the road, at which point a screen reads: “The average text takes your eyes off the road for nearly 5 seconds.” Her chosen behavior results in a frightening car crash. A screen then reads: “You could make that choice, or you could make this one.” The music then shifts to a positive, uplifting tone. The viewer is then presented with a similar scenario in which a young woman is driving and receives a text message, but decides to make the safe choice to pull over to respond to the text message. These scenarios were reversed in the pos-neg shift message.

The statistic about the number of seconds a text will take your eyes off the road is always presented during the first clip, regardless of whether it is positive or negative. At the end of both versions the viewer is shown a series of five screens. The first screen says: “If you choose to text while driving, you’re 23 TIMES more likely to CRASH.” The second provides a brief efficacy message stating, “It’s easy to WAIT or PULL OVER to respond to a text.” The final three screens present the following three messages: “Choose what’s best for you,” “And if you care about your friends and family...” “Talk to them about texting and driving.”

The single-valence negative emotional message consisted of the negative component of the shift messages. Similarly, the single-valence positive emotional message consisted of the positive component of the shift messages. The same statistic about the number of seconds a typical text takes your eyes off the road is embedded into each clip and the same series of

five screens appear after the clip, just as they do in the shift messages. The single-valence messages are 50 and 54 seconds long, whereas the shift messages are 80 seconds in length.

The messages were created in iMovie using footage from existing PSAs (one by the Ad Council and the other by an unidentified source) posted on YouTube. Music was included to add to the emotional intensity of the messages. For the negative message and negative component of the shift message, the music was selected by searching online for fear- and anxiety-inducing musical pieces. Similarly, for the positive message and positive component of the shift message, music was located by searching for hopeful, inspiring, and uplifting pieces.

Pretesting messages. Two rounds of pretesting were conducted to refine the messages prior to their use in this research. In the initial round, three positive (i.e., hopeful) and three negative (i.e., scary and suspenseful) musical pieces were tested to determine emotional responses to each. Participants were asked on a 7-point scale how scared, anxious, stressed, sad, happy, hopeful, inspired, and motivated they felt after listening to each piece of music. Early versions of the two single-valence messages and one of the shift messages were also tested to determine whether participants from the target audience found the messages on a 7-point scale to be negative/positive, easy to understand, personally relevant, convincing, and professional, as well as to learn whether messages were perceived as providing good reasons to avoid texting while driving. An open-ended question also asked participants what they would do to improve the ad.

In this first round of pretesting, 14 participants viewed the negative message, 17 participants viewed the positive message, and 18 participants viewed the shift message. All participants listened to the six musical clips. Emotional responses to the musical clips

revealed one negative piece of music that evoked the highest levels of fear, anxiety, and stress, the lowest level of sadness (which was not a desired emotional response to these messages), as well as low levels of positive emotion. Two positive musical pieces emerged as evoking the highest levels of happiness, hope, inspiration, and motivation, while also evoking the lowest levels of sadness and low levels of the other negative emotions. All messages were perceived as being easy to understand and were fairly equal in providing good reasons to avoid texting while driving. The positive emotional message was perceived as being more convincing ($M = 4.76$; $SD = 1.48$) and professional ($M = 4.47$; $SD = 1.33$) than the negative emotional message ($M = 3.86$, $SD = 1.51$; $M = 2.57$, $SD = .85$). The shift message was rated as being in between the negative and the positive messages in terms of how convincing ($M = 4.61$, $SD = 1.15$) and professional ($M = 3.50$, $SD = 1.38$) it was, most likely because it contained both negative and positive components and the lower rating of the negative message brought down the rating of the shift message.

Based on these findings, and the perceived lower quality of the negative message compared to the positive message, the negative message was revised to include more professional footage that better compared with the positive message. The open-ended question also provided some useful feedback that led to the addition of statistics; the use of different fonts; and the elimination of additional clips used in the messages.

In the second round of pretesting, seven different messages were tested with a sample of participants from the target audience ($n = 196$). Single-valence emotional messages were tested to ensure that they evoked the intended emotional valence and at least a moderate level of emotional intensity. Two versions of the positive message were tested with the two different pieces of music identified through the first round of pretesting to determine which

produced a higher level of positive emotion. Emotional shift messages were also pretested to ensure they evoked a shift in emotional valence and to determine which piece of positive music performed better. To determine whether messages produced reactance, participants were also asked about whether the messages threatened their freedom using the scale developed by Dillard and Shen (2005). See Appendix A for the questionnaire used in the second round of message pretesting.

This second round of testing revealed that participants who viewed the negative message ($n = 28$) experienced higher overall levels of negative emotion ($M = 2.36, SD = .79$) than positive emotion ($M = 1.82, SD = .58$). Similarly, those who viewed the two positive messages ($n = 32$ in each group) experienced higher overall levels of positive emotion ($M = 2.75, SD = 1.35; M = 3.07, SD = 1.18$) than negative emotion ($M = 1.79, SD = .78; M = 1.53, SD = .54$). This also revealed that one of the pieces of music used with the positive message produced a higher level of positive emotion and a lower level of negative emotion. Therefore, this piece of music was used in the final version of the positive message and the positive component of the shift messages.

Additionally, the difference in valence between participants' perceptions of how they felt during the first part of the message and how they felt during the second part of the message was greater in the shift conditions ($M = 3.27, SD = 1.47$) than in the single-valence conditions ($M = 1.68, SD = 1.29$), $F(1, 177) = 56.50, p < .001, \eta_p^2 = .24$. This indicated that participants exposed to the shift messages did perceive a greater emotional shift than participants exposed to the single-valence messages.

There were no differences between the two positive message conditions or the multiple shift messages on perceived threat to freedom. The condition that produced the highest threat to freedom was the negative message, with a mean of 2.79 on a 7-point scale.

Based on the open-ended feedback, the wording on a few of the slides included in all message conditions was changed to reduce the perception that the message was attempting to pressure viewers. For example, “It’s up to you” was changed to “Choose what’s best for you” and moved from the end of the message to before the appeal to talk to friends and family about texting and driving. Responses to other questions, such as motivation and intention to talk with others about texting while driving were used to inform the final selection of messages for inclusion in this dissertation.

Emotions evoked by messages. The predominant emotion elicited by the final messages included in this study was fear, except for the positive message, for which the predominant emotions were hope and relief. The range of emotions evoked by single-valence and shift messages is described below.

The single-valence negative message evoked more fear ($M = 3.84$, $SD = 1.67$) than any other message condition. It also evoked more sadness ($M = 2.99$, $SD = 1.72$) and guilt ($M = 2.85$, $SD = 1.74$) than the other message conditions. The amount of fear evoked by the negative message was significantly higher than both the positive message ($p < .001$) and the neg-pos message ($p = .04$). Similarly, the negative message evoked more sadness ($p < .001$), guilt ($p < .001$), anger ($p < .001$), regret ($p < .001$), and disgust ($p < .001$) than the positive message. The negative message also evoked more anger than the pos-neg message ($p < .05$). The single-valence positive message evoked primarily hope ($M = 3.20$, $SD = 1.78$), followed by relief ($M = 3.00$, $SD = 1.94$). The positive message elicited significantly more hope than

the negative message ($p < .001$) and the pos-neg message ($p = .01$). It also evoked more happiness and relief than the negative ($p < .001$), neg-pos ($p = .001$; $p = .002$), and pos-neg ($p < .001$) messages.

The neg-pos message evoked more fear than any other negative emotion ($M = 3.31$, $SD = 1.80$). It also evoked the next greatest amount of hope ($M = 2.82$, $SD = 1.43$) after the positive message ($M = 3.20$, $SD = 1.78$). The pos-neg message also primarily evoked fear ($M = 3.56$, $SD = 1.83$), followed by regret ($M = 2.88$, $SD = 1.96$). There were no significant differences between the two shift messages for any of the emotions, positive or negative. Means of negative and positive emotions for each message condition are presented in Tables 1 and 2.

Measures

The first set of measures described below was collected only at Time 1, the next set was collected both at Time 1 and Time 2, and the final set was collected only at Time 2.

Time 1. The measures described below were collected only at the first time point. These measures include demographic variables and past experience, personality traits, emotional intensity, depth of message processing, and intention to talk with others about texting while driving.

Demographic variables and past experience. These items included gender, age, past texting while driving behavior, and whether participants had any previous experience with the negative consequences of texting while driving (yes/no). To measure past behavior, first participants were asked how many days during the past week they had driven. If they reported having driven at least one day during the previous week, they were then asked: “On how many of the days that you drove during the past week did you read or send at least one

text message while driving?” and “On the days you drove during the past week, how often did you read or send text messages while driving?” Responses to the second question were given on a 5-point Likert-type scale that ranged from “never” to “every time.” Regardless of whether participants drove during the past week all were asked, in general, how often they read or send text messages while driving using a 5-point scale from “never” to every time.”

Personality traits. Individual-level factors that have been associated with talking and social sharing include sensation seeking and extraversion. Several studies have found that high sensation seekers are more likely to talk and to disclose their thoughts and feelings to others (David, Cappella, & Fishbein, 2006; Franken, Gibson, & Mohan, 1990; Hwang & Southwell, 2007). Sensation seeking was measured using a brief scale consisting of eight items with 5-point response scales, developed by Hoyle, Stephenson, Palmgreen, Lorch, and Donohew (2002; $M = 3.26$, $SD = .73$, $\alpha = .76$).

Extraversion was found to be positively associated with social sharing about positive emotional experiences (Luminet, Zech, Rimé, & Wagner, 2000). Extraversion was measured using the scale from the Big Five Inventory (BFI) of personality domains developed by John, Naumann, and Soto (2008) consisting of eight items with 5-point response scales ($M = 3.50$, $SD = .69$, $\alpha = .86$).

Trait reactance was also measured, as it is a personality trait that can reduce acceptance of persuasive material and social influence (Brehm & Brehm, 1981). The trait reactance scale used in this research was Hong and Faedda’s (1996) 11-item scale with 5-point response scales ($M = 2.67$, $SD = .65$, $\alpha = .77$).

Additionally, a measure of trait empathy was included because individual differences in empathy can influence responses to health messages as well as the likelihood and nature of

talk with others. Trait empathy is positively associated with transportation into a narrative (Green & Brock, 2000; 2002) and message-induced state empathy (Shen, 2010), both of which can reduce defensive responses and positively impact persuasion. Additionally, trait empathy is associated with prosocial behavior (Stiff, Dillard, Somera, Kim, & Sleight, 1988) and motivation to engage in supportive communication (Tamborini, Salomonson, & Bahk, 1993), which can potentially influence motivation to talk with others about texting while driving. The trait empathy scale used in this research consisted of the 14 items that make up the perspective-taking ($\alpha = .71$ for males, $\alpha = .75$ for females) and empathic concern ($\alpha = .68$ for males, $\alpha = .73$ for females) subscales of Davis' (1980) empathy scale. These items also used 5-point response scales. The alpha coefficient for the 14-item scale used to measure trait empathy in this research was .83 ($M = 3.85$; $SD = .56$).

Emotions and emotional intensity. Participants were asked how much of each of 11 emotions they experienced on a 7-point scale ranging from “not at all” to “very much” to measure the intensity of their emotional responses to messages. Negative emotions included fear (frightened, scared, anxious; $M = 3.17$, $SD = 1.79$, $\alpha = .93$), sadness (sad, depressed, gloomy; $M = 2.47$, $SD = 1.58$, $\alpha = .88$), guilt (guilty, ashamed, embarrassed; $M = 2.48$, $SD = 1.64$, $\alpha = .91$), anger (irritated, angry, annoyed; $M = 2.24$, $SD = 1.48$, $\alpha = .84$), regret (regretful, remorseful; $M = 2.50$, $SD = 1.71$, $r = .86$), and disgust (disgusted, repulsed; $M = 1.84$, $SD = 1.36$, $r = .81$). Positive emotions included compassion (compassionate, sympathetic, warmhearted; $M = 2.66$, $SD = 1.51$, $\alpha = .85$), happiness (happy, cheerful, joyful; $M = 1.67$, $SD = 1.13$, $\alpha = .97$), hope (hopeful, inspired, motivated; $M = 2.63$, $SD = 1.55$, $\alpha = .85$), and relief (relieved, comforted, reassured; $M = 2.14$, $SD = 1.58$, $\alpha = .92$). The one neutral emotion assessed was surprise (surprised, astonished; $M = 2.04$, $SD = 1.43$, $r = .78$).

Measures of emotion were based on those used in previous research on emotion and persuasion (Dillard & Peck, 2000; Dillard, Plotnick, Godbold, Freimuth, & Edgar, 1996) as well as synonyms for emotions discussed by Lazarus (1991).

Several scales were constructed to measure emotional intensity. Subscales of negative ($M = 2.49$, $SD = 1.25$, $\alpha = .94$) and positive ($M = 2.27$, $SD = 1.18$, $\alpha = .92$) emotion were created, as well as a scale of overall emotional intensity ($M = 2.37$, $SD = .96$, $\alpha = .93$).

Depth of message processing was assessed using a 12-item scale created by Wolski and Nabi (2000) to measure ability, motivation, and overall depth of information processing ($M = 4.77$, $SD = 1.06$, $\alpha = .86$). Sample items included “I was interested in what the creator of the video had to say,” “I focused on the arguments that were made in the video,” “I was motivated to watch this video,” and “My mind kept wandering as I watched the video.” Responses were made on a 7-point scale ranging from strongly disagree to strongly agree. Four items were reverse coded so that higher scores indicated deeper message processing and all items were averaged together.

Behavioral intention regarding talking. To assess participants’ intention to talk about texting while driving with others, they were asked to respond to the following two items using a 7-point scale ranging from strongly disagree to strongly agree: “I intend to talk to a friend or family member about the dangers of texting while driving” and “I intend to talk to a friend or family member about how to prevent or avoid texting while driving.” Participants were also asked how likely they were to do the following (not at all likely/extremely likely): “How likely are you to talk with a friend or family member about texting while driving?” and “How likely are you to encourage a friend or family member to

stop texting while driving?” All four items were averaged to create the measure of intention to talk ($M = 3.79$, $SD = 1.83$, $\alpha = .93$).

Times 1 and 2. Measures of the cognitive and persuasive outcomes described below were collected at both time points. These measures include susceptibility, self-efficacy, descriptive and subjective norms, valence of the descriptive norm, attitude, and behavioral intention.

Susceptibility. Participants’ perceptions of susceptibility to the negative consequences of texting while driving were assessed by two items collected at Time 1 and again at Time 2: “I can read or write text messages while driving without any negative consequences” and “If I read or write text messages while driving, something bad could happen to me or someone else.” Participants responded to these items on a 7-point scale ranging from strongly disagree to strongly agree. The first item was reverse coded so that higher scores equated to higher perceptions of susceptibility. The two items were averaged into a single measure at Time 1 ($M = 5.85$, $SD = 1.19$, $r = .36$) and Time 2 ($M = 5.69$, $SD = 1.23$, $r = .26$).

Self-efficacy. The measure of perceived self-efficacy was adapted from items provided by Witte, Meyer, and Martell (2001) and Champion and Skinner (2008). It was assessed by asking participants to respond to a series of statements on a 7-point scale ranging from “not at all confident” to “extremely confident.” Items include: “How confident are you in your ability to avoid texting while driving the next time you get in your car?” “How confident are you in your ability to wait until you pull over or reach your destination to read or send a text message?” and “How confident are you in your ability to ignore your phone while you’re driving, even if you hear that you’ve received a text message?” Self-efficacy

was measured at Time 1 ($M = 5.51$, $SD = 1.45$, $\alpha = .90$) and again at Time 2 ($M = 5.36$, $SD = 1.51$, $\alpha = .89$).

Social norms (descriptive and subjective norms). Measures of descriptive norms (Rimal & Real, 2003; 2005) were based on the items used in previous research on health message effects and health behavior (Frank, Chatterjee, Chaudhuri, Lapsansky, Bhanot, & Murphy, 2012; Rimal & Real, 2005). Items used to measure subjective norms (Ajzen, 1991; Fishbein & Ajzen, 1975) were based on those used in previous research (David, Cappella, & Fishbein, 2006; Frank et al., 2012; Montaño & Kasprzyk, 2008).

To assess descriptive norms, participants were asked: “How often do you think a typical college student reads or sends text messages while they are driving?” to which participants responded on a 5-point scale ranging from “never” to “every time.” Subjective norms were measured by asking participants to respond to the following two items about their beliefs on a 7-point scale ranging from “strongly disapprove” to “strongly approve”: “People who are important to me would disapprove/approve of me reading and sending text messages while I’m driving” and “Most people my age would disapprove/approve of me reading and sending text messages while I’m driving.” Responses to the two items were reverse coded so that higher scores would correspond to greater alignment with the message. They were then averaged to create the subjective norm measure at Time 1 ($M = 3.81$, $SD = 1.61$, $r = .21$) and Time 2 ($M = 4.00$, $SD = 1.61$, $r = .27$).

Valence of the descriptive norm. This was assessed following the descriptive norm measure. Participants were asked to respond to the statement, “I think the frequency with which a typical college student reads or sends texts message while they are driving is,” using four 7-point scales. The response scales included “not at all alarming” to “extremely

alarming,” “not at all fine with me” to “totally fine with me,” “not at all worrisome” to “extremely worrisome,” and “extremely negative” to “extremely positive.” The first and third items were reverse coded so that lower scores indicated a more negative valence. Responses to all four items were averaged to create an overall measure at Time 1 ($M = 2.37$, $SD = 1.06$, $\alpha = .78$) and Time 2 ($M = 2.47$, $SD = 1.16$, $\alpha = .77$).

Attitude toward texting while driving. Attitudes toward texting while driving were assessed by asking participants to respond to the statement, “I think that texting (including reading and sending text messages) while driving is,” on the following six 7-point scales: unacceptable/acceptable, inconvenient/convenient, foolish/wise, unsafe/safe, unenjoyable/enjoyable, and bad/good. Responses were averaged across the six scales to form an overall attitude measure. Lower scores corresponded to a more negative attitude toward texting while driving. Attitudes toward the behavior addressed in the message were assessed at Time 1 ($M = 2.18$, $SD = .94$, $\alpha = .79$) and Time 2 ($M = 2.13$, $SD = .99$, $\alpha = .83$).

Behavioral intention regarding texting while driving. Intentions to avoid texting while driving behavior were assessed by asking participants about the extent to which they disagree/agree on a 7-point scale with the following three statements: “I intend to avoid reading or sending any text messages the next time I drive,” “I intend to pull over if I want to read or respond to a text message I receive the next time I drive,” and “I intend to wait until I get to where I want to go to read or send a text message the next time I drive.” Participants were also asked how likely they were to do the following three actions (not at all likely to extremely likely): “Next time you drive, how likely are you to read and/or send a text message?” “Next time you drive, how likely are you to ignore the text messages you receive on your phone while you’re driving?” and “Next time you drive, how likely are you to wait

until you are able to safely stop the car to read and/or write a text message?” Responses to the first statement about likelihood were reverse coded to be consistent with the others. Responses were then averaged to form assessments of behavioral intention at Time 1 ($M = 5.37, SD = 1.30, \alpha = .85$) and Time 2 ($M = 5.31, SD = 1.28, \alpha = .86$).

Time 2. The measures described below were collected only at Time 2 (one week after Time 1). These measures include talk about the message and behavior, the nature of talk, discussion-generated elaboration, and texting while driving behavior.

Talk about message and behavior. At Time 2, participants were asked if they talked with anyone since participating in this study about the texting while driving video they viewed (yes/no). They were also asked if they talked with anyone since participating in this study about texting (reading and/or sending text messages) while driving or how to avoid texting while driving (yes/no). If participants answered “yes” to one or both of the above questions, they were categorized as having talked about the message and/or behavior. Additionally, if they reported talking with someone in response to either of the above questions, they were also asked how many conversations they had about the video or texting while driving during the past week and with whom they talked: friend(s), boyfriend/girlfriend, parent/stepparent, brother/sister, and other.

Nature of talk. Similar to the measure of conversation favorability used by Dunlop, Kashima, and Wakefield (2010), the nature of talk was assessed by asking participants “Overall, to what extent was your conversation with others in favor of or against: texting (reading and/or sending text messages) while driving, pulling over to read and/or send a text message, and waiting until you reach your destination to read and/or send a text message?” Participants responded to these three questions on a 7-point scale ranging from “totally

against” to “totally in favor of.” Participants were also asked whether they perceived the attitude of conversational partners, overall, to be against or in favor of texting while driving, using a 7-point response scale. The valence of conversations overall and the measure of conversational partners’ overall attitude were combined to create an overall measure of the nature of talk ($M = 5.46$, $SD = 1.01$, $\alpha = .66$).

Discussion-generated elaboration. This scale included a combination of newly developed items for the purpose of this study as well as some items adapted from Eveland and Thomson (2006). Discussion-generated elaboration was assessed by the following seven items: “Talking about the video content caused me to think more deeply about it,” “My thoughts about the video content changed when I talked about it,” “I became more certain of my ideas about the video content while I was talking about it,” “After I talked with someone about the video, I often continued to think about what they said later,” “When I talked with someone about the video, it often made me think more about my own opinions and beliefs,” “When I talked with someone about the video, I often thought about how what they were saying related to my own personal experience,” and “Talking with someone about the video usually made me think about that topic after the conversation was over.” Responses were given on a 7-point scale ranging from strongly disagree to strongly agree ($M = 4.02$, $SD = 1.57$, $\alpha = .91$).

Texting while driving behavior. To assess participants’ texting while driving behavior, they were asked how many days they drove during the past week, on how many of the days they drove did they read or send at least one text message while driving, and how often they read or sent text messages while driving on the days they drove. These questions

were identical to those asked about texting while driving behavior at the beginning of the study.

Statistical Analysis

The main statistical analyses used to test hypotheses were ANCOVA, logistic regression, and linear regression. The covariates included in this research (e.g., gender, personality traits, past behavior, previous negative experience with the consequences of texting while driving) were selected because they have been shown to be important in previous research (see the Measures section above for an explanation of how previous research indicates that the measured personality traits are relevant to outcomes of interest) and can influence cognitive, emotional, and behavioral responses to messages as well as the likelihood of engaging in talk about the message and/or behavior. The particular covariates included in each analysis were selected by conducting correlations to determine whether the variables expected to be relevant were significantly related to the dependent variables. Variables that were significantly correlated with the dependent variable were included in ANCOVAs and regression models. If they were not significant in the model, they were dropped. Only covariates that significantly contributed to the effect ($p < .05$) were retained. When discussing the results, covariates included in each analysis are identified.

Throughout the analyses, the control condition (in which no message was viewed) was compared to the shift messages when examining whether there were any differences between the two shift messages (RQ1). When discussing RQ1, the control condition is only mentioned when there is a statistically significant difference between this condition and one or both of the shift conditions. Otherwise, the control condition is not mentioned.

Chapter IV: Results

Manipulation Check

A manipulation check was conducted to confirm that the negative emotional message generated greater negative affect than the positive emotional message and, similarly, that the positive emotional message generated greater positive affect than the negative emotional message (see Table 3). An ANOVA confirmed these expectations. The intensity of negative emotion was significantly higher in the single-valence negative message condition ($M = 2.95$, $SD = 1.18$) than the single-valence positive message condition ($M = 1.58$, $SD = 0.72$; $p < .01$). Additionally, the intensity of positive emotion was significantly higher for those exposed to the single-valence positive message condition ($M = 2.77$, $SD = 1.48$) than the single-valence negative message condition ($M = 1.73$, $SD = 0.72$; $p < .01$).

H1a-b: The Effect of Emotional Shifts on Emotional Intensity

Overall intensity (H1a). The first hypothesis (H1a) predicted that emotional shift messages would be more emotionally intense than single-valence messages. This hypothesis was tested by conducting an ANCOVA in which the dependent variable was *overall* emotional intensity (i.e., the mean of all positive, negative, and neutral emotions combined); the two independent variables were emotional shift (single/shift) and second emotional valence (e.g., indicating whether the main emotional valence in the single-valence conditions or the second emotional valence in the shift conditions was negative or positive); and the covariates were gender ($p = .01$) and behavior at Time 1 (the frequency with which participants read or sent text messages while driving, $p = .02$). There was a significant main effect of emotional shift on the intensity of emotion overall, $F(1, 332) = 6.20$, $p = .01$, $\eta_p^2 = .02$. The shift conditions ($M = 2.50$, $SD = 1.04$) were more emotionally intense than the

single-valence conditions ($M = 2.24$, $SD = 0.87$). Thus, H1a was supported. The main effect of second emotional valence was not significant ($p = .35$), nor was the interaction effect ($p = .09$).

Intensity of second emotional valence (H1b). H1b predicted that the second emotional valence within emotional shift messages would be experienced more intensely than the main emotional valence in single-valence messages. An ANCOVA investigated the effects of emotional shift and second emotional valence on the mean of emotions that contributed to the last emotional valence in the message (i.e., the main emotional valence in the single-valence messages and the second emotional valence in the shift messages), with empathy ($p = .01$) included as a covariate. The main effect of emotional shift was significant, $F(1, 333) = 4.09$, $p = .04$, $\eta_p^2 = .01$. However, the difference was in the opposite direction of the relationship hypothesized in H1b. That is, the intensity of emotion for those who viewed single-valence messages ($M = 2.86$, $SD = 1.34$) was greater than the intensity of the second emotion for those who viewed shift messages ($M = 2.58$, $SD = 1.23$). Therefore, H1b was not supported. Table 4 provides the means for emotional intensity in each message condition.

The main effect of second emotional valence approached significance, $F(1, 333) = 2.86$, $p = .09$, $\eta_p^2 = .01$. The intensity of the second emotion was greater for those who viewed a message ending with negative emotion ($M = 2.85$, $SD = 1.25$) than for those who viewed a message ending with positive emotion ($M = 2.60$, $SD = 1.33$). The interaction between emotional shift and second emotional valence was not significant ($p = .71$).

Differences between shift messages in intensity (RQ1). To address the research question (RQ1) about how the two shift messages differed from each other on overall emotional intensity, an ANCOVA was conducted with the same covariates included in the

test of H1a, but with message condition (neg, pos, neg-pos, pos-neg) as the independent variable. No significant difference was found in overall emotional intensity between the two shift conditions ($p = .59$). Another ANCOVA investigated differences between the shift messages in the intensity of the second emotion, again with the same dependent variable and covariate included in the test of H1b. Though the main effect of message condition on the intensity of the second emotional valence approached significance, $F(3, 334) = 2.42, p = .07, \eta_p^2 = .02$, there was no significant difference between the two shift messages ($p = .14$).

Summary. Thus, these analyses provided support for H1a in its prediction that shift messages would be more emotionally intense than single-valence messages, but not H1b, which predicted that the second emotional valence within the shift messages would be more intense than the main emotional valence in the single-valence messages. No significant difference in the intensity of emotion overall or the intensity of the second emotional valence was found when comparing the two shift messages.

H2: The Effect of Emotional Shifts on Depth of Message Processing

H2 predicted that emotional shift messages would generate greater message processing than single-valence emotional messages. This hypothesis was tested using ANCOVA, in which emotional shift and second emotional valence were again included as independent variables, depth of message processing was the dependent variable, and empathy ($p < .01$) and trait reactance ($p < .01$) were included as covariates. There was a significant main effect of emotional shift on depth of message processing, $F(1, 332) = 6.74, p = .01, \eta_p^2 = .02$. Shift messages elicited greater message processing ($M = 4.92, SD = .97$) than single-valence messages ($M = 4.62, SD = 1.12$). Therefore, H2 was supported. There was also a significant main effect of second emotional valence on message processing, $F(1, 332) = 4.35,$

$p = .04$, $\eta_p^2 = .01$. Messages that left viewers with lingering negative emotion generated greater message processing ($M = 4.91$, $SD = 1.01$) than messages that left viewers with lingering positive emotion ($M = 4.63$, $SD = 1.08$). The interaction effect was not significant ($p = .78$).

Differences between shift messages on message processing (RQ1). An ANCOVA, including empathy and trait reactance as covariates (as in the above analysis), was conducted to explore differences between shift messages (RQ1) on the depth of message processing. The main effect of message condition was significant, $F(3, 333) = 3.67$, $p = .01$, $\eta_p^2 = .03$, but there was not a significant difference between the two shift messages ($p = .19$). See Table 4 for means by message condition.

Summary. These analyses revealed that emotional shift messages did elicit significantly greater message processing than single-valence messages, providing support for H2. Additionally, messages that ended with negative emotion generated significantly greater message processing than messages that ended with positive emotion. No significant difference in message processing was found between the two shift messages.

H3: The Effect of Emotional Shifts on Self-Efficacy, Attitudes, and Behavioral Intentions at Time 1

H3 predicted that emotional shift messages would produce attitudes, behavioral intentions, and self-efficacy at Time 1 that were more aligned with the message than single-valence emotional messages. Attitude toward texting while driving was significantly correlated with behavioral intention ($r = .58$, $p < .01$). According to the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB), attitude is expected to be a predictor of behavioral intention (Fishbein & Ajzen, 1975; Ajzen, 1991; Fishbein, & Ajzen,

2010); therefore, effects on attitude and intention were examined separately in a series of ANCOVAs.

To test the effect of emotional shift messages on attitude, an ANCOVA was run that included emotional shift and second emotional valence as independent variables; attitude as the dependent variable; and gender ($p = .001$), past behavior (the frequency with which participants reported texting while driving, $p < .001$), and empathy ($p < .001$) as covariates. Similarly, to test the effect of emotional shift messages on self-efficacy, the same independent and dependent variables were included, as well as gender ($p = .01$) and past behavior (the frequency with which participants reported texting while driving; $p < .001$) as covariates.

Emotional shift did not have a significant main effect on attitude toward texting while driving ($p = .40$) or self-efficacy ($p = .95$), nor was its interaction with second emotional valence significant for either variable. However, there was a significant main effect of second emotional valence on attitude, $F(1, 331) = 5.06, p = .03, \eta_p^2 = .02$, and on self-efficacy, $F(1, 332) = 4.66, p = .03, \eta_p^2 = .01$. For both outcomes, messages that ended with negative emotion appeared to be more effective than messages that ended with positive emotion. Specifically, messages in which the lingering emotion was negative produced significantly more negative attitudes toward texting while driving ($M = 2.08, SD = .92$) than messages in which the lingering emotion was positive ($M = 2.26, SD = .96$). Similarly, self-efficacy was significantly higher among those who viewed messages that ended with negative emotion ($M = 5.63, SD = 1.37$) than among those who viewed messages that ended with positive emotion ($M = 5.42, SD = 1.43$).

As above, an ANCOVA tested the effect of emotional shift messages on behavioral intention, with the same independent variables as well as gender ($p < .01$), the frequency of texting while driving behavior ($p < .001$), and empathy ($p < .001$) as covariates. No significant main effects ($p = .63$ for emotional shift; $p = .47$ for second emotional valence) or interaction effects ($p = .76$) were found for behavioral intention.

Differences between shift messages on self-efficacy, attitudes, and behavioral intentions (RQ1). To address RQ1, three separate ANCOVAs investigated the effect of message condition on each of the dependent variables discussed in this section. The same covariates included in the above analyses were also included in these ANCOVAs. There were no significant differences between shift messages on attitude toward texting while driving ($p = .29$), self-efficacy ($p = .31$), or behavioral intention ($p = .84$).

Summary. In sum, there were no significant differences between emotional shift messages and single-valence messages for attitude toward texting while driving, self-efficacy, or behavioral intention. Therefore, H3 was not supported. Additionally, there were no significant differences between the two shift messages for any of these outcomes. The only significant findings were that those who viewed messages that ended with negative emotion had more a negative attitude toward texting while driving and higher self-efficacy than those who viewed messages that ended with positive emotion.

H4a-b: The Effect of Emotional Shifts on Intention to Talk and Talk Behavior

Intention to talk (H4a). H4a predicted that emotional shift messages would produce greater intentions to talk with a friend or family member about texting while driving than single-valence messages. This was tested using ANCOVA that included the same independent variables as in previous analyses (emotional shift and second emotional

valence); intention to talk as the dependent variable; and gender ($p < .01$), frequency of texting while driving ($p < .01$), whether one had ever been negatively affected by texting while driving ($p = .01$), sensation seeking ($p = .02$), and empathy ($p < .01$) as covariates.

The main effect of emotional shift on intention to talk about texting while driving was not significant ($p = .45$). Therefore, H4a was not supported. However, there was a significant main effect of second emotional valence on intention to talk, $F(1, 329) = 4.19, p < .05, \eta_p^2 = .013$. Messages that ended with negative emotion produced significantly greater intentions to talk with others ($M = 4.01, SD = 1.84$) than messages that ended with positive emotion ($M = 3.65, SD = 1.77$).

Differences between shift messages on intention to talk (RQ1). A separate ANCOVA, which included the same covariates as above, revealed a significant difference between the two shift conditions ($p = .02$). The pos-neg message produced significantly greater intentions to talk with friends and family members about texting while driving ($M = 4.20, SD = 1.82$) than the neg-pos message ($M = 3.50, SD = 1.67$).

The next set of hypotheses shift from measures collected at Time 1 to those collected at Time 2. One of the primary outcomes of interest at Time 2 was talk about the message and/or behavior. Additionally, because many of the outcomes at Time 1 were dependent on message viewing, such as emotional intensity and message processing, the control condition (in which no message was viewed) has not been discussed up to this point. At Time 2, however, the control group will be discussed in comparison to the experimental groups when significant differences arise between the control and other groups.

Talk (H4b). Overall, 33% ($n = 133$) of participants reported talking with someone about the message they viewed, about texting while driving, or both, while 67% ($n = 268$)

reported not talking with anyone about the message or behavior. Of those who reported talking about the message or behavior, 84% ($n = 112$) talked with a friend or friends, 26% ($n = 35$) talked with a boyfriend or girlfriend, 18% ($n = 24$) talked with a parent, 13.5% ($n = 18$) talked with a brother or sister, and 2% ($n = 3$) talked with someone not in the previously mentioned categories. Among those who reported talking, 35% ($n = 46$) had one conversation, 41% ($n = 54$) had two conversations, 16% ($n = 21$) had three conversations, 5% ($n = 7$) had four conversations, and 3% ($n = 4$) had 5 to 6 conversations. Additionally, 66% ($n = 88$) reported only one category of conversational partner, 25% ($n = 33$) reported two categories of conversational partners, 7.5% ($n = 10$) reported three categories of conversational partners, and 1.5% ($n = 2$) reported talking with people who fit into four categories of conversational partners.

H4b predicted that emotional shift messages would be more likely to generate talk than single-valence messages. The effect of emotional shift messages on talk was tested using logistic regression, in which emotional shift was the independent variable, a binary measure of whether participants talked about the message or behavior (no = 0, yes = 1) was the dependent variable, and the covariates included whether one had ever been negatively affected by texting while driving ($p = .04$) and intention to talk at Time 1 ($p < .001$). These covariates were the only two predictors of talk. Neither past behavior nor any of the personality traits were significant predictors of talk. Emotional shift did not significantly predict talk ($p = .96$). A second logistic regression analysis including the same covariates – whether one had ever been negatively affected by texting while driving ($p = .03$) and intention to talk at Time 1 ($p < .001$) – was conducted in order to examine the effect of second emotional valence in messages on talk. This analysis revealed that second emotional

valence did significantly predict talk after accounting for the covariates, $\beta = -.61$, $SE = .25$, $p = .01$. Those exposed to a message with lingering negative emotion were significantly more likely to talk with others than those exposed to a message with lingering positive emotion.

The effect of emotional shift and second emotional valence (independent variables) on the number of conversations and the number of categories of conversational partners (dependent variables) was then tested by conducting a MANCOVA, which included whether one had ever been negatively affected by texting while driving ($p < .05$) and intention to talk at Time 1 ($p < .001$) as covariates. The main effect of emotional shift was not significant for number of conversations ($p = .60$) or the number of categories of conversational partners ($p = .76$). Therefore, H4b was not supported. However, separate ANCOVAs (reported with the MANCOVA) showed a significant effect of second emotional valence on the number of categories of conversational partners, $F(1, 324) = 5.28$, $p = .02$, $\eta_p^2 = .02$. The main effect of second emotional valence on number of conversations approached significance, $F(1, 324) = 3.33$, $p = .07$, $\eta_p^2 = .01$. Specifically, those exposed to a message with lingering negative emotion were significantly more likely to talk with more categories of conversational partners than those exposed to a message with lingering positive emotion (see Tables 5 and 7). Those exposed to messages that left them with lingering negative emotion were also more likely to have more conversations, but this difference only approached significance ($p = .07$). The interaction effect was not significant for number of conversations ($p = .81$) or number of categories of conversational partners ($p = .09$).

Differences between shift messages on talk behavior (RQ1). Another logistic regression analysis investigated differences between shift messages on the likelihood of talking and a MANCOVA investigated differences between shift messages on the number of

conversations and the number of categories of conversational partners. The same covariates mentioned above were included in these analyses. There were no significant differences between the two shift messages for talk ($p = .28$), number of conversations ($p = .26$), or categories of conversational partners ($p = .70$). See Table 6 for differences in talk behavior between message conditions.

Summary. In sum, these analyses revealed that there were no significant effects of emotional shift on intention to talk, whether participants did talk, the number of conversations they had, or the number of categories of conversational partners with whom they talked. However, those exposed to messages that ended with negative emotion had a significantly greater intention to talk, engaged in more talk, and talked with more categories of conversational partners.

To summarize the effects of emotional shift messages thus far, analyses have revealed that emotional shifts produce greater overall emotional intensity – but not greater intensity of the second emotional valence – and greater message processing than single-valence messages. However, emotional shift messages did not directly generate attitudes, behavioral intentions, or self-efficacy at Time 1 that were more aligned with the message compared to single-valence messages. Nor did emotional shift message generate greater intentions to talk with others about texting while driving or more talk. However, since emotional shift message generated greater overall emotional intensity and message processing, it is worth investigating whether there could be an indirect effect of emotional shifts on talk mediated by emotional intensity and message processing.

H5a-b: Emotional Intensity and Message Processing as Mediators of the Effect of Shift Messages on Talk

H5 predicted that the effect of shift messages on talk would be mediated by (a) emotional intensity and (b) depth of message processing. Since previous analyses found no significant effect of emotional shift on the intensity of the second emotion, but did find a significant effect of emotional shift on the overall intensity of emotion, the overall intensity measure was included in this test of mediation. The INDIRECT macro provided by Hayes (2015) and logistic regression were used to test a multiple mediation model that included having been negatively affected by texting and driving ($p = .04$) and intention to talk ($p = .01$) as covariates. The number of bootstrap resamples used in this analysis was 5,000.

The direct effect of emotional shift on talk was not significant ($p = .57$). Therefore, indirect mediation effects were investigated. Emotional shift did have a significant effect on both depth of message processing ($t = 2.93$, $SE = .11$, $p < .01$) and emotional intensity ($t = 2.61$, $SE = .10$, $p < .01$). The direct effect of each mediator – depth of message processing ($Z = 2.12$, $SE = .14$, $p = .03$) and emotional intensity ($Z = 2.14$, $SE = .14$, $p = .03$) – on talk was also significant. Although the total effect of emotional shift on talk (i.e., the sum of the direct and indirect effects of emotional shift on talk) was not significant ($p = .96$), it is still possible to find a significant indirect effect. According to research on mediation effects, significant indirect effects can exist even in the absence of significant total and direct effects (Hayes, 2009; Preacher & Hayes, 2004).

The indirect effect via each mediator was significant, as zero did not fall within the 95% bias-corrected bootstrapped confidence interval for the indirect effect via message processing depth (CI: .01 to .25) or emotional intensity (CI: .01 to .21) (Preacher & Hayes,

2008). In comparing the strength of indirect effects, since zero was contained in the 95% confidence interval for the contrast definitions, there was not a significant difference in the strength of indirect effects between these two mediators.

Overall, these results indicate that although emotional shift did not have a direct effect on talk behavior, it did have an indirect effect via depth of message processing and emotional intensity, thus supporting H5.

H6: The Effect of Self-Efficacy, Attitudes, and Behavioral Intentions at Time 1 on Talk at Time 2

H6 predicted that a more negative attitude toward texting while driving as well as higher self-efficacy and behavioral intentions at Time 1 would increase the likelihood of having talked with others about the message and/or texting while driving at Time 2.

As noted above, only two covariates (whether one had been negatively affected by texting while driving and intention to talk) were included in analyses of the effects on talk, as they were the only two predictors of talk outside of the main independent variables of interest.

Self-efficacy at Time 1. A logistic regression analysis was conducted to test whether higher self-efficacy at Time 1 predicted a greater likelihood of talk at Time 2. In this analysis, whether one was negatively affected by texting while driving ($p < .01$) was entered in the first block to account for its influence, self-efficacy at Time 1 was entered in the second block as the predictor of interest, and intention to talk ($p < .001$) was entered in the third block. Since it could be that self-efficacy predicted intention to talk, which in turn predicted talk, intention to talk was entered in the last block by itself to determine whether it reduced the effect of self-efficacy on talk. After block 2, before intention to talk was included

in the analysis, the effect of self-efficacy at Time 1 on talk approached significance, $\beta = .14$, $SE = .08$, $p = .07$. When intention to talk was included in block 3, self-efficacy was not a significant predictor of talk, $\beta = .03$, $SE = .08$, $p = .73$.

To follow up on whether self-efficacy at Time 1 predicted intention to talk, a linear regression model was run that included gender ($p < .01$), frequency of texting while driving at baseline ($p = .02$), whether one had ever been negatively affected by texting while driving ($p < .01$), sensation seeking ($p = .01$), and empathy ($p < .001$) as covariates. In this model, self-efficacy was a significant predictor of intention to talk, $\beta = .15$, $t(401) = 2.85$, $p < .01$. Thus, self-efficacy at Time 1 was a significant predictor of intention to talk at Time 1, but was not a significant predictor of talk at Time 2. However, this analysis revealed that self-efficacy predicted intention to talk, which then predicted talk.

Attitude toward texting while driving at Time 1. The pattern of results for attitude was similar to that found for self-efficacy. In a logistic regression analysis to determine whether a more negative attitude toward texting while driving predicted a greater likelihood of talk, whether one was negatively affected by texting while driving ($p < .01$) was entered in the first block, attitude at Time 1 was entered in the second block as the predictor, and intention to talk ($p < .001$) was entered in the third block. This was, again, done to determine whether intention to talk reduced the effect of attitude on talk. Before intention to talk was included in the analysis, the effect of attitude on talk approached significance, $\beta = -.22$, $SE = .12$, $p = .06$. When intention to talk was included in block 3, attitude did not predict talk, $\beta = -.01$, $SE = .13$, $p = .92$.

To determine whether attitude predicted intention to talk, a regression model was analyzed that included gender ($p < .01$), frequency of texting while driving at baseline ($p <$

.01), whether one had ever been negatively affected by texting while driving ($p < .01$), sensation seeking ($p = .02$), and empathy ($p < .001$) as covariates. Attitude at Time 1 predicted intention to talk at Time 1, $\beta = -.22$, $t(401) = -4.34$, $p < .001$. In conclusion, attitude at Time 1 predicted intention to talk at Time 1, which then predicted talk behavior at Time 2. The negative coefficients revealed that as attitude toward texting while driving became more negative, intention to talk with others about the behavior and the likelihood of talking with others were higher.

Intention to avoid texting while driving at Time 1. H6 also predicted that greater behavioral intentions at Time 1 would be associated with a greater likelihood of talk. In a logistic regression model, whether one was negatively affected by texting while driving ($p = .001$) was again entered in the first block, intention to avoid texting while driving at Time 1 was included in the second block as the main predictor, and intention to talk ($p < .001$) was added to the third block. This was again done for the same reason described above: to investigate whether intention to talk diminished the effect of behavioral intention on talk. Based on block 2, intention to avoid texting while driving was a significant predictor of talk, $\beta = .24$, $SE = .09$, $p < .01$. When intention to talk was added to the analysis in block 3, intention to avoid texting while driving was no longer a significant predictor of talk, $p = .99$. To follow up on whether intention to avoid texting while driving predicted intention to talk, according to a linear regression model which included gender ($p < .01$), whether one had ever been negatively affected by texting while driving ($p < .01$), and self-efficacy at Time 1 ($p < .01$) as covariates (attitude was not a significant predictor in this model and was therefore dropped from the analysis), intention to avoid texting while driving was indeed found to be a

significant predictor of intention to talk about texting while driving, $\beta = .59$, $t(404) = 10.38$, $p < .001$.

Summary. Thus, intention to avoid texting while driving at Time 1 appeared to be the only significant predictor of talk at Time 2. However, when intention to talk at Time 1 was included in the above analyses, self-efficacy, attitude, and behavioral intention at Time 1 did not directly predict talk at Time 2. All three variables did significantly predict intention to talk at Time 1, which in turn predicted talk at Time 2. This finding suggests partial support for H6. The effects of self-efficacy, attitude, and intention to avoid texting while driving at Time 1 on talk behavior at Time 2 appear to be indirect rather than direct.

These analyses examined the effect of beliefs and persuasive outcomes at Time 1 on talk. The next set of analyses will investigate the effect of talk on beliefs and persuasive outcomes at Time 2.

H7: The Effect of Talk Behavior on Beliefs, Attitudes, and Behavior at Time 2

H7 predicted that talk with others about the message and/or behavior addressed in the message would produce beliefs about self-efficacy, social norms, and susceptibility as well as attitudes and texting while driving behavior at Time 2 that were more aligned with the message. Analyses were run for each outcome using ANCOVA.

Self-efficacy at Time 2. As mentioned, H7 predicted in part that those who talked would have higher self-efficacy at Time 2 than those who did not talk. In this analysis, in which the covariates included self-efficacy at Time 1 ($p < .001$), a measure of past behavior (overall frequency of texting while driving, $p = .03$), and attitude at Time 2 ($p < .001$), there was a significant effect of talk on self-efficacy at Time 2, $F(1, 393) = 4.80$, $p = .03$, $\eta_p^2 = .01$.

Those who talked with others had higher perceptions of self-efficacy ($M = 5.69$, $SD = 1.40$) than those who did not talk with others ($M = 5.21$, $SD = 1.54$).

Norms at Time 2. H7 also predicted that those who talked would have normative beliefs that were more aligned with the message than those who did not talk. In an ANCOVA that included descriptive norm at Time 1 ($p < .001$) and susceptibility at Time 2 ($p = .01$) as covariates, talk did not have a significant effect on descriptive norm at Time 2, $p = .57$. Similarly, when controlling for subjective norm at Time 1 ($p < .001$), talk had no effect on subjective norm at Time 2, $p = .80$.

To investigate whether the lack of effect on the subjective norm as well as the lack of influence of the subjective norm in other analyses could be due to the particular measure used, analyses involving the subjective norm were also conducted with an alternative measure that included not only beliefs, but also motivation to comply. However, the alternative measure did not change any outcomes or improve the predictive ability of subjective norm and so was not pursued further.

Susceptibility at Time 2. H7 further predicted that those who talked would report higher perceptions of susceptibility to the negative consequences of texting while driving than those who did not talk. In an ANCOVA which included frequency of texting while driving behavior ($p = .002$) and susceptibility at Time 1 ($p < .001$) as well as attitude ($p < .001$) and descriptive norm ($p < .001$) at Time 2 as covariates, the effect of talk on susceptibility at Time 2 was significant, $F(1, 393) = 3.74$, $p = .05$, $\eta_p^2 = .01$. Taking into consideration that beliefs about one's susceptibility to the negative consequences of engaging in a behavior likely contribute to one's attitude toward that behavior – therefore, including these two variables in the same analysis might dampen each variable's relationship with

other variables – when attitude was removed as a covariate from the above analysis, talk had a stronger effect on susceptibility at Time 2, $F(1, 394) = 6.58, p = .01, \eta_p^2 = .02$. Perceptions of susceptibility to the negative consequences of texting while driving were higher among those who talked ($M = 5.93, SD = 1.19$) than among those who did not talk ($M = 5.59, SD = 1.23$).

Attitude toward texting while driving at Time 2. H7 also predicted that those who talked would have a more negative attitude toward texting while driving than those who did not talk. Including attitude toward texting while driving at T1 ($p < .001$) as well as self-efficacy ($p < .001$) and susceptibility ($p < .001$) at Time 2 as covariates, there was no effect of talk on attitude at Time 2, $p = .78$. Again, considering the likelihood that beliefs about susceptibility influence attitude, when susceptibility was removed from the above analysis as a covariate, talk still had no effect on attitude at Time 2, $p = .91$.

Texting while driving behavior at Time 2. Finally, H7 predicted that those who talked with others about texting while driving would engage in less texting while driving behavior. Two separate ANCOVAs were run for each of the two measures of behavior. In the first, in which covariates included days texted while driving during the previous week at Time 1 ($p < .001$) and self-efficacy at Time 1 ($p = .05$), the effect of talk on the number of days participants texted while driving during the past week at Time 2 was not significant, $p = .61$. In the second ANCOVA, in which the covariate included how often participants texted while driving during the previous week at Time 1 ($p < .001$), talk did not have a significant effect on how often participants texted while driving during the previous week at Time 2, $p = .57$.

Summary. Overall, H7 received partial support. Talk had a significant effect on susceptibility and self-efficacy. Those who talked about the video and/or behavior believed they were more susceptible to the negative consequences of texting while driving and they were more confident in their ability to avoid engaging in texting while driving behavior. No differences were found between talkers and non-talkers on attitude, norms, or behavior. However, the effect of talk on behavior may be indirect rather than direct, meaning that talk may influence behavior via mediating variables such as susceptibility and self-efficacy. Predictors of behavior will be examined in the next section, after which a path model will be generated to provide a clearer understanding of the relationships between shift messages, talk, and behavior.

H8: Attitudes and Beliefs as Predictors of Texting While Driving Behavior at Time 2

This research included two measures of behavior at Time 2: the frequency with which participants texted while driving during the past week (i.e., from “never” to “every time”) and the number of days participants texted while driving during the past week. At Time 2, out of 132 participants who reported talking and responded to a question about whether they had driven during the previous week, 41.4% ($n = 55$) reported not having driven at all during the previous week. These participants were excluded from this analysis, leaving 77 participants who reported driving at least one day during the previous week and could answer questions about the frequency with which they texted while driving during that week. Although this is a small sample on which to test hypotheses about effects on behavior – potentially calling into question the validity of the findings – some confidence in the findings can be derived from having two measures of behavior with which to test hypotheses.

H8 predicted that more positive beliefs and persuasive outcomes at Time 2 would predict less texting while driving behavior (at Time 2). To determine which variables predicted behavior at Time 2, a series of regression analyses were run with the Time 1 measure of the dependent variable and all of the potential Time 2 predictors included in each model. These predictors included Time 2 measures of descriptive norm, valence of the descriptive norm, subjective norm, self-efficacy, susceptibility, and attitude. Although valence of the descriptive norm has not been included in analyses up to this point, it will be examined as an outcome of characteristics of talk in later sections and so was also included here as a potential predictor of behavior.

Predictors of days texted while driving during past week. A regression analysis was run to determine significant predictors of the number of days participants texted while driving during the previous week. After controlling for the same Time 1 measure of behavior ($p = .03$) and including all Time 2 predictors in the same regression model, self-efficacy [$\beta = -.51, t(49) = -4.03, p < .001$], descriptive norm [$\beta = .29, t(49) = 2.26, p = .03$], and valence of the descriptive norm [$\beta = .37, t(49) = 2.43, p = .02$] at Time 2 emerged as significant predictors of the number of days participants texted while driving during the previous week.

Specifically, higher self-efficacy significantly predicted fewer days of texting while driving during the past week. Additionally, as the perceived frequency with which typical college students texted while driving decreased and as the valence of this frequency was perceived as more negative, the number of days participants reported texting while driving during the past week also decreased.

Predictors of the frequency of texting while driving during past week. To determine predictors of the frequency with which participants reported texting while driving

during the previous week, a regression model was run that included the frequency with which participants reported texting while driving at Time 1 ($p < .001$) as well as all potential predictors at Time 2. Only self-efficacy [$\beta = -.24, t(67) = -2.35, p = .02$] and descriptive norm [$\beta = .23, t(67) = 2.62, p = .01$] at Time 2 were significant predictors of the frequency with which participants texted while driving during the previous week. Again, as self-efficacy increased, the frequency of texting while driving decreased. Also, as the perceived frequency with which typical college students texted while driving decreased, the frequency with which participants texted while driving also decreased and vice versa.

Summary. In sum, H8 received partial support. Self-efficacy and descriptive norm predicted both measures of behavior, but the valence of the norm only predicted the number of days participants texted while driving during the previous week.

Modeling Predictors of Talk and Texting While Driving Behavior

Next, a model of predicted relationships among variables was investigated using path analysis. This model was tested to provide an overview of the role of intermediating variables in the relationship between message exposure and behavioral outcomes and to specifically demonstrate the role of talk in influencing the effect of message exposure on outcomes of interest. According to recommendations about sample size in path analysis and structural equation modeling, the sample size of 331 (excluding the 70 participants in the control condition who did not view a message) is adequate for conducting this analysis. The general rule of thumb is to have a sample size of 10 to 20 times the number of parameters in a specified model (Kline, 2011; Lei & Wu, 2007). The model presented in Figure 2 included 19 parameters. Based on the rule of thumb, a sufficient sample size for conducting this analysis would be between 190 and 380. Therefore, a sample size of 331 appears to be

adequate. One caveat, however, is that the sample was not evenly distributed between talkers and non-talkers. Among those exposed to a shift or single-valence message, only 112 participants reported talking with others about the message and/or behavior, whereas 219 participants reported not talking with anyone about the message or behavior.

Model testing was conducted using AMOS 23.0.0 and maximum likelihood estimation. Each endogenous variable had an error term and the regression weight applied to each error term was fixed at 1. Model fit was evaluated using three indices: chi-square, comparative fit index (CFI), and root mean square error of approximation (RMSEA). It is generally recommended that the chi-square value is not significant, CFI is .95 or greater, and RMSEA is equal to or less than .06 (Hu & Bentler, 1999; Kline, 2011).

Fit statistics for the model (see Figure 2) suggest a good fit with the data, $\chi^2(17) = 35.62, p = .005$, CFI = .96, RMSEA = .05. The chi-square value was significant, which is not desirable, but chi-square is sensitive to sample size, so it can detect minute differences in larger samples. Although a significant chi-square value may indicate a problem in smaller samples, since the sample used here was greater than 300, a significant chi-square value may not be unexpected (Kline, 2011). Therefore, it is important to also look at other indicators of fit. A CFI of .96 and RMSEA of .05 suggest that this model fits the data well.

In the model presented in Figure 2, message type (emotional shift or single-valence) influenced emotional intensity, which then positively influenced the depth of message processing. The depth of message processing then directly influenced behavioral intention at Time 1 and whether talk occurred at Time 2. However, according to the model, when accounting for the influence of behavioral intention at Time 1 on susceptibility and self-efficacy at Time 2, the effect of talk on these outcomes was not significant. Behavioral

intention at Time 1 also directly influenced behavior at Time 2. Susceptibility and self-efficacy were also positively related to behavior at Time 2.

Since a substantial portion of the literature that has identified talk as an important mediator of the effect of health message exposure on behavioral outcomes (e.g., Dunlop, 2008, 2011; Frank et al., 2012; Hafstad, 1996; Hafstad et al., 1997; Hafstad & Aaro, 1997; Hwang, 2012) has used cross-sectional study designs that have not measured outcomes at multiple time points, a second path model was pursued that more closely resembled these analyses. Much of this literature is based on analyses of the effects of health communication campaigns that often do not have the ability to measure beliefs and persuasive outcomes following message exposure but prior to talk. Therefore, in the second model, behavioral intention at Time 1 was excluded so as to better align the model with the study designs that frequently appear in research on the effects of talk.

Interestingly, when behavioral intention at Time 1 was removed from the model, as in Figure 3, talk emerged as a significant predictor of susceptibility and self-efficacy, both of which predicted behavior. The model presented in Figure 3 is a poor fit to the data, however, compared to the model presented in Figure 2, $\chi^2(14) = 107.88, p < .001, CFI = .60, RMSEA = .13$, which demonstrates that fit improves when behavioral intention at Time 1 is included in the model.

As the path model suggests, examining whether individuals talked or not may not be sufficient for understanding the potential effects of talk. Two characteristics of talk – the valence (i.e., nature) of talk and the amount of additional message elaboration generated by talk – are worth examining to further investigate the effects of talk. These two characteristics of talk will be discussed next.

H9: The Effect of Emotional Shifts on the Nature of Talk

H9 predicted that emotional shift messages would generate talk that is more aligned with the message than single-valence messages. This hypothesis was tested using ANCOVA, in which emotional shift (shift/single-valence) and second emotional valence (negative last/positive last) were independent variables, the nature of talk was the dependent variable, and intention to avoid texting while driving at Time 1 ($p < .001$) was included as a covariate. Since only participants who reported talking were included in this analysis ($n = 112$), some of the group sizes were not equal. This was due to differences in the amount of talk between groups. For example, 44 participants who viewed messages ending in positive emotional valence talked compared with 68 participants who viewed messages ending with a negative emotional valence. Unequal group sizes is a concern in ANOVA because it can violate the assumption of homogeneity of variance. However, this assumption was not violated in this analysis, as Levene's test of the equality of error variances was not significant ($p = .34$).

This analysis revealed no significant main effect of emotional shift on the nature of talk ($p = .69$). Therefore, H9 was not supported. However, the main effect for second emotional valence was significant, $F(1, 107) = 6.35, p = .01, \eta_p^2 = .06$. Descriptive statistics indicated that messages ending with a negative emotional valence generated conversation that was more aligned with the message ($M = 5.53, SD = .99$) than messages ending with a positive emotional valence ($M = 5.11, SD = 1.02$). The interaction effect was not significant ($p = .27$).

Differences between shift messages on the nature of talk (RQ1). To investigate whether there were differences between the two shift messages (RQ1), another ANCOVA was conducted with the same covariate as above. Post hoc tests revealed a significant

difference between the two shift messages ($p < .01$). The pos-neg message generated talk that was significantly more positive ($M = 5.64$, $SD = 1.02$) than the neg-pos message ($M = 4.91$, $SD = .79$). However, also of note is that the control condition also generated significantly more positive talk than the neg-pos message ($p = .001$), but was not significantly different from the pos-neg message ($p = .23$). Since neither shift message generated significantly more talk overall than the control condition (see Table 7), nor was the talk more positive in the shift conditions compared to the control condition, as just mentioned, there were no substantial differences between the control condition and the shift conditions on these talk-related variables.

Summary. Thus, emotional shift did not have a significant effect on the nature of talk. However, messages that ended with negative emotion generated more favorable talk than messages that ended with positive emotion. Additionally, the pos-neg shift message generated more positive talk than the neg-pos shift message.

H10: The Effect of the Nature of Talk on Beliefs, Attitudes, and Behavior at Time 2

H10 predicted that more positive talk (i.e., talk aligned with the message) would produce (a) increased perceptions of self-efficacy, (b) more negative perceptions of the descriptive norm, (c) more positive perceptions of subjective norms, (d) more negative evaluations of perceived normative behavior, (e) increased susceptibility to the negative effects of texting while driving, (f) more negative attitudes toward texting while driving, and (g) a greater likelihood of engaging in prevention behavior at the follow-up (i.e., Time 2). This hypothesis was tested by conducting regression analyses, which assessed the effect of the nature of talk on each outcome variable, while accounting for the influence of the Time 1 measure of the same outcome. Therefore, separate models were fitted for each outcome (e.g.,

self-efficacy, attitude, behavior), with covariates that significantly predicted the dependent variable and the Time 1 measure of the dependent variable entered in the first block, Time 2 predictors entered in the second block, and the predictor of interest – nature of talk – entered in the final block. These hierarchical regression analyses were performed in order to examine the effect of the nature of talk on beliefs, attitudes, and behavior independent of the effects of the control variables.

Self-efficacy (H10a). As mentioned above, H10a predicted that more positive talk would produce higher perceptions of self-efficacy. In this analysis, the Time 1 measures of self-efficacy ($p < .001$) and past behavior (i.e., the frequency of texting while driving; $p = .03$) were entered in the first block and nature of talk was entered in the second block. After controlling for the effects of the other predictors, the nature of talk significantly predicted self-efficacy, $\beta = .29$, $t(128) = 4.43$, $p < .001$. Thus, more positive talk (i.e., talk aligned with the message) was a significant predictor of higher self-efficacy. When the nature of talk was added to the model with the other predictors, it accounted for an additional 7% of the variance in self-efficacy ($\Delta R^2 = .07$).

Since controlling for behavioral intention at Time 1 was found to negate the effect of talk behavior on outcomes at Time 2 in previous analyses, another regression analysis was run to determine whether the nature of talk remained a significant predictor of self-efficacy even after controlling for intention to avoid texting while driving at Time 1. With behavioral intention at Time 1 ($p < .01$) added to the model, the nature of talk remained a significant predictor of self-efficacy at Time 2, $\beta = .23$, $t(129) = 3.34$, $p = .001$. Thus, H10a was supported.

Descriptive and subjective norms (H10b-c). H10b and c predicted that more positive talk would be associated with more negative perceptions of the descriptive norm and more positive perceptions of subjective norms. Neither descriptive norm ($r = .03, p = .76$) nor subjective norm ($r = -.08, p = .34$) was significantly correlated with the nature of talk, so no analyses were run on these outcomes. Therefore, H10b and c were not supported.

Valence of the norm (H10d). H10d predicted that more positive talk would produce more negative evaluations of perceived normative behavior. For this analysis, the Time 1 measure of the valence of the descriptive norm ($p < .01$) was entered in the first block, the Time 2 measures of susceptibility ($p < .01$) and descriptive norm ($p < .01$) were entered in the second block, and nature of talk was entered in the third block. After controlling for the effects of the other predictors, the nature of talk was a significant predictor of the valence of the descriptive norm, $\beta = -.20, t(128) = -2.93, p < .01$. Thus, more positive talk (i.e., talk aligned with the message) was a significant predictor of more negative evaluations of the perceived frequency with which typical college students text while driving. When the nature of talk was added to the model with the other predictors, it accounted for an additional 3.6% of the variance in the valence of the descriptive norm ($\Delta R^2 = .036$).

Again, intention to avoid texting while driving at Time 1 was added to the regression model to determine whether the nature of talk remained a significant predictor of the valence of the norm. In this case, behavioral intention at Time 1 was not a significant predictor of the valence of the norm at Time 2, $p = .45$. After the inclusion of behavioral intention at Time 1, the nature of talk was still a significant predictor of the valence of the norm, $\beta = -.24, t(127) = -2.38, p = .02$. Therefore, H10d was supported.

Susceptibility (H10e). H10e predicted that more positive talk would produce higher perceptions of susceptibility to the negative consequences of texting while driving. For this analysis, the Time 1 measure of susceptibility ($p = .02$) was entered in the first block, nature of talk was entered in the second block, and the Time 2 measure of attitude toward texting while driving ($p < .001$) was entered in the third block. Since previous analyses have demonstrated a relationship between susceptibility and attitude, suggesting that beliefs about susceptibility might affect attitude, the Time 2 measure of attitude was entered last as it may reduce the effect of the nature of talk on susceptibility. After controlling for the effect of susceptibility at Time 1, the nature of talk significantly predicted susceptibility at Time 2, $\beta = .19$, $t(129) = 2.36$, $p = .02$. However, when attitude at Time 2 was entered in the third block, the nature of talk was no longer a significant predictor of susceptibility to the negative consequences of texting while driving, $p = .67$.

As above, intention to avoid texting while driving at Time 1 was then added to the model to determine whether the nature of talk was still a significant predictor of susceptibility. After including behavioral intention at Time 1 ($p < .001$) to the model without attitude at Time 2 included, the nature of talk did not significantly predict susceptibility at Time 2, $p = .54$. The finding that the nature of talk did not predict susceptibility after controlling for behavioral intention at Time 1 suggests a lack of support for H10e.

Attitude toward texting while driving (H10f). H10f predicted that more positive talk would be associated with more negative attitudes toward texting while driving. In conducting this analysis, the Time 1 measure of attitude toward texting while driving ($p < .001$) and the Time 2 measure of self-efficacy ($p < .001$) were entered in the first block, nature of talk was entered in the second block, and the Time 2 measure of susceptibility ($p <$

.001) was entered in the third block. As discussed above, susceptibility was entered last because of its relationship with attitude. After controlling for the effects of the predictors entered in block one, the nature of talk approached significance as a predictor of attitude at Time 2, $\beta = -.14$, $t(128) = -1.93$, $p = .06$. When susceptibility at Time 2 was entered in the third block, the nature of talk did not predict attitude toward texting while driving, $p = .10$. Finally, as explained above, when behavioral intention at Time 1 ($p < .01$) was added to the model without susceptibility at Time 2, the nature of talk was not a significant predictor of attitude at Time 2, $p = .18$. In conclusion, these analyses demonstrate that H10f was not supported.

Texting while driving behavior (H10g). H10g predicted that more positive talk would be associated with less texting while driving behavior. For this analysis, the Time 1 measure of texting while driving frequency during the past week ($p < .01$) was entered in the first block and nature of talk was entered in the second block. The nature of talk appeared to be a significant predictor of behavior at Time 2, $\beta = -.31$, $t(56) = -2.85$, $p < .01$, accounting for an additional 9.4% of the variance in behavior at Time 2 ($\Delta R^2 = .094$). However, the measure of behavior at Time 1 was a measure of past behavior, prior to message exposure. When the same regression was run with behavioral intention at Time 1 added as a covariate ($p = .04$), the effect of the nature of talk on behavior at Time 2 was no longer significant, $\beta = -.16$, $t(55) = -1.25$, $p = .22$.

For the other measure of behavior – days texted while driving during the past week – a regression analysis revealed the same pattern of results. Controlling for behavior at Time 1 ($p < .01$), the nature of talk was a significant predictor of behavior at Time 2, $\beta = -.25$, $t(55) = -2.39$, $p = .02$, but when behavioral intention at Time 1 was added as a covariate, the effect

was no longer significant, $\beta = -.13$, $t(54) = -1.04$, $p = .30$. However, the contribution of behavioral intention only approached significance ($p = .06$) in this analysis.

These findings suggest that behavioral intention at Time 1 accounted for a greater proportion of the effect on behavior at Time 2 than the nature of talk. However, the magnitude of the regression coefficients in the above analyses was not paltry, suggesting that the results may have been significant with a larger sample size. Since the sample on which these analyses were run consisted only of those who reported both talking and driving during the previous week, only a relatively small sample remained ($n = 77$). Based on these analyses, H10g was not supported. However, the magnitude of the regression coefficients suggests some support for the effect of the nature of talk on texting while driving behavior.

Summary. In sum, H10 received partial support. The nature of talk was a significant predictor of self-efficacy and the valence of the norm. More positive talk predicted higher perceptions of self-efficacy and more negative evaluations of the perceived descriptive norm.

H11: The Effect of Discussion-generated Elaboration on Beliefs, Attitudes, and Behavior at Time 2

First, to provide some background on the relationship between discussion-generated elaboration and message features, an ANCOVA including age ($p = .01$) as a covariate revealed no main effect of either emotional shift ($p = .39$) or second emotional valence ($p = .91$) on discussion-generated elaboration. Nor was there a significant difference between the two emotional shift messages, $p = .73$. However, separate regression analyses revealed that emotional intensity [$\beta = .33$, $t(110) = 3.68$, $p < .001$] and depth of message processing [$\beta = .24$, $t(110) = 2.55$, $p = .01$] were both significant predictors of discussion-generated elaboration. Since this suggested an indirect effect of emotional shift messages on

discussion-generated elaboration via emotional intensity and depth of message processing, a multiple mediation model was tested using the INDIRECT macro (Hayes, 2015). Emotional shift (shift/single-valence) was included as the independent variable, discussion-generated elaboration was included as the dependent variable, and intention to talk was included as a covariate ($p < .001$). The number of bootstrap resamples used in this analysis was 5,000 and the sample size was 112.

This test of indirect mediation revealed no significant effect of emotional shift on emotional intensity ($p = .26$) or depth of message processing ($p = .29$). Although emotional intensity did have a significant direct effect on discussion-generated elaboration ($t = 2.37$, $SE = .14$, $p = .02$), depth of message processing did not have an effect on discussion-generated elaboration ($p = .91$). Additionally, the direct effect ($p = .56$) and the total effect ($p = .76$) of emotional shift on discussion-generated elaboration were not significant. These results revealed that emotional intensity and depth of message processing do not mediate the effect of emotional shift on discussion-generated elaboration and thus do not support an indirect effect of emotional shift on discussion-generated elaboration.

H11 predicted that engaging in more discussion-generated elaboration would be associated with more positive beliefs and persuasive outcomes. This hypothesis was tested using a series of regression analyses.

Self-efficacy. H11 predicted, in part, that more discussion-generated elaboration would be associated with higher self-efficacy. Including self-efficacy at Time 1 ($p < .001$) and attitude toward texting while driving at Time 2 ($p < .01$) as covariates, the ability of discussion-generated elaboration to predict self-efficacy at Time 2 approached significance, β

= .13, $t(108) = 1.73$, $p = .09$. As discussion-generated elaboration increased, so did self-efficacy. However, this relationship was of marginal statistical significance.

Susceptibility. H11 also predicted that more discussion-generated elaboration would generate higher perceptions of susceptibility to the negative consequences of texting while driving. In a regression analysis, susceptibility at Time 1 ($p < .01$) and descriptive norm at Time 2 ($p < .001$) were included in the first block, discussion-generated elaboration was added to the second block, and attitude toward texting at Time 2 ($p < .001$) was included in the third block. As discussed previously, attitude was added in the final block because of its relationship with susceptibility. Prior to the inclusion of attitude in the third block, discussion-generated elaboration significantly predicted susceptibility at Time 2, $\beta = .17$, $t(107) = 2.12$, $p = .04$. As discussion-generated elaboration increased, perceptions of susceptibility to the negative consequences of texting while driving also increased. Similar to previous analyses, however, after the inclusion of attitude in the final block, discussion-generated elaboration did not predict susceptibility, $p = .44$.

The path model described previously revealed that controlling for behavioral intention at Time 1 negated the effect of talk on cognitive and persuasive outcomes at Time 2. Therefore, as in previous analyses of the effects of the nature of talk on outcomes, behavioral intention at Time 1 was added to this model to determine whether susceptibility would still be a significant predictor of discussion-generated elaboration even after controlling for behavioral intention at Time 1. After adding intention to avoid texting while driving at Time 1 to the model, susceptibility was no longer a significant predictor of discussion-generated elaboration, $p = .29$.

Attitude toward texting while driving. H11 predicted that engaging in more discussion-generated elaboration would produce more negative attitudes toward texting while driving. As in the previous analysis, the Time 1 measure of attitude toward texting while driving ($p < .001$) and the Time 2 measure of self-efficacy ($p = .001$) were entered in the first block, discussion-generated elaboration was entered in the second block, and susceptibility at Time 2 was entered in the third block. Prior to the inclusion of susceptibility in the third block, discussion-generated elaboration significantly predicted attitude at Time 2, $\beta = -.14$, $t(107) = -2.11$, $p = .04$. After susceptibility was included in the model, the ability of discussion-generated elaboration to predict attitude toward texting at Time 2 still approached significance, $\beta = -.11$, $t(107) = -1.77$, $p = .08$. Thus, the more participants engaged in discussion-generated elaboration, the more negative their attitude toward texting while driving.

Again, behavioral intention at Time 1 was added to the regression model to determine whether attitude would remain a significant predictor of discussion-generated elaboration. As above, after accounting for the influence of intention to avoid texting while driving at Time 1, attitude was no longer a significant predictor of discussion-generated elaboration, $p = .15$.

Texting while driving behavior. Finally, H11 predicted that more discussion-generated elaboration would be associated with less texting while driving behavior. To test this component of the hypothesis, a regression analysis was run that included the Time 1 measure of the number of days participants texted while driving during the previous week ($p < .001$) and discussion-generated elaboration in the first block and behavioral intention at Time 1 ($p < .01$) in the second block. Discussion-generated elaboration significantly predicted the number of days participants reported texting while driving during the previous

week at Time 2 both before behavioral intention at Time 1 was added to the model, $\beta = -.28$, $t(47) = -2.56$, $p = .01$, as well as after it was included in the model, $\beta = -.23$, $t(47) = -2.21$, $p = .03$. Thus, as discussion-generated elaboration increased, the number of days participants reported texting while driving decreased.

In a separate regression analysis to test the effect of discussion-generated elaboration on the frequency with which participants texted while driving during the previous week, the same Time 1 measure of behavior ($p = .001$) and discussion-generated elaboration were entered in the first block and behavioral intention at Time 1 ($p < .01$) was added in the second block. Prior to the inclusion of behavioral intention at Time 1, the ability of discussion-generated elaboration to predict this measure of behavior approached significance, $\beta = -.23$, $t(48) = -1.88$, $p = .07$. After the inclusion of behavioral intention at Time 1, discussion-generated elaboration was not a significant predictor of how frequently participants texted while driving during the previous week, $\beta = -.13$, $t(48) = -1.13$, $p = .27$. Although the sample size was small for these analyses of the effect on behavior, discussion-generated elaboration did not appear to be a significant predictor of how frequently participants texted while driving during the previous week.

Summary. In sum, discussion-generated elaboration – the extent to which talking about the message content with others caused participants to process the content more deeply – appeared to be a significant predictor of susceptibility, attitude, and the number of days participants texted while driving during the previous week. However, after controlling for behavioral intention at Time 1, discussion-generated elaboration had a significant effect only on behavior. Thus, H10 received partial support.

The above analyses on the characteristics of talk were conducted on a relatively small sample composed of those who were both exposed to a shift or single-valence message and reported talking ($n = 112$). Because of this limitation, it was unfortunately not possible to conduct a path analysis to examine relationships between shift messages, characteristics of talk, and behavioral outcomes. A larger sample size is required for this type of analysis. However, the previous regression analyses are a starting point for better understanding the effects of talk in response to message exposure on cognitive and persuasive outcomes.

Chapter V: Discussion

The purpose of this dissertation was to investigate the effects of health messages containing shifts in emotional valence on the likelihood of talk, features of the talk generated, as well as psychological and behavioral outcomes, when compared to messages that were singular in their emotional valence. The findings revealed that, compared to single-valence emotional messages, emotional shift messages indirectly generated more talk by evoking a more emotionally intense experience overall and increasing message processing. Talk, in turn, was found to indirectly affect behavior by influencing perceptions of susceptibility and self-efficacy. However, as shown in Figure 1, when accounting for the effects of behavioral intention at Time 1 immediately after message exposure, the effect of talk on beliefs about susceptibility and self-efficacy at Time 2 was no longer significant. This finding suggests that intention to avoid texting while driving, as reported immediately following message exposure, had a greater influence on psychological outcomes and behavior reported one week later (at Time 2) than whether participants talked with others about the message and/or behavior. The results also suggest that several characteristics of talk – the valence of talk and the amount of elaboration generated by the talk – may be more important influences on

cognitive and persuasive outcomes than simply whether participants talked with others about the message and/or behavior. This study also revealed an interesting pattern of results when comparing the effects of messages that ended with positive emotion and those that ended with negative emotion.

These and other findings of note will be discussed in greater depth below. In each of the following sections, I will review the major findings of this research, discuss the findings in the context of previous research, address limitations, and suggest future directions based on these findings.

Emotional Shift Messages

A major objective of this research was to test the effects of emotional shift messages compared to single-valence messages on talk behavior as well as several characteristics of talk. Several mediators of the effect of messages on talk were also investigated, including emotional intensity and depth of message processing. Message type (shift versus single-valence) did not have a direct effect on talk behavior, the valence of talk, or the amount of message elaboration generated by talk. However, message type did have an indirect effect on talk through its influence on emotional intensity and depth of message processing, with emotional shift messages generating higher levels of emotional intensity and message processing. There may have been an indirect effect of message type on characteristics of talk as well, but given only 33% ($n = 133$) of participants reported talking with someone about the message and/or behavior, the sample size was too small to conduct a path analysis to investigate relationships among talkers only. However, regression analyses revealed that emotional intensity and depth of message processing did significantly predict discussion-generated elaboration, such that as these two predictors increased discussion-generated

elaboration also increased. This suggests an indirect effect of shift messages on this characteristic of talk.

There were no differences between emotional shift messages and single-valence messages for any of the cognitive or persuasive outcomes at Time 1. However, according to the path model, there was an indirect effect of emotional shift messages on behavioral intention at Time 1 via their effect on emotional intensity and depth of message processing. Based on these results, emotional intensity and depth of message processing seem to be responsible for the effect of shift messages on persuasive outcomes and talk. These two mediators will be discussed next.

Emotional intensity. Although it was hypothesized that the second emotional valence within emotional shift messages (i.e., positive emotion in the neg-pos condition and negative emotion in the pos-neg condition) would be experienced more intensely than the main emotional valence in single-valence messages, the reverse was found. The singular emotional valence of single-valence messages was more intense than the second valence in emotional shift messages. In contrast, when comparing emotional shift messages with single-valence messages on overall emotional intensity, the shift messages were found to more intense.

One might initially speculate that both of these findings regarding emotional intensity may be due, at least in part, to the construction of messages. The single-valence negative message was 50 seconds in length; the single-valence positive message was 54 seconds; the positive component (i.e., the second emotional valence) of the neg-pos message was 45 seconds long; and the negative component of the pos-neg message was 43 seconds. Therefore, the length of time viewers were exposed to an emotional valence in the single-

valence messages was longer (50 and 54 seconds) than the length of time viewers were exposed to the second emotional valence in shift messages (43 and 45 seconds). Thus, this difference could have contributed to the greater intensity of the single-valence messages compared to the intensity of the second emotional valence in shift messages. Similarly, since the shift messages were both 80 seconds long and the single-valence messages were only 50 and 54 seconds long, the emotional experience of the shift messages was longer than that of the single-valence messages. Again, this difference in length could have contributed to the greater overall emotional intensity experienced in the shift condition compared to the single-valence condition.

However, a longer message does not necessarily result in a more emotionally intense experience. Logically, emotional intensity does not seem to be an inherent quality of a longer message. There are other factors that are more likely to determine emotional intensity than the length of a message, such as the context in which a message-induced emotion is experienced (e.g., see Plous, 1993; Manstead, Wagner, & MacDonald, 1983) and the extent to which a message is personally relevant (Brehm, 1999; Izard, 1977).

The finding that the intensity of emotion in the second half of shift messages was lower than the intensity of emotion in the single valence messages could also be interpreted as suggesting that length does not lead to greater emotional intensity and that length could have actually decreased the intensity of messages. The two valences being compared in each case were negative and positive single-valence messages and the second negative and positive components within the shift messages. If longer messages lead to increased emotional intensity due to their length, then H1b would have also received support. The longer message would have resulted in a more intense experience. However, this study

revealed the opposite. This suggests that message length is an unlikely explanation for the greater overall intensity.

When comparing the intensity of emotion between the two components of the shift messages, the intensity of emotion did not increase significantly as the message continued. There was not a significant difference in intensity between the first emotional valence in the shift messages ($M = 2.43$, $SD = 1.16$) and the second emotional valence in the shift messages ($M = 2.58$, $SD = 1.23$), $p = .11$. Again, this suggests that message length does not equate to greater emotional intensity. An examination of the two shift messages reveals that the intensity of the second emotional valence does decrease compared to the first emotional valence for the neg-pos message ($M = 2.69$ vs. 2.42), but not for the pos-neg message ($M = 2.16$ vs. 2.75). The decrease in intensity for the neg-pos message is likely affected by the positive emotional ending. Positive emotions ($M = 2.27$, $SD = 1.18$) were experienced less intensely than negative emotions ($M = 2.49$, $SD = 1.25$).

Furthermore, some of the difference in overall emotional intensity between the shift and single-valence messages might have more to do with the valence of emotions than with message length. The overall intensity measure included the mean of all emotions (positive and negative) for each message. The negative message still elicited positive emotions and the positive message still elicited negative emotions, but they were weaker than the main emotional valence and than the same valence in the shift messages, so this brought down the overall intensity for single-valence messages. Thus, the difference in overall emotional intensity between the shift and single-valence messages could also be better explained by valence than message length.

As mentioned above, the difference in length between single-valence and shift messages is a limitation in this study. Based on these findings, it is unclear whether shift messages will produce a more intense emotional experience overall when they are the same length as single-valence messages. It may be that greater emotional intensity is not an inherent quality of shift messages, but instead may be largely dependent on message length. However, as discussed above, we would have expected different results if message length were the primary explanation for emotional intensity.

A notable limitation related to emotional intensity is that, overall, none of the messages were perceived as being particularly intense. Although the emotional shift messages were found to be significantly more emotionally intense overall than the single-valence messages, the means were only 2.51 and 2.24 on a 7-point scale. The emotion experienced most intensely while viewing messages was fear, for which the mean was 3.84 on the same 7-point scale. A fairly low level of emotional intensity is not an uncommon response in research on emotional health messages (e.g., see Dillard & Nabi, 2006). For example, Dunlop, Kashima, and Wakefield (2010) found that those who had more emotionally intense reactions to messages promoting the HPV vaccine were more likely to discuss the message with others. However, they reported a mean emotional response to messages of 1.25 on a scale that ranged from 0 (none of this feeling) to 4 (a great deal of this feeling). This also indicates an emotional response to messages that was not particularly intense, yet effects were still found even at this low level of intensity.

The low level of emotional intensity experienced in response to messages in this study could be because the specific behavior addressed in messages (i.e., texting while driving) is not one that elicits an intense response or a high level of emotion. It could also be

that participants may have been exposed to large number of texting while driving prevention messages by the time they reach college and have become desensitized to these messages.

Regardless, the implication of the low level of emotional intensity elicited by the messages in this research is that if emotion is the impetus behind the cognitive and behavioral outcomes of interest in this study, a more intense emotional experience may have produced a more substantial effect. Greater emotional intensity, for example, may have generated more talk and had a stronger effect on persuasive outcomes at Time 1. However, the research described in this dissertation as well as that reported by Dunlop, Kashima, and Wakefield (2010) still found effects of emotional intensity even at lower levels. Additionally, it is undesirable for messages to elicit a very high level of emotional intensity, particularly if fear is the predominant emotion experienced, as this can inhibit message processing and produce defensive responses to the message or message rejection (Keller & Block, 1996; Lang, 2000; Witte, 1998).

Message processing. In this study, emotional shift messages were found to generate greater message processing than single-valence messages, as hypothesized. It may be that, compared to a single emotional valence, the shift in emotion was more effective in capturing viewers' attention and interest, leading to greater cognitive processing of the message. It is also possible that the format of the emotional shift messages may have been perceived as unusual or unexpected compared to the format of the single-valence messages, which could also increase attention and interest.

As noted above, however, another explanation for the finding that shift messages produced greater message processing could be the difference in length between the shift and single-valence messages. Since shift messages were about 25 to 30 seconds longer than

single-valence messages, this difference in length may have accounted for the difference in message processing. Longer messages may have simply elicited greater message processing. However, it is arguable that compared with the many texting while driving messages young people have likely been exposed to by the time they reach college, this difference in length may not be expected to have much of an effect. Additionally, research on message elaboration has found that when individuals are motivated to process a message, longer messages (e.g., containing more arguments) do not result in greater message processing (Petty & Cacioppo, 1984). However, a difference was found and message length cannot be completely ruled out as a possible explanation.

Previous studies that compared the effects of emotional shift messages to single-valence messages (e.g., Carrera, Caballero, & Muñoz, 2008; Carrera, Muñoz, & Caballero, 2010) shed little light on the findings regarding emotional intensity and message processing as they did not measure these effects. Future investigations will need to be conducted to provide further insight into the effects of shift messages on emotional intensity and message processing. This is especially worthwhile since the effect of shift messages on talk and behavioral intentions seems to hinge on emotional intensity and message processing.

Comparison of two shift messages. The results also revealed some interesting differences between the two shift messages. Overall, the pos-neg message performed better than the neg-pos message. The pos-neg message produced greater intentions to talk with friends and family members about texting while driving as well as more positive talk than the neg-pos condition. However, to better understand the potential effectiveness of the pos-neg message, it should be considered in the larger context and compared to the control condition, in which no message was viewed. The findings revealed that the pos-neg message was not

significantly different from the control condition in terms of the nature of talk or intention to talk. A closer look at those who talked within the control group revealed that they had a significantly more negative attitude toward texting while driving at Time 1 ($M = 1.64$, $SD = .84$) compared to the neg-pos condition ($M = 2.35$, $SD = 1.13$), but there were no significant differences between the control condition and any of the other groups. Interestingly, those in the control condition did not talk more than those in the other conditions nor were there any significant differences on attitude toward texting while driving at Time 1 between the control and any other conditions within the larger sample, which included talkers and non-talkers. These findings seem to indicate that in the absence of having viewed a message that discourages texting while driving behavior a more negative attitude toward the behavior was a driver of talk behavior in the control condition.

Descriptive statistics also revealed a fairly consistent pattern underlying the differences between the pos-neg condition and the neg-pos condition. The pos-neg message appeared to perform somewhat better than the neg-pos message on a variety of outcomes (see Tables 4 and 7). At Time 1, the pos-neg message elicited greater message processing ($M = 5.07$ vs. 4.76), a more negative attitude toward texting while driving ($M = 2.16$ vs. 2.32), higher perceived susceptibility ($M = 5.91$ vs. 5.68), higher self-efficacy ($M = 5.57$ vs. 5.37), and greater intentions to avoid texting while driving ($M = 5.43$ vs. 5.33) than the neg-pos message. At Time 2, the pos-neg message generated more talk ($M = .41$ vs. $.27$), more conversations ($M = .89$ vs. $.55$), more categories of conversational partners ($M = .56$ vs. $.40$), and greater discussion-generated elaboration ($M = 4.07$ vs. 3.86) than the neg-pos message. Although these differences between the two shift messages were not significant, it is worth noting this trend due to its consistency.

Given that talkers in the neg-pos message condition displayed attitudes at Time 1 and engaged in talk at Time 2 that were significantly less aligned with the message than those in the pos-neg and the control conditions, the neg-pos shift message might be viewed as having potentially iatrogenic or damaging effects. This format for an emotional shift messages does not appear to cause negative effects as severe as a boomerang effect, but it also does not appear to be as effective as the pos-neg format. This refers not only to attitude at Time 1 and the nature of talk, but to the pattern revealed by the descriptive statistics mentioned above. This is of particular interest because the neg-pos message format is closest to the format of a fear appeal, which is widely used in health communication campaigns. It would therefore be valuable to conduct future research that compares these two formats for designing a shift message to determine whether a pos-neg message consistently performs better than a neg-pos message. If so, the widespread use of fear appeals to influence health-related attitudes and behaviors may need to be reconsidered, particularly if they are found to shift from negative to positive emotion during message pretesting.

The overall better performance exhibited by the pos-neg message compared to the neg-pos message may be due, at least in part, to the pos-neg message ending with negative emotion. Messages that ended with negative emotion were often found to be more effective than messages that ended with positive emotion. Because this finding is not due to the nature of shift messages, but instead due to differences in the valence of the lingering emotion, it will be discussed in greater depth in the final section that specifically addresses emotional valence.

Additional limitations and future directions. Due to the difference in message length between the single-valence and shift messages, it is unclear based on these findings

whether emotional shift messages are truly more effective in terms of producing more positive persuasive outcomes immediately following message exposure and generating more talk than single-valence messages. If shift messages are more effective than single-valence messages, this seems to be due to their ability to produce greater emotional intensity and message processing. However, these effects may not be inherent effects of shift messages. In some ways, this research may point to the greater effectiveness of health messages that generate intense emotional experiences and a high level of message processing, rather than the use of a particular message format.

Messages containing emotional shifts may still have the potential to be more effective than single-valence messages, especially if the shifts occur within a narrative (Nabi & Green, 2015). Narrative health messages, often used in entertainment-education campaigns (e.g., see Boulay, Storey, & Sood, 2002; Chatterjee, Bhanot, Frank, Murphy, & Power, 2009), tend to be longer than public service announcements (PSAs) since they present a storyline with an embedded health message. The length of these messages may make them more effective, particularly if the narrative is sufficiently engaging such that they are able to attract and retain the attention and interest of viewers. These narrative messages also frequently include multiple emotional shifts as characters are confronted with a series of challenges and solutions. These messages may promote greater emotional intensity, deeper message processing, and more positive persuasive outcomes, but should be examined in future research.

Research on the effects of emotional shifts in persuasive health messages would benefit from testing different operationalizations of emotional shifts. The emotional shift messages included in this study were a fairly conservative initial comparison of emotional

shift messages to single-valence messages. The shift occurred roughly midway through the message, so that approximately half of each message was devoted a negative valence and the other half was devoted to a positive valence. The order was simply switched to create each shift message. Shift messages could also be constructed in which the shift occurs at the end. This might be a more dramatic format for a shift message and might elicit high levels of emotional intensity and message processing. This format for a shift message might also evoke surprise due to the unexpectedness of the shift at the end of the message. Researchers in a variety of fields – including the social sharing of emotion, viral marketing, word-of-mouth communication, urban legends, rumors, and news diffusion – have found that surprise leads to talk and sharing (Berger & Milkman, 2010; 2012; Derbaix & Vanhamme, 2003; Dobele, Linggreen, Beverland, Vanhamme, & Wijk, 2007; Heath, Bell, & Sternberg, 2001; Peters, Kashima, & Clark, 2009). Thus, this might be an effective means of boosting talk in response to shift messages.

Another question worth pursuing in future research is whether these findings regarding the effects of shift messages can be generalized to health behaviors other than texting while driving. It seems unlikely that the effects of shift messages would be specific to a particular health behavior. Other persuasive message formats (e.g., fear appeals, narratives, tailoring, framing) have been successfully applied to influence a range of health behaviors. There is no reason to believe that emotional shift messages would be different, but it is important to examine.

Since this dissertation was motivated in part by the goal of testing a message format that might increase the likelihood of talk, research comparing the effects of different message formats on talk behavior would be useful in this regard. Previous research as well as the

research discussed in this dissertation seem to indicate that messages that are emotionally intense and generate more message processing may be more likely to generate talk. However, it would be useful to determine whether these factors do consistently generate more talk and whether there are particular message formats that are more likely to generate an emotionally intense experience and greater message processing. Research that systematically identifies message formats as well as cognitive and emotional responses that are more likely to generate talk would provide useful information for those who design health messages for communication campaigns.

Talk

After comparing the effects of shift messages and single-valence messages on talk and characteristics of talk, another major objective of this research was to investigate the effects of talk and characteristics of talk on behavior. The results indicated that talk indirectly influenced behavior by affecting perceptions of susceptibility and self-efficacy. That is, those who talked with others had higher perceptions of susceptibility to the negative consequences of texting while driving and higher self-efficacy regarding their ability to engage in safe driving behavior than those who did not talk. This is consistent with previous research that has measured talk as an outcome of exposure to campaign messages and found that those who talked about messages were more likely to report beliefs, attitudes, and behavior aligned with the message (e.g., see Boulay et al., 2002; Chatterjee et al., 2009; Dunlop, 2011; Dunlop, Kashima, & Wakefield, 2010; Dunlop et al., 2008; Durkin & Wakefield, 2006; Frank et al., 2012; Geary et al., 2007; Hafstad, Stray-Pedersen, et al., 1997; Korhonen et al., 1998; Rimal, Flora, & Schooler, 1999; Valente & Saba, 1998).

However, the study described in this dissertation diverged from a substantial portion of the previous research on talk as an outcome of health communication campaigns in that it included longitudinal data collected at two time points, whereas many past campaign evaluations were cross-sectional, collecting data at only one time point. This longitudinal design allowed for beliefs and persuasive outcomes to be measured twice: immediately following message exposure and again one week later after participants were given time to engage in conversations about the message and behavior. Collecting data immediately following message exposure and then again after talk is clearly impractical for most campaign evaluations. The benefit of an experimental design, as used in this research, is that it can shed additional light on causal relationships.

Taking into consideration how data collected at Time 1 may have influenced outcomes at Time 2, the analysis revealed that although it initially appeared that talk in response to messages indirectly influenced behavior, when controlling for the effects of behavioral intention at Time 1 immediately after message exposure, the effect of talk on predictors of behavior at Time 2 was no longer significant (see Figures 1 and 2). Thus, intention to avoid texting while driving at Time 1 had a greater influence on cognitive outcomes and texting while driving behavior reported at Time 2 than talk.

This suggests that persuasive outcomes tended to be influenced by the message before talk occurred. Then, those participants who talked may have simply shared their opinion (primarily influenced by exposure to the message) with others. Talk itself did not seem to influence their beliefs and behavior. It should also be noted that when a path model was analyzed that included the influence of past behavior on behavioral intention at Time 1, although past behavior did influence behavioral intention, it did not negate the effect of

behavioral intention on the other variables. In addition, the fit statistics for this model indicated it was a poor fit with the data. This suggests that message type did influence intention to avoid texting while driving beyond the influence of past behavior. And further, that behavioral intention after message exposure was also predictive of behavior one week later.

In light of these findings, it may be that the true influence of talk is on those who were not directly exposed to the media message, but who were exposed to the message through their conversations with others (Katz & Lazarsfeld, 1955; 2006; Rogers, 2003). Along these lines, the sampling frame used in a study on the effects of talk likely makes a difference in the results. When the sample consists of people who were all exposed to the message, as in this experiment, the message may play a greater role than talk in influencing beliefs and persuasive outcomes. In contrast, when the sample consists of a broader swath of the population – some exposed to the message and some not, as often found in campaign evaluations – talk likely plays a greater role in influencing beliefs and outcomes than it does when everyone has been exposed to the message. This describes the social diffusion function of talk (Hornik & Yanovitzky, 2003; Southwell & Yzer, 2007), in that it can spread messages to individuals who were not exposed to original campaign messages thereby extending the reach of a campaign. Therefore, the role of talk in influencing cognitive and persuasive outcomes is greater than it would be when everyone is exposed to the message.

The results also indicate that characteristics of talk may matter more than simply whether people talked, as suggested by other researchers (Hendriks, de Bruijn, & van den Putte, 2012; Hendriks, van den Putte, & de Bruijn, 2014; 2015). This study measured two characteristics of talk: the nature, or valence, of talk and the amount of message elaboration

generated by the talk. The nature of the talk provides information about the extent to which conversations were aligned with the message and discussion-generated elaboration provides information about how stimulating or engaging conversations were by the amount of elaboration they generated during and following talk. These two characteristics will be discussed next.

The nature of talk. The nature of talk was a significant predictor of self-efficacy and the perceived valence of the norm at Time 2, both of which predicted behavior. Specifically, more positive talk (i.e., talk aligned with the message) was associated with higher perceptions of self-efficacy and more negative evaluations of the perceived frequency with which typical college students text while driving. The nature of talk also initially appeared to have a direct effect on behavior, such that more positive talk was associated with less texting while driving behavior. However, as above, when controlling for behavioral intention at Time 1, the effect of the nature of talk on behavior was no longer significant. Again, this suggested that behavioral intention at Time 1 had a greater influence on behavior than the nature of talk.

An important caveat to this finding, however, is that the sample on which analyses of behavior were conducted was very small. Of the 132 participants who both reported talking and responded to a question about whether they had driven during the previous week, 41.4% ($n = 55$) reported not have driven at all during the previous week. That left only 77 participants who reported driving at least one day during the previous week and could answer questions about their texting while driving behavior during that week. The low statistical power resulting from this small sample size calls into question the validity of findings related to behavior.

It should also be noted that *the nature of talk* was a term used in this research to indicate whether talk was aligned with the message. However, the nature of talk can be defined in a variety of other ways. There are many features of talk that can be examined in future research. For example, analyses of the content of conversations might reveal information about the motivations behind talk in response to messages -- such as whether it is initiated to share one's own attitude with others, to elicit successful behavioral strategies from others, to attempt to inform or warn others, or change their behavior -- as well as how this may vary depending on the discrete emotion elicited or the particular behavior addressed in the message. This knowledge would be valuable to achieving a better understanding of why people talk about health messages, thereby useful for informing message design, as well as how talk may influence behavior.

There are also many ways in which talk can be aligned with or undermine a message. For example, in support of a message, a participant could advocate safe behavior, describe strategies for avoiding texting while driving, discuss the dangers of texting while driving, share their own negative experience with texting while driving, discuss the mistake(s) made by characters in the message, among many other topics. Additionally, participants could undermine a message in a conversation by discussing their own unsafe behavior, justifying their behavior, disparaging or making fun of a message, sharing how hard it is to engage in safe behavior, etc. It would be beneficial for future research to examine the content of conversations that follow health message exposure in order to learn more about what is conveyed in conversations and what features of talk may be important in influencing behavioral outcomes.

Discussion-generated elaboration. Discussion-generated elaboration significantly predicted susceptibility, attitude, and behavior at Time 2. Greater discussion-generated elaboration was associated with higher perceptions of susceptibility, a more negative attitude toward texting while driving, and less texting while driving behavior. Unlike the nature of talk, discussion-generated elaboration only predicted one measure of behavior, the number of days participants reported texting while driving during the previous week. In addition, it predicted this measure of behavior even after controlling for behavioral intention at Time 1. The same caveat given above about the small sample size in analyses of behavior applies here as well. This contributes some uncertainty to the lack of consistency in the findings regarding the two measures of behavior.

Discussion-generated elaboration did not significantly predict self-efficacy, although the relationship approached significance and was in the expected direction. As discussion-generated elaboration increased, so did self-efficacy. While discussion-generated elaboration might be expected to influence attitudes (Petty & Cacioppo, 1986), behavior, as well as susceptibility since greater elaboration likely included thoughts about the dangers of texting while driving,¹ it might not be expected to consistently influence self-efficacy or to always influence self-efficacy positively. According to Bandura (1977), personal experience, vicarious experience, and verbal persuasion are important sources of information that can affect self-efficacy. Greater elaboration on the message resulting from discussion may have led individuals to believe they were capable of avoiding texting while driving and engaging in safe behavior because the behavior is relatively easy. However, they may have still had some doubts if they had little personal experience with this new behavior or they thought

¹ Preliminary data from a content analysis of the descriptions of conversations reported at Time 2 suggest that it was fairly common to characterize texting while driving as dangerous in conversations.

about how tempting it is to read and respond to texts while driving since approximately 75% of the sample reported texting while driving. Greater elaboration may not have sufficiently convinced participants that they were able to avoid texting while driving.

There has been very limited research on discussion-generated elaboration and its effects on cognitive and persuasive outcomes. Previous research has proposed that discussion-generated elaboration mediates the effects of media messages and content on knowledge and attitudes, but did not actually attempt to measure discussion-generated elaboration (Eveland, 2004; Wirtz, 2008). Eveland and Thomson (2006) did measure *discussion elaboration* as cognitive processing of the content of political discussions, but very little information about their scale was provided and it does not appear to have been used in subsequent studies. The research described in this dissertation contributes to the literature by examining discussion-generated elaboration as a consequence of exposure to health messages and offering a 7-item scale with a high reliability ($\alpha = .91$) to measure discussion-generated elaboration in this context. The scale is not content-specific, however, and could likely be applied to other contexts.

Additional limitations and future directions. In addition to the small sample size in analyses of the effects of characteristics of talk on behavior, another limitation that should be noted is related to the study design. Talk and behavior were measured as occurring during the previous week, whereas cognitive and persuasive outcomes were measured at Time 2, which was at the end of the week. Therefore, it is not clear whether talk actually preceded behavior. Talk did occur prior to the reports of cognitive outcomes such as susceptibility and self-efficacy, but reports of these perceptions were measured at a later time than the behavior they were expected to predict. As a result, causality may be difficult to say with certainty.

The finding that behavioral intention at Time 1 was a better predictor of cognitive and persuasive outcomes at Time 2 than talk is not consistent with much of the literature that has found talk to be a mediator of the effects of health messages on behavioral outcomes. When possible, future research should employ study designs that allow for cognitive and persuasive outcomes to be measured at two time points: 1) after message exposure but before talk and 2) after talk. This would allow for a better test of the effects of talk on outcomes, independent of or beyond outcomes influenced by initial message exposure. This would help to clarify whether talk alone is a useful outcome to examine or whether campaign evaluations should also focus their efforts on trying to measure characteristics of talk.

Along these lines, since only a small subset of the sample is likely to engage in talk – in this study it was 33% ($n = 133$) – it would be worthwhile for future studies to include a larger sample knowing that two-thirds are likely to report not talking about the message and/or behavior. That way, analyses on those who reported talking would not be limited by a small sample size. Future research should continue to investigate the nature of talk, discussion-generated elaboration, and other characteristics of talk as potentially more important predictors of behavior than whether people talked in response to message exposure.

Valence of the Lingering Emotion in Messages

This study did not propose any hypotheses related to emotional valence. However, the results revealed that messages that ended with negative emotion (i.e., the single-valence negative message and the pos-neg shift message) were more effective in influencing cognitive and persuasive outcomes at Time 1 as well as talk at Time 2 than messages that ended with positive emotion. Specifically, messages that ended with negative emotion

produced greater message processing, a more negative attitude toward texting while driving, higher self-efficacy, and greater intentions to talk with others at Time 1. At Time 2, messages that ended with negative emotion generated more talk, talk with a greater number of categories of conversational partners, and more positive talk.

The predominant emotion in both messages that ended with negative emotion – the single-valence negative and pos-neg messages – was fear (see Table 1). According to Nabi (1999), under certain conditions fear has the potential to motivate message processing. These conditions include the expectation that a message will contain information that will help the receiver avoid a threat, the assessment that reassuring information is not available via peripheral cues contained in the message, and the absence of impediments to the receiver's ability to process the message. The laboratory setting during message exposure likely allowed for most of these conditions to be met. Disruptions were limited and participants likely believed that the message would contain information about how to avoid the dangers of texting while driving, although this was not assessed. In other words, motivation to process messages was artificially boosted. Even so, message processing was still greater when messages ended with negative emotion than when they ended with positive emotion.

Since messages that ended with negative emotion generated greater message processing, it is natural that they would also produce more negative attitudes toward texting while driving, as this is consistent with prior research (Nabi, 1999; 2002; Petty & Cacioppo, 1986). It also makes sense that deeper message processing would lead to higher perceptions of self-efficacy since the message contained information intended to boost self-efficacy. Additionally, greater message processing was related to talk, so the finding that messages ending with negative emotion generated greater intentions to talk and talk behavior is not

surprising, either. It is interesting, however, that messages ending with negative emotion also produced more positive talk. This may be because of the more negative attitude toward texting while driving and higher perceptions of self-efficacy generated by messages ending with a negative emotional valence at Time 1. Participants may have conveyed their attitudes and level of self-efficacy in conversations, thereby producing talk that was more aligned with the message.

Whereas shift messages only had an indirect effect on talk via emotional intensity and message processing, second emotional valence had a direct effect on talk as well as an effect on message processing. The finding that messages ending with negative emotion generated more talk than messages ending with positive emotion is not consistent with the literature, which indicates that emotional valence does not influence the likelihood of talk (Christophe, Delelis, Antoine, & Nandrino, 2008; Rimé, 1995; Rimé, Mesquita, Philippot, & Boca, 1991; Rimé, 2009). This is especially odd since messages that ended with negative emotion were not significantly more intense than messages that ended with positive emotion, as emotional intensity has been found to motivate talk. However, this difference did approach significance ($p = .09$).

Previous research has suggested that negative emotions may motivate talk for different reasons than positive emotions (Christophe, Delelis, Antoine, & Nandrino, 2008; Rimé, 2009). This research suggests that negative emotions may be more likely to produce talk for the purpose of seeking or providing information, sensemaking, clarification, comparing experiences, affiliation, and social support (emotional and informational support). In contrast, positive emotions may be more likely to generate talk for the purpose of rumination or savoring the experience, enhancing social bonds, providing informational

support, and entertaining. Perhaps in this study talk was generated by some of the motivations mentioned above, such as seeking or providing information, clarification, comparing experiences, and affiliation.² It seems less likely that participants would want to savor the experience of exposure to a texting while driving prevention message or that they would discuss it for the purpose of enhancing social bonds or entertaining others. However, one can imagine talk in this study to be motivated by providing informational support, such as information about how to avoid texting while driving or simply advocating safe behavior, which could be generated by either negative or positive emotions.

Future directions. The previous research that suggested emotional valence does not influence the likelihood of talk is generally based on emotional experiences people have in everyday life rather than on exposure to media messages. It is not immediately clear exactly why media messages would be different from everyday emotional experiences. Perhaps it is that they are typically preprocessed in that they tend to contain much of the information message receivers need to know whereas real-life experiences are often more open-ended. Or, perhaps it has to do with the context in which emotional information is conveyed, for example, in a media context versus a social or interpersonal context.

Future research that attempts to confirm the finding that messages ending with negative emotion generate more talk and clarify why this may be would be beneficial to a basic understanding of the effects of emotional messages on talk. There is little, if any, research currently that has attempted to answer these questions. Given that media messages attempting to influence health behaviors often use emotional appeals and that talk is an

² As mentioned in the previous footnote, descriptions of conversations were collected for analysis. Future analysis of these conversations may reveal whether the motivations mentioned above are apparent in conversations.

outcome of interest in many health campaign evaluations, it would be both interesting and practical to have a better understanding of how emotional valence influences talk.

Chapter VI: Conclusion

This research was the first to compare two persuasive health messages containing shifts in emotional valence with two single-valence emotional messages, one negative and one positive. Emotional shift messages generated more talk than single-valence messages due to being more emotionally intense and eliciting greater message processing. These mediating variables were also responsible for the effect of emotional shift messages on persuasive outcomes at Time 1 and Time 2. This demonstrates the potential of emotional shift messages to promote both talk and persuasion. However, there are many ways to design messages that contain a shift in emotional valence, so more research is needed to confirm these findings. Additionally, the finding that messages ending with negative emotion were more effective in influencing beliefs and attitudes at Time 1 as well as generating not only more talk but more positive talk compared to messages that ended with positive emotion provides support for the greater use of negative emotion in designing health messages to motivate attitude and behavior change.

Although talk is an important outcome of exposure to health messages, simply learning whether talk occurred in response to messages does not provide a true picture of the role of talk in influencing message effects. In this research, intention to avoid texting while driving immediately following message exposure had a greater influence on beliefs and behavior at Time 2 than talk. In fact, controlling for behavioral intention at Time 1 completely negated the effects of talk on cognitive and persuasive outcomes at Time 2. This suggests that either talk does not matter in influencing message effects or that the

characteristics of talk matter more in determining outcomes. Since there is ample empirical evidence that talk does matter in influencing message effects, characteristics of that talk such as whether it is supportive of the message and the extent to which it engages individuals in further message processing are important to consider. This research provides support for previous studies that suggested the valence of talk is critical for understanding how talk influences outcomes. Additionally, this research suggests that discussion-generated elaboration is another important characteristic of talk that can influence behavior. The findings from this research also highlight the role of message processing in generating talk and as a characteristic of the process of talk that can promote persuasion.

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Table 1

Mean of Negative Emotions for Each Message Condition

		Fear	Sadness	Guilt	Anger	Regret	Disgust
Neg	<i>M</i>	3.84	2.99	2.85	2.74	2.70	2.26
	<i>(SD)</i>	(1.67)	(1.72)	(1.74)	(1.62)	(1.64)	(1.62)
Pos	<i>M</i>	1.93	1.39	1.80	1.42	1.66	1.12
	<i>(SD)</i>	(1.21)	(.68)	(1.28)	(.80)	(1.31)	(.42)
Neg-Pos	<i>M</i>	3.31	2.75	2.69	2.44	2.74	1.96
	<i>(SD)</i>	(1.80)	(1.60)	(1.63)	(1.45)	(1.64)	(1.36)
Pos-Neg	<i>M</i>	3.56	2.75	2.60	2.31	2.88	2.06
	<i>(SD)</i>	(1.83)	(1.64)	(1.73)	(1.55)	(1.96)	(1.44)

Table 2

Mean of Positive Emotions for Each Message Condition

		Compassion	Happiness	Hope	Relief
Neg	<i>M</i>	2.70	1.11	1.88	1.29
	<i>(SD)</i>	(1.51)	(.41)	(1.10)	(.75)
Pos	<i>M</i>	2.59	2.30	3.20	3.00
	<i>(SD)</i>	(1.60)	(1.53)	(1.78)	(1.94)
Neg-Pos	<i>M</i>	2.80	1.77	2.82	2.29
	<i>(SD)</i>	(1.40)	(1.11)	(1.43)	(1.52)
Pos-Neg	<i>M</i>	2.54	1.50	2.62	2.00
	<i>(SD)</i>	(1.53)	(.83)	(1.53)	(1.42)

Table 3

Intensity of Negative and Positive Emotion Across Message Conditions

		Shift		Individual Conditions			
		Single- valence (n = 169)	Shift (n = 170)	Neg (n = 84)	Pos (n = 85)	Neg-Pos (n = 87)	Pos-Neg (n = 83)
Intensity of Negative Emotion	<i>M</i> <i>(SD)</i>	2.26 ^a (1.19)	2.72 ^b (1.26)	2.95 ^a (1.18)	1.58 ^b (0.72)	2.69 ^a (1.22)	2.75 ^a (1.31)
Intensity of Positive Emotion	<i>M</i> <i>(SD)</i>	2.25 ^a (1.28)	2.29 ^a (1.09)	1.73 ^a (0.72)	2.77 ^b (1.48)	2.42 ^{b,c} (1.13)	2.16 ^{a,c} (1.03)

a,b,c

Superscripts indicate significant differences between conditions.

Table 4

Means for Dependent Variables at Time 1

		Shift		Last Affect		Individual Conditions				Control (no message)	
		Single- Valence	Shift	Neg Last	Pos Last	Neg	Pos	Neg- Pos	Pos- Neg		
132	Emotional intensity (mean of all emotions)	<i>M</i> (<i>SD</i>) <i>n</i>	2.24 (0.87) 169	2.51 (1.04) 169	2.42 (0.95) 167	2.32 (0.98) 171	2.38 (0.86) 84	2.10 (0.85) 85	2.55 (1.05) 87	2.46 (1.03) 83	-
	Emotional intensity (mean of last emotion)	<i>M</i> (<i>SD</i>) <i>n</i>	2.86 (1.34) 169	2.58 (1.23) 169	2.85 (1.25) 167	2.60 (1.33) 171	2.95 (1.18) 84	2.77 (1.48) 85	2.43 (1.13) 86	2.75 (1.31) 83	-
	Depth of message processing	<i>M</i> (<i>SD</i>) <i>n</i>	4.62 (1.12) 169	4.92 (0.97) 169	4.91 (1.01) 167	4.63 (1.08) 171	4.75 (1.06) 84	4.49 (1.17) 85	4.76 (0.99) 87	5.07 (0.94) 83	-
	Attitude toward texting while driving ¹	<i>M</i> (<i>SD</i>) <i>n</i>	2.10 (0.84) 169	2.24 (1.04) 169	2.08 (0.92) 167	2.26 (0.96) 171	2.00 (0.79) 84	2.20 (0.88) 85	2.32 (1.04) 87	2.16 (1.04) 83	2.19 (0.94) 70
	Susceptibility	<i>M</i> (<i>SD</i>) <i>n</i>	5.93 (1.04) 168	5.79 (1.27) 169	5.88 (1.14) 167	5.84 (1.19) 170	5.85 (1.07) 84	6.01 (1.02) 84	5.68 (1.31) 87	5.91 (1.21) 83	5.84 (1.24) 69
	Self-efficacy	<i>M</i> (<i>SD</i>) <i>n</i>	5.59 (1.45) 169	5.46 (1.36) 169	5.63 (1.37) 167	5.42 (1.43) 171	5.69 (1.41) 84	5.49 (1.49) 85	5.37 (1.39) 87	5.57 (1.34) 83	5.46 (1.61) 69

Descriptive norm	<i>M</i>	3.78	3.71	3.80	3.69	3.86	3.69	3.69	3.73	3.83
	<i>(SD)</i>	(.59)	(.54)	(.52)	(.60)	(.49)	(.66)	(.54)	(.55)	(.57)
	<i>n</i>	169	167	166	170	84	85	86	82	69
Subjective norm	<i>M</i>	-1.71	-1.72	-1.44	-1.99	.26	-3.66	-.29	-3.18	-.71
	<i>(SD)</i>	(16.17)	(14.80)	(15.69)	(15.31)	(16.05)	(16.14)	(14.24)	(15.22)	(15.09)
	<i>n</i>	169	166	166	169	84	85	85	82	69
Intention to avoid texting while driving	<i>M</i>	5.42	5.38	5.42	5.38	5.42	5.43	5.33	5.43	5.21
	<i>(SD)</i>	(1.30)	(1.24)	(1.28)	(1.27)	(1.24)	(1.36)	(1.17)	(1.32)	(1.42)
	<i>n</i>	169	170	167	171	84	85	87	83	70
Intention to talk with others about texting while driving	<i>M</i>	3.79	3.86	4.01	3.65	3.82	3.76	3.53	4.20	3.68
	<i>(SD)</i>	(1.86)	(1.76)	(1.84)	(1.77)	(1.85)	(1.89)	(1.65)	(1.82)	(1.90)
	<i>n</i>	169	170	167	171	84	85	87	83	70

The lower the number the more negative the attitude toward texting while driving

Note. Bold indicates significant differences between means.

Table 5

Percent of Participants Who Reported Talking by Second Emotional Valence

	Talk		Total
	No	Yes	
Positive second	73.5% <i>n</i> = 122	26.5% <i>n</i> = 44	100.0% <i>n</i> = 166
Negative second	58.5% <i>n</i> = 96	41.5% <i>n</i> = 68	100.0% <i>n</i> = 164
Total	66.1% <i>n</i> = 218	33.9% <i>n</i> = 112	100.0% <i>n</i> = 330

Table 6

Percentage of Participants Who Reported Talking by Message Condition

	Talk		Total
	No	Yes	
Control	70% <i>n</i> = 49	30% <i>n</i> = 21	100% <i>n</i> = 70
Neg	58.3% <i>n</i> = 49	41.7% <i>n</i> = 35	100% <i>n</i> = 84
Pos	74.4% <i>n</i> = 61	25.6% <i>n</i> = 21	100% <i>n</i> = 82
Neg-Pos	72.9% <i>n</i> = 62	27.1% <i>n</i> = 23	100% <i>n</i> = 85
Pos-Neg	58.8% <i>n</i> = 47	41.3% <i>n</i> = 33	100% <i>n</i> = 80
Total	66.8% <i>n</i> = 268	33.2% <i>n</i> = 133	100% <i>n</i> = 401

Table 7

Means for Dependent Variables Related to Talk at Time 2

		Shift		Last Affect		Individual Conditions				
		Single-Valence	Shift	Neg Last	Pos Last	Neg	Pos	Neg-Pos	Pos-Neg	Control (no message)
Talk (0 = no, 1 = yes)	<i>M</i> (<i>SD</i>) <i>n</i>	.34 (.47) 166	.34 (.48) 164	.41 (.49) 164	.27 (.44) 166	.42 (.50) 84	.26 (.44) 82	.27 (.45) 85	.41 (.50) 80	.30 (.46) 70
Number of conversations	<i>M</i> (<i>SD</i>) <i>n</i>	.66 (1.05) 166	.72 (1.22) 164	.83 (1.16) 164	.55 (1.10) 166	.77 (1.09) 84	.54 (1.00) 82	.55 (1.19) 85	.89 (1.23) 80	.56 (1.02) 70
Number of categories of conversational partners	<i>M</i> (<i>SD</i>) <i>n</i>	.51 (.82) 166	.48 (.77) 164	.62 (.86) 164	.37 (.71) 166	.67 (.95) 84	.34 (.63) 82	.40 (.78) 85	.56 (.76) 80	.41 (.77) 70
Nature of talk	<i>M</i> (<i>SD</i>) <i>n</i>	5.38 (1.05) 56	5.34 (1.00) 56	5.53 (1.00) 68	5.11 (1.02) 44	5.41 (0.95) 35	5.33 (1.21) 21	4.91^a (0.79) 23	5.64^b (1.02) 33	6.00^b (0.83) 21
Discussion-generated elaboration	<i>M</i> (<i>SD</i>) <i>n</i>	4.06 (1.61) 56	3.99 (1.54) 56	4.00 (1.70) 68	4.06 (1.36) 44	3.93 (1.74) 35	4.27 (1.39) 21	3.86 (1.34) 23	4.07 (1.68) 33	-

Note. Bolding and superscripts indicate significant differences between means.

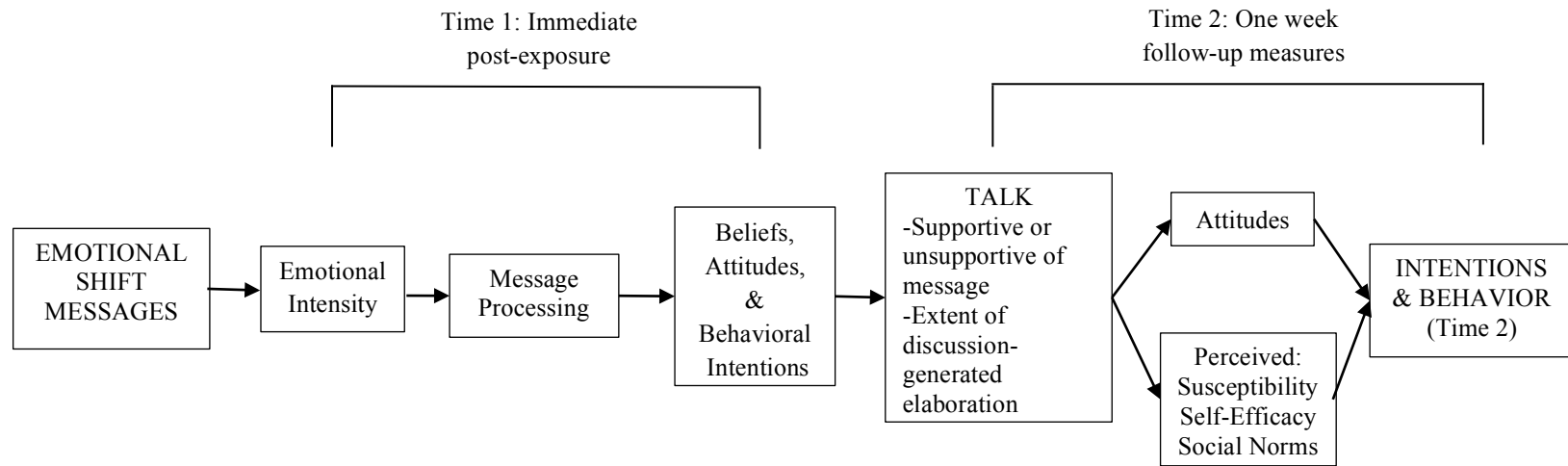


Figure 1. Conceptual model of the hypothesized effects of emotional shift messages on talk as well as cognitive and persuasive outcomes at Times 1 and 2.

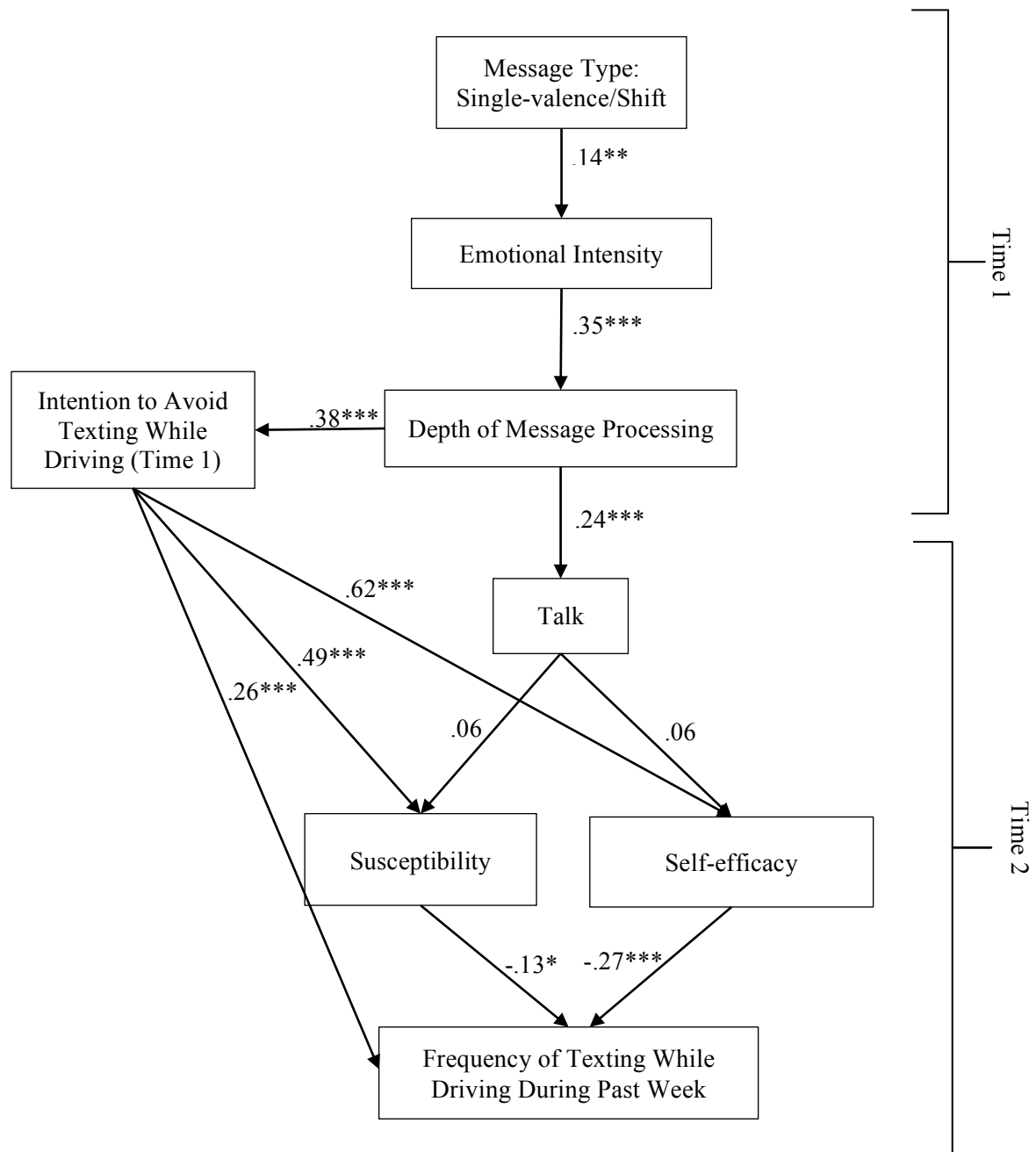


Figure 2. Path model of the effect of message type and talk on psychological and behavioral outcomes. $\chi^2(17) = 35.62, p = .005, CFI = .96, RMSEA = .05$.
 * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

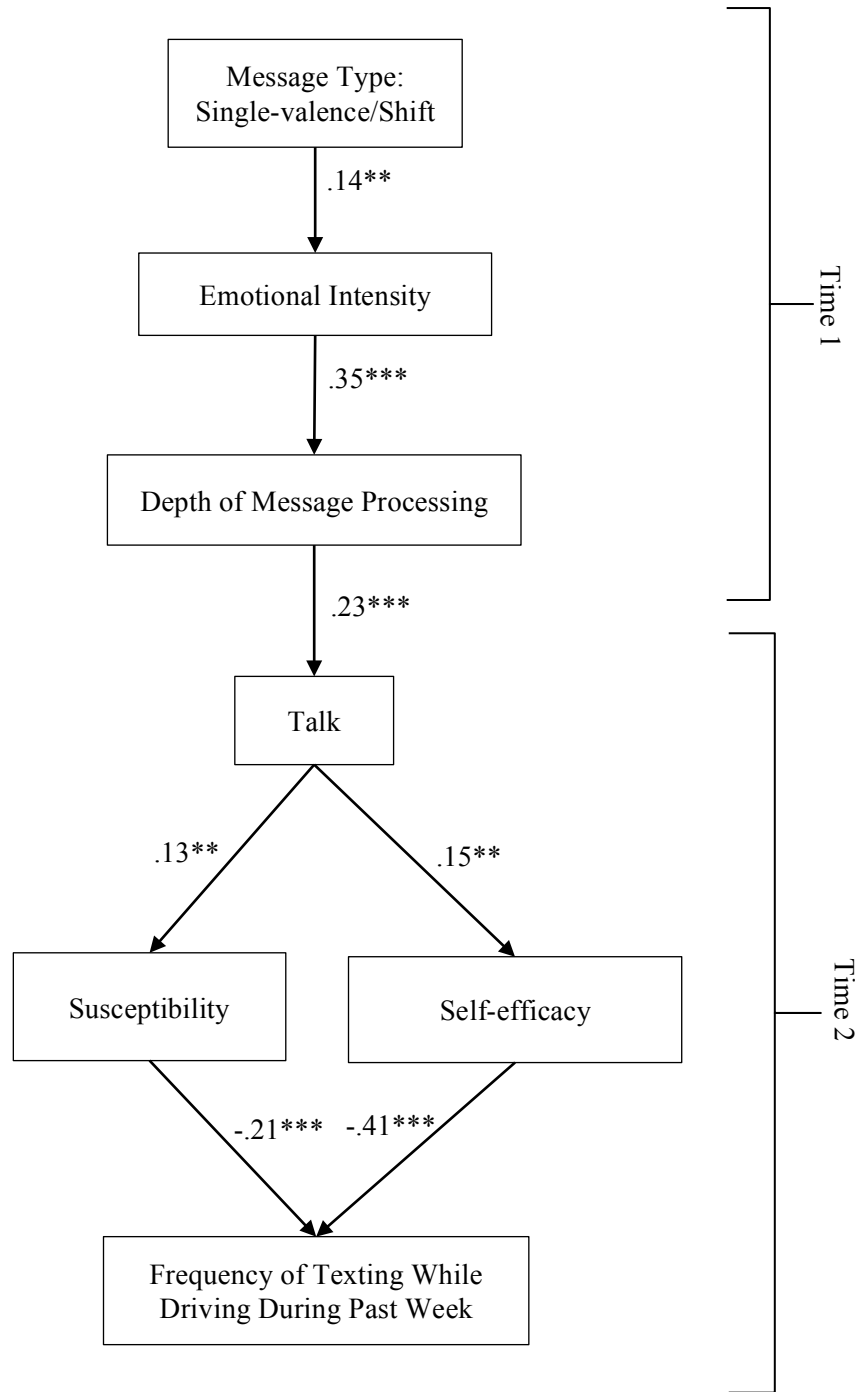


Figure 3. Path model of the effect of message type and talk on psychological and behavioral outcomes excluding behavioral intention at Time 1. $\chi^2(14) = 107.88, p < .001, CFI = .60, RMSEA = .13$
 * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Appendix A: Pretesting Messages (Round 2) Questionnaire

Overview

You will be asked to view an ad and then answer questions about your experience of the ad.

Sex

Female

Male

Instructions: AFTER viewing the ad, please turn the page and answer the questions.

**1. While watching the ad, how much did you experience each of the following feelings?
Please be sure not to skip any.**

Frightened

Not at all
1 2 3 4 5 6 7 Very much

Scared

Not at all
1 2 3 4 5 6 7 Very much

Anxious

Not at all
1 2 3 4 5 6 7 Very much

Sad

Not at all
1 2 3 4 5 6 7 Very much

Dreary

Not at all
1 2 3 4 5 6 7 Very much

Dismal

Not at all
1 2 3 4 5 6 7 Very much

Guilty

Not at all
1 2 3 4 5 6 7 Very much

Ashamed

Not at all
1 2 3 4 5 6 7 Very much

Embarrassed

Not at all
1 2 3 4 5 6 7 Very much

Irritated

Not at all
1 2 3 4 5 6 7 Very much

Angry

Not at all
1 2 3 4 5 6 7 Very much

Annoyed
Not at all
1 2 3 4 5 6 7 Very much

Regretful
Not at all
1 2 3 4 5 6 7 Very much

Remorseful
Not at all
1 2 3 4 5 6 7 Very much

Disgusted
Not at all
1 2 3 4 5 6 7 Very much

Repulsed
Not at all
1 2 3 4 5 6 7 Very much

Sickened
Not at all
1 2 3 4 5 6 7 Very much

Upset
Not at all
1 2 3 4 5 6 7 Very much

Sympathetic
Not at all
1 2 3 4 5 6 7 Very much

Happy
Not at all
1 2 3 4 5 6 7 Very much

Cheerful
Not at all
1 2 3 4 5 6 7 Very much

Joyful
Not at all
1 2 3 4 5 6 7 Very much

Hopeful

Not at all
1 2 3 4 5 6 7 Very much

Inspired

Not at all
1 2 3 4 5 6 7 Very much

Motivated

Not at all
1 2 3 4 5 6 7 Very much

Relieved

Not at all
1 2 3 4 5 6 7 Very much

Comforted

Not at all
1 2 3 4 5 6 7 Very much

Reassured

Not at all
1 2 3 4 5 6 7 Very much

Surprised

Not at all
1 2 3 4 5 6 7 Very much

Astonished

Not at all
1 2 3 4 5 6 7 Very much

Amazed

Not at all
1 2 3 4 5 6 7 Very much

2. Did you experience any changes in how you felt during the second part of the message compared to how you felt during the first part of the message?

Yes

No

3. How did you feel during the first part of the message?

Extremely
negative

1 2 3 4 5 6

Extremely
positive

7

4. How did you feel during the second part of the message?

Extremely
negative

1 2 3 4 5 6

Extremely
positive

7

5. How similar do you think you are to the character(s) in the ad?

Not at all

1 2 3 4 5 6

Very much

7

6. How much do you identify with the character(s) in the ad?

Not at all

1 2 3 4 5 6

Very much

7

Please indicate how much you disagree/agree with the following statements:

15. The characters in the ad seemed like they could be real people

Strongly
disagree

1 2 3 4 5 6

Strongly
agree

7

16. The characters' actions were believable

Strongly
disagree

1 2 3 4 5 6

Strongly
agree

7

17. This ad seemed like a typical texting and driving ad or PSA

Strongly
disagree

1 2 3 4 5 6

Strongly
agree

7

18. The ad threatened my freedom to make choices for myself

Strongly
disagree

1 2 3 4 5 6

Strongly
agree

7

19. The ad tried to make a decision for me

Strongly disagree							Strongly agree
1	2	3	4	5	6	7	

20. The ad tried to manipulate me

Strongly disagree							Strongly agree
1	2	3	4	5	6	7	

21. The ad tried to pressure me

Strongly disagree							Strongly agree
1	2	3	4	5	6	7	

22. The material discussed in the ad was relevant to me personally

Strongly disagree							Strongly agree
1	2	3	4	5	6	7	

23. The ad spoke to me

Strongly disagree							Strongly agree
1	2	3	4	5	6	7	

24. The ad seemed realistic

Strongly disagree							Strongly agree
1	2	3	4	5	6	7	

25. How convincing was this ad?

Very unconvincing							Very convincing
1	2	3	4	5	6	7	

26. How professional was this ad?

Very unprofessional							Very professional
1	2	3	4	5	6	7	

27. How likely are you to talk with a friend or family member about texting while driving?


Not at all likely							Extremely likely
1	2	3	4	5	6	7	

Appendix B: Experimental Group Time 1 Questionnaire

Time 1 and Time 2 questionnaires were both administered online. Participants were not able to see the headings in this document that indicate groups of measures to which they were responding.

7/29/2014

Qualtrics Survey Software



Intro

Advertisement Evaluation: Time 1 Questionnaire

In this study, you will be asked to answer some questions, view an ad, and then answer questions about the ad. This questionnaire will take approximately 20-30 minutes to complete.

First, we would like to ask you some questions about yourself.

Sex

Female

Male

Age:

Year at UCSB

1st

2nd

3rd

4th

5th or higher

Past Texting While Driving Behavior

Now we'd like to ask you some questions about driving and texting.

<https://ucsbtlsc.qualtrics.com/WRQualtricsControlPanel/Ajax.php?action=GetSurveyPrintPreview&T=384X80>

1/17

How many **days** during the past week did you drive?

On how many of the days that you drove during the past week did you read or send at least one text message while driving?

On the days you drove during the past week, how often did you read or send text messages while you were driving?

- Never
- Rarely
- Sometimes
- Frequently
- Every time

Approximately how many **days** during the past 30 days did you read and/or send at least one text message while driving?

In general, how often do you read or send text messages while you're driving?

- Never
- Rarely
- Sometimes
- Frequently
- Every time

Have you or anyone you know ever been negatively affected in any way by texting while driving? This could include getting a ticket, getting into an accident (minor or major), being reprimanded by a police officer, or any other negative experience.

Yes

No

Please check the appropriate boxes to describe how you and/or someone you know has been affected by texting while driving. Check all that apply.

- Given a ticket for texting while driving
- Given a warning for texting while driving
- Yelled at by another driver for texting while driving
- Gestured to by another driver indicating displeasure with texting while driving
- Got into a minor accident
- Got into a major accident
- Other (briefly explain):

Personality Traits

Next, we'd like to ask you some questions about yourself.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly Disagree				Strongly Agree
	1	2	3	4	5
I would like to explore strange places	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get restless when I spend too much time at home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to do frightening things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like wild parties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to take off on a trip with no pre-planned routes or timetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer friends who are excitingly unpredictable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to try bungee jumping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would love to have new and exciting experiences, even if they are illegal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Below are some statements that may or may not apply to you. Please indicate the extent to which you agree or disagree with the following statements.

I see myself as someone who...

	Strongly Disagree				Strongly Agree
	1	2	3	4	5
Is talkative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is reserved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is full of energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Generates a lot of enthusiasm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tends to be quiet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has an assertive personality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is sometimes shy, inhibited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is outgoing, sociable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly Disagree				Strongly Agree
	1	2	3	4	5
Regulations trigger a sense of resistance in me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find contradicting others stimulating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When something is prohibited, I usually think "that's exactly what I am going to do"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider advice from others to be an intrusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree				Strongly Agree
	1	2	3	4	5
I become frustrated when I am unable to make free and independent decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It irritates me when someone points out things which are obvious to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I become angry when my freedom of choice is restricted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Advice and recommendations induce me to do just the opposite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree 1	2	3	4	Strongly Agree 5
I resist the attempts of others to influence me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It makes me angry when another person is held up as a model for me to follow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When someone forces me to do something, I feel like doing the opposite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate the degree to which the following statements apply to you.

	This in no way applies to me				This definitely applies to me
	1	2	3	4	5
I find it difficult to express my feelings verbally	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to tell others about how I feel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Even with a friend, I find it difficult to talk about my feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I want to express how unhappy I feel, I find it easy to find the right words	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People often say that I should talk more about my feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I am upset by something, I talk with others about my feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can express my feelings verbally	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I talk to people, I prefer to talk about daily activities rather than about my emotions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you.

	Does not describe me well				Describes me very well
	1	2	3	4	5
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I often have tender, concerned feelings for people less fortunate than me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I sometimes find it difficult to see things from the "other guy's" point of view	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sometimes I don't feel very sorry for other people when they are having problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In emergency situations, I feel apprehensive and ill-at-ease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to look at everybody's side of a disagreement before I make a decision	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Does not describe me well 1	2	3	4	Describes me very well 5
When I see someone being taken advantage of, I feel kind of protective towards them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I sometimes feel helpless when I am in the middle of a very emotional situation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I sometimes try to understand my friends better by imagining how things look from their perspective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I see someone get hurt, I tend to remain calm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

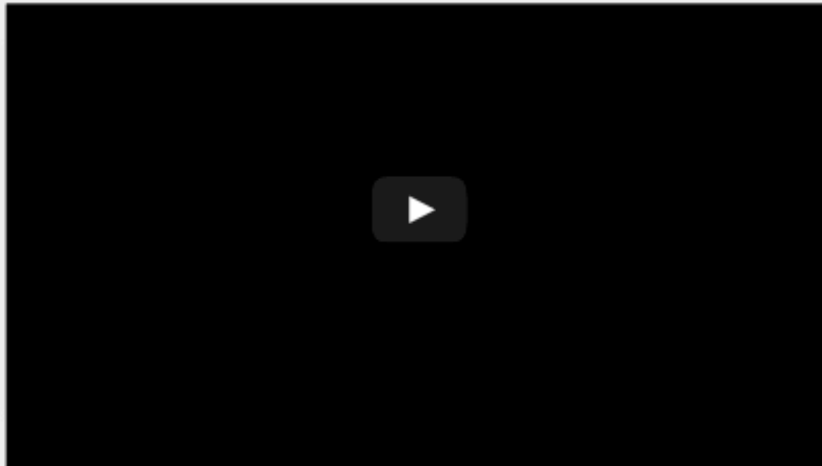
The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you.

	Does not describe me well 1	2	3	4	Describes me very well 5
Other people's misfortunes do not usually disturb me a great deal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I'm sure I'm right about something, I don't waste much time listening to other people's arguments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being in a tense emotional situation scares me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I see someone being treated unfairly, I sometimes don't feel very much pity for them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Does not describe me				Describes me

	well 1	2	3	4	very well 5
I am usually pretty effective in dealing with emergencies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am often quite touched by things that I see happen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that there are two sides to every question and try to look at them both	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would describe myself as a pretty soft-hearted person	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Does not describe me well 1	2	3	4	Describes me very well 5
I tend to lose control during emergencies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I'm upset at someone, I usually try to "put myself in his shoes" for a while	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I see someone who badly needs help in an emergency, I go to pieces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Before criticizing somebody, I try to imagine how I would feel if I were in their place	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Message

Next you will view an ad that is approximately 1 minute long. Please press play to watch the ad now:



Emotions

While watching the ad, how much did you experience each of the following feelings?

	Not at all 1	2	3	4	5	6	Very much 7
Frightened	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scared	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anxious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gloomy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guilty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Not at all 1	2	3	4	5	6	Very much 7
Ashamed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Embarrassed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irritated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Angry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Annoyed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regretful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Remorseful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Not at all 1	2	3	4	5	6	Very much 7
Disgusted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Repulsed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Upset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compassionate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sympathetic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Warmhearted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Not at all 1	2	3	4	5	6	Very much 7
Cheerful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Joyful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hopeful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inspired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Motivated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relieved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comforted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Not at all 1	2	3	4	5	6	Very much 7
Reassured	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Surprised	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Astonished	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Manipulation Check/Perception of Emotional Shift

Please indicate how you felt during the ad.

	Extremely negative						Extremely positive
	1	2	3	4	5	6	7
How did you feel during the first part of the message?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How did you feel during the second part of the message?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Need for Sensemaking

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
I wonder if other people are concerned about texting while driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to find out what others do when they get a text while driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to ask my friends what they think about texting while driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to run my thoughts about texting while driving by someone else	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1	2	3	4	5	6	7
I have difficulty understanding why people continue to text while driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wonder what it would take to get people to stop texting while driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wonder why people are willing to take a risk to read or respond to a text while they're driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The events in this ad are going to stick in my head for a while	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Message Processing Depth

Please indicate how much you agree or disagree with the following statements.

	Strongly disagree 1	2	3	4	5	6	Strongly agree 7
This issue addressed in the ad is interesting to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was interested in what the creator of the ad had to say	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't find the issue addressed in the ad very interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was motivated to watch this ad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly disagree 1	2	3	4	5	6	Strongly agree 7
I focused on the arguments that were made in the ad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
While watching the ad, I paid close attention to each point that was made	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I didn't pay close attention to the arguments made in the ad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I concentrated on the arguments made in the ad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly disagree 1	2	3	4	5	6	Strongly agree 7
My mind kept wandering as I watched the ad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
While watching the ad, I didn't let myself get distracted from focusing on the ad's content	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
While watching the ad, thoughts about other things kept popping up in my head	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mind did not wander as I watched the ad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Attitudes

Now we would like to ask you some questions about your attitudes toward texting while driving. There are no right or wrong answers and your answers are anonymous, so please give honest answers about what you think.

When answering these questions, please use the scale from 1 to 7, where 1 represents the word/idea on the left and 7 represents the word/idea on the right. Your answer can fall on the ends or anywhere in between.

I think that texting (including reading and sending text messages) while driving is:

	1	2	3	4	5	6	7	
Unacceptable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Acceptable
Inconvenient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Convenient
Foolish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Wise
Unsafe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Safe
Unenjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Enjoyable
Bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Good

I think that *not* texting while driving (including ignoring the text messages I receive on my phone and pulling over and stopping the car in order to read or send a text message) is:

	1	2	3	4	5	6	7	
Unacceptable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Acceptable
Inconvenient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Convenient
Foolish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Wise
Unsafe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Safe
Unenjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Enjoyable
Bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Good

Behavioral Intentions

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
I intend to avoid reading or sending any text messages the next time I drive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to pull over if I want to read or respond to a text message I receive the next time I drive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I intend to wait until I get to where I want to go to read or send a text message the next time I drive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to talk to a friend or family member about the dangers of texting while driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to talk to a friend or family member about how to prevent or avoid texting while driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate how likely you are to do the following:

	Not at all likely						Extremely likely
	1	2	3	4	5	6	7
Next time you drive, how likely are you to read and/or send a text message?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Next time you drive, how likely are you to ignore the text messages you receive on your phone while you're driving?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Next time you drive, how likely are you to wait until you are able to safely stop the car to read and/or write a text message?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to talk with a friend or family member about texting while driving?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to encourage a friend or family member to stop texting while driving?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate your level of motivation:

	Not at all motivated						Extremely motivated
	1	2	3	4	5	6	7
How motivated are you to talk with a friend or family member about texting while driving?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Self-efficacy

In this section, please indicate your level of confidence in your ability to perform the following actions:

	Not at all confident						Extremely confident
	1	2	3	4	5	6	7
How confident are you in your ability to avoid texting while driving the next time you get in your car?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How confident are you in your ability to wait until you pull over or reach your destination to read or send a text message?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How confident are you in your ability to ignore your phone while you're driving, even if you hear that you've received a text message?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Perceived Susceptibility

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
I can read or write text messages while driving without any negative consequences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I read or write text messages while driving, something bad could happen to me or someone else	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Perceived Similarity & Identification

I think the character(s) in the ad are:

	1	2	3	4	5	6	7	
Not at all like me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very much like me
Not at all similar to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very similar to me
Not at all								Very

relatable | | relatable

Message Acceptance and Other Perceptions

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
The ad seemed realistic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The characters in the ad seemed like they could be real people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How typical is this ad compared to other texting and driving ads or PSAs?

Not at all typical							Very typical
1	2	3	4	5	6	7	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Perceived Threat to Freedom

Please indicate how much you agree or disagree with the following statements:

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
The message threatened my freedom to choose	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The message tried to make a decision for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The message tried to manipulate me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The message tried to pressure me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Social Norms

Now we would like to ask you how common texting while driving is among your peers and what you think about it.

What percentage of your fellow students read or send text messages while they are driving? Please slide the bar to indicate the percentage.



I think the percentage of my fellow students who read or send text messages while they are driving is:

	1	2	3	4	5	6	7	
Not at all alarming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely alarming
Not at all fine with me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally fine with me
Not at all worrisome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely worrisome
Extremely negative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely positive

How often do you think a typical college student reads or sends text messages while they are driving?

Very rarely	1	2	3	4	5	6	7	Very often
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

I think the frequency with which a typical college student reads or sends text messages while they are driving is:

	1	2	3	4	5	6	7	
Not at all alarming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely alarming
Not at all fine with me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally fine with me
Not at all worrisome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely worrisome
Extremely negative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely positive

Please indicate the extent to which you agree or disagree with the following statements:

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
I want to do what people who are important to me think I should do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to do what most people my age think I should do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate the degree to which you think people approve or disapprove of the following:

	Strongly Disapprove						Strongly Approve
	1	2	3	4	5	6	7
People who are important to me would disapprove/ approve of me reading and sending text messages while I'm driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most people my age would disapprove/approve of me reading and sending text messages while I'm driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Final Screen

In one week, you will receive an e-mail with a link to a brief follow-up questionnaire. This second questionnaire should take approximately 15-20 minutes to complete. Please fill out this second questionnaire in order to complete your participation in this study and receive full credit.

Please check the box below indicating you understand. If you have any questions about the second questionnaire, please see the researcher before you leave.

I have read the information above and understand what I need to do in order to receive full credit for my participation.

Thank you for your participation! **Please be on the lookout for a e-mail with a link to the second and final questionnaire in 1 week!**

Appendix C: Experimental Group Time 2 Questionnaire

7/29/2014

Qualtrics Survey Software



Intro and Talk About Message

Advertisement Evaluation: Time 2 Questionnaire

This questionnaire is a brief follow-up to the study you participated in one week ago during which you viewed an ad about texting while driving and then answered some questions about it. This questionnaire will take approximately 20 minutes to complete. Please complete and submit this questionnaire by _____ to receive credit for your participation.

During the past week, how much have you thought about the texting while driving ad you viewed one week ago or the act of texting while driving?

Not at all							A lot
1	2	3	4	5	6	7	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you thought about the ad or texting while driving (even if it was only a little), how favorable were your thoughts about texting while driving?

Totally against texting while driving							Totally in favor of texting while driving
1	2	3	4	5	6	7	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Did you talk with anyone in the past week about the texting while driving ad you viewed while participating in this study one week ago?

- Yes
- No

Did you talk with anyone in the past week about texting while driving or how to avoid texting while driving?

- Yes

No

Attitudes

Now we would like to ask you some questions about your attitudes toward texting while driving. There are no right or wrong answers and your answers are anonymous, so please give honest answers about what you think.

When answering these questions, please use the scale from 1 to 7, where 1 represents the word/idea on the left and 7 represents the word/idea on the right. Your answer can fall on the ends or anywhere in between.

I think that texting (including reading and sending text messages) while driving is:

	1	2	3	4	5	6	7	
Unacceptable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Acceptable
Inconvenient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Convenient
Foolish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Wise
Unsafe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Safe
Unenjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Enjoyable
Bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Good

I think that *not* texting while driving (including ignoring the text messages I receive on my phone and pulling over and stopping the car in order to read or send a text message) is:

	1	2	3	4	5	6	7	
Unacceptable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Acceptable
Inconvenient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Convenient
Foolish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Wise
Unsafe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Safe
Unenjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Enjoyable
Bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Good

Perceived Susceptibility

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
I can read or write text messages while driving without any negative consequences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I read or write text messages while driving, something bad could happen to me or someone else	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Behavioral Intentions

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
I intend to avoid reading or sending any text messages the next time I drive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to pull over if I want to read or respond to a text message I receive the next time I drive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to wait until I get to where I want to go to read or send a text message the next time I drive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate how likely you are to do the following:

	Not at all likely						Extremely likely
	1	2	3	4	5	6	7
Next time you drive, how likely are you to read and/or send a text message?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Next time you drive, how likely are you to ignore the text messages you receive on your phone while you're driving?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Next time you drive, how likely are you to wait until you are able to safely stop the car to read and/or write a text message?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Self-efficacy

In this section, please indicate your level of confidence in your ability to perform the following actions:

	Not at all confident						Extremely confident
	1	2	3	4	5	6	7
How confident are you in your ability to avoid texting while driving the next time you get in your car?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How confident are you in your ability to wait until you pull over or reach your destination to read or send a text message?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How confident are you in your ability to ignore your phone while you're driving, even if you hear that you've received a text message?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Behavior

How many days during the past week did you drive?

On how many of the days that you drove during the past week did you read or send at least one text message while driving?

On the days you drove during the past week, how often did you read or send text messages while you were driving?

- Never
- Rarely
- Sometimes
- Frequently
- Every time

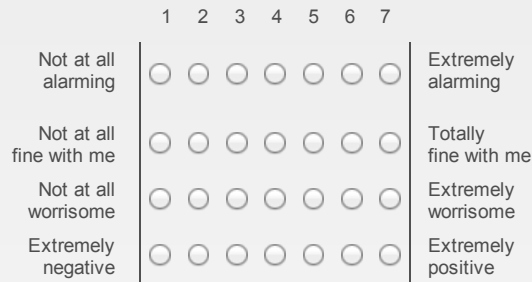
Social Norms

Now we would like to ask you how common texting while driving is among your peers and what you think about it.

What percentage of your fellow students read or send text messages while they are driving? Please slide the bar to indicate the percentage.



I think the percentage of my fellow students who read or send text messages while they are driving is:



How often do you think a typical college student reads or sends text messages while they are driving?



I think the frequency with which a typical college student reads or sends text messages while they are driving is:



Not at all alarming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely alarming
Not at all fine with me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally fine with me
Not at all worrisome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely worrisome
Extremely negative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely positive

Please indicate the extent to which you agree or disagree with the following statements:

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
I want to do what people who are important to me think I should do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to do what most people my age think I should do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate the degree to which you think people approve or disapprove of the following:

	Strongly Disapprove						Strongly Approve
	1	2	3	4	5	6	7
People who are important to me would disapprove/ approve of me reading and sending text messages while I'm driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most people my age would disapprove/approve of me reading and sending text messages while I'm driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End

You have now completed the study. Thank you for participating!

Conversation Partners & Amount of Talk

Who did you talk with about the ad and/or texting while driving? Please check all that apply.

- Friend(s)
- Boyfriend/girlfriend
- Parent/stepparent
- Brother/sister
- Other

How many conversations did you have about the ad or about texting while driving in the past week?

Talk With Friends

You indicated above that you talked with a friend or friends about the ad and/or about texting while driving. Please answer the following questions about your conversation(s) with your friend or friends.

	Totally against texting while driving			Totally in favor of texting while driving			
	1	2	3	4	5	6	7
To what extent was your conversation with your friend/friends against or in favor of texting (reading and/or sending text messages) while driving?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thinking back on your conversation with your friend or friends, overall, what do you think their attitude about texting while driving was?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In the space below, please do your best to describe what the conversation(s) with your friend or friends was like **(including what started the conversation and who said what)**:

Talk With Boyfriend/Girlfriend

You indicated above that you talked with a boyfriend or girlfriend about the ad and/or about texting while driving. Please answer the following questions about your conversation(s) with your boyfriend or girlfriend.

	Totally against texting while driving				Totally in favor of texting while driving		
	1	2	3	4	5	6	7
To what extent was your conversation with your romantic partner against or in favor of texting (reading and/or sending text messages) while driving?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thinking back on your conversation with your romantic partner, overall, what do you think his/her attitude about texting while driving was?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In the space below, please do your best to describe what the conversation(s) with your boyfriend or girlfriend was like (including what started the conversation and who said what):

Talk With Parent/Stepparent

You indicated above that you talked with a parent or stepparent about the ad and/or about texting while driving. Please answer the following questions about your conversation(s) with your parent or stepparent.

	Totally against texting while driving				Totally in favor of texting while driving		
	1	2	3	4	5	6	7
To what extent was your conversation with your parent(s)/stepparent(s) against or in favor of texting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(reading and/or sending text messages) while driving?

Thinking back on your conversation with your parent(s) or stepparent(s), overall, what do you think their attitude about texting while driving was?

In the space below, please do your best to describe what the conversation(s) with your parent or stepparent was like (including what started the conversation and who said what):

Talk With Brother or Sister

You indicated above that you talked with a brother or sister about the ad and/or about texting while driving. Please answer the following questions about your conversation(s) with your brother or sister.

	Totally against texting while driving			Totally in favor of texting while driving			
	1	2	3	4	5	6	7
To what extent was your conversation with your brother(s) and/or sister(s) against or in favor of texting (reading and/or sending text messages) while driving?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thinking back on your conversation with your brother(s)/sister(s), overall, what do you think their attitude about texting while driving was?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In the space below, please do your best to describe what the conversation(s) with your brother and/or sister was like (including what started the conversation and who said what):

Other

You indicated above that you talked with someone about the ad and/or about texting while driving who did not fall into another category on the checklist. Please identify that person's relationship to you:

Please answer the following questions about your conversation(s) with the person you identified above.

	Totally against texting while driving				Totally in favor of texting while driving		
	1	2	3	4	5	6	7
To what extent was your conversation with this person against or in favor of texting (reading and/or sending text messages) while driving?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thinking back on your conversation with the person you identified above, overall, what do you think his/her attitude about texting while driving was?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In the space below, please do your best to describe what the conversation with the person you identified above was like (including what started the conversation and who said what):

Nature of Talk Overall

Next, we want to ask you a few questions about your conversation(s) overall.

Overall, to what extent was your conversation with others in favor of or against...

	Not applicable 0	Totally against texting while driving 1	2	3	4	5	6	Totally in favor of texting while driving 7
texting (reading and/or sending text messages) while driving?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
pulling over to read and/or send a text message?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
waiting until you reach your destination to read and/or send a text message?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thinking back on your conversation(s) with others, overall, what do you think their attitude about texting while driving was?

Totally against texting while driving 1	2	3	4	5	6	Totally in favor of texting while driving 7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Interpersonal Pressure

Since seeing the ad, have you tried to encourage any friends, family members, or others to not text while driving?

- Yes
 No

Since seeing the ad, have you told a friend, family member, or other you were upset about their texting while driving?

- Yes
 No

Discussion-Generated Elaboration

Think about the conversation(s) you had about the ad and texting while driving during the past week and please answer the following questions.

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
Talking about the ad content caused me to think more deeply about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My thoughts about the ad content changed when I talked about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I became more certain of my ideas about the ad content while I was talking about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After I talked with someone about the ad, I often continued to think about what they said later	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1	2	3	4	5	6	7
When I talked with someone about the ad, it often made me think more about my own opinions and beliefs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I talked with someone about the ad, I often thought about how what they were saying related to my own personal experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Talking with someone about the ad usually made me think about that topic after the conversation was over	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix D: Storyboards

Neg-Pos Shift Message (<https://www.youtube.com/watch?v=DuyMT2QUSB8>)

<p>(MUSIC: Begin anxious/scary music)</p> <p>TEXT: Life is full of choices</p>	<p>CLIP: Young woman receives a text message while she is driving and decides to pick up her phone, read the message, and respond</p>	<p>TEXT: The average text takes your eyes off the road for nearly 5 seconds</p>
<p>CLIP: The young woman's behavior causes her to continue through a stop sign without noticing, which results in a horrible crash</p>	<p>TEXT: You could make that choice, or you could make this one (LENGTH OF SEGMENT: 35 seconds)</p>	<p>(MUSIC: Begin hopeful/motivating music)</p> <p>CLIP: Young woman is driving and receives a text message on her phone. She puts on her turn signal to pull over to the side of the road where she can safely read and respond to the text message. After she is done, she puts her phone down and begins driving again.</p>
<p>TEXT: If you choose to text while driving, you're 23 TIMES more likely to CRASH</p>	<p>TEXT: It's easy to WAIT or PULL OVER to respond to a text</p>	<p>TEXT: Choose what's best for you</p>
<p>TEXT: And if you care about your friends and family...</p>	<p>TEXT: Talk to them about texting and driving (TOTAL LENGTH: 80 seconds)</p>	

Pos-Neg Shift Message (<https://www.youtube.com/watch?v=rkI35HBKWm4>)

<p>MUSIC: Begin hopeful/motivating music)</p> <p>TEXT:</p> <p>Life is full of choices</p>	<p>CLIP:</p> <p>Young woman is driving and receives a text message on her phone</p>	<p>TEXT:</p> <p>The average text takes your eyes off the road for nearly 5 seconds</p>
<p>CLIP:</p> <p>Young woman puts on her turn signal to pull over to the side of the road where she can safely read and respond to the text message. After she is done, she puts her phone down and begins driving again.</p>	<p>TEXT:</p> <p>You could make that choice, or you could make this one</p> <p>(LENGTH OF SEGMENT: 37 seconds)</p>	<p>(MUSIC: Begin anxious/scary music)</p> <p>CLIP:</p> <p>Young woman receives a text message while she is driving and decides to pick up her phone, read the message, and respond. The young woman's behavior causes her to continue through a stop sign without noticing, which results in a horrible crash.</p>
<p>TEXT:</p> <p>If you choose to text while driving, you're 23 TIMES more likely to CRASH</p>	<p>TEXT:</p> <p>It's easy to WAIT or PULL OVER to respond to a text</p>	<p>TEXT:</p> <p>Choose what's best for you</p>
<p>TEXT:</p> <p>And if you care about your friends and family...</p>	<p>TEXT:</p> <p>Talk to them about texting and driving</p> <p>(TOTAL LENGTH: 80 seconds)</p>	

Positive Single-Valence Message

(<https://www.youtube.com/watch?v=TpHiUyLOU2Q>)

<p>(MUSIC: Hopeful/motivating music throughout)</p> <p>TEXT:</p> <p>Life is full of choices</p>	<p>CLIP:</p> <p>Young woman is driving and receives a text message on her phone</p>	<p>TEXT:</p> <p>The average text takes your eyes off the road for nearly 5 seconds</p>
<p>CLIP:</p> <p>Young woman puts on her turn signal to pull over to the side of the road where she can safely read and respond to the text message. After she is done, she puts her phone down and begins driving again.</p>	<p>TEXT:</p> <p>If you choose to text while driving, you're 23 TIMES more likely to CRASH</p>	<p>TEXT:</p> <p>It's easy to WAIT or PULL OVER to respond to a text</p>
<p>TEXT:</p> <p>Choose what's best for you</p>	<p>TEXT:</p> <p>And if you care about your friends and family...</p>	<p>TEXT:</p> <p>Talk to them about texting and driving</p> <p>(TOTAL LENGTH: 54 seconds)</p>

Negative Single-Valence Message

(<https://www.youtube.com/watch?v=MhgubK1vVoE>)

<p>(MUSIC: Anxious/scary music throughout)</p> <p>TEXT:</p> <p>Life is full of choices</p>	<p>CLIP:</p> <p>Young woman receives a text message while she is driving and decides to pick up her phone, read the message, and respond</p>	<p>TEXT:</p> <p>The average text takes your eyes off the road for nearly 5 seconds</p>
<p>CLIP:</p> <p>The young woman's behavior causes her to continue through a stop sign without noticing, which results in a horrible crash</p>	<p>TEXT:</p> <p>If you choose to text while driving, you're 23 TIMES more likely to CRASH</p>	<p>TEXT:</p> <p>It's easy to WAIT or PULL OVER to respond to a text</p>
<p>TEXT:</p> <p>Choose what's best for you</p>	<p>TEXT:</p> <p>And if you care about your friends and family...</p>	<p>TEXT:</p> <p>Talk to them about texting and driving</p> <p>(TOTAL LENGTH: 50 seconds)</p>