

ARE GUILT AND SHAME DISTINGUISHABLE? –EXPLORING PERSUASIVE EFFECTS
OF GUILT AND SHAME ON INFORMATION PROCESSING FROM TWO NOVEL
DIMENSIONS

By

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ABSTRACT

ARE GUILT AND SHAME DISTINGUISHABLE? –EXPLORING PERSUASIVE EFFECTS OF GUILT AND SHAME ON INFORMATION PROCESSING FROM TWO NOVEL DIMENSIONS

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This dissertation aims at distinguishing guilt from shame and examining their persuasive effects on information processing and attitude change. Two studies are conducted to investigate the extent to which controllability separates guilt from shame and whether guilt and shame vary in their effects on information processing and attitude change.

The first study is grounded in the Attributional Theory of Achievement Motivation and Emotion (Weiner, 1985). In study 1, 173 participants recalled a failure or transgression experience and content analysis was performed to determine the controllability of the experience and participants' feelings of guilt and shame. In study 2 which is framed under the Cognitive Functional Model (CFM, Nabi, 1999), the level of controllability, causal agency, and argument strength were manipulated and tested with 403 participants. The effects of guilt and shame on information processing and attitude change were assessed.

Both studies indicate that controllability had only limited power in distinguishing guilt from shame. Guilt overlapped with shame when self was the causal agency for a transgression whereas the conceptual overlap decreased when the other person was the causal agency. Guilt and shame differed from one another in their effects on information processing, and motivation tendencies were found to mediate the relationship between emotion and information processing. Guilt and shame also varied in their impacts on attitude change.

This study provides support for the proposed emotion→motivation tendency→ information processing causal chain and the proposed distinctive functions of guilt and shame in changing attitudes. Theoretical implications of this study for conceptualizing the effects of emotion on information processing and attitude change are discussed, and practical implications for campaign designs are provided.

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First of all, I want to dedicate this dissertation to God, who sustained me through the graduate school and the process of dissertation writing. There are many times in the process when I felt a lack of wisdom and wanted to give up. Nevertheless, God says “If any of you lacks wisdom, he should ask God, who gives generously to all without finding fault, and it will be given to him” (James, 1:5), and “Whatever you do, work at it with all your heart, as working for the Lord, not for men” (Colossians, 3:23). With the encouragement in mind, I grew in confidence with my ability to finish this project, my passion to improve my intellectual capacity, and my talent in conducting cutting-edge research.

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INTRODUCTION

Cognition and emotion have both been investigated and treated as different ways in which individuals process information, and they often produce distinct persuasion outcomes. How to persuade people using messages with different characteristics is a critical component of communication research. Although a few emotions (e.g., fear) have been investigated very thoroughly, many other emotions have received less attention with regards to their effects in message appeals both theoretically and empirically. The primary goal of this project is to examine whether guilt and shame have different effects on information processing and attitude change. Without clear conceptual distinction between these two related emotions, it is hard to make such assessment. As suggested in Weiner (1985), controllability over a negative event can serve as a mechanism for examining the distinctive impacts of shame and guilt on how people process information and how these emotions regulate subsequent behaviors. In order to more fully probe the concept of controllability, both autobiographical recollection technique and hypothetical scenarios are used in two sub-studies. These studies have two goals: (1) to explore whether guilt and shame could be induced individually while the level of controllability differs (i.e., controllable causes vs. uncontrollable causes) and (2) to examine whether guilt and shame influence information processing and attitude change in a similar or dissimilar manner.

This dissertation consists of two sub-studies, each serving unique purposes. There are two reasons for why multiple studies are needed to accomplish the goal of disentangling guilt from shame in terms of their impacts on information processing. First, the elicitation of emotions has generally been conducted in two ways. One common technique found in previous studies is to ask for autobiographic recollections of personal experiences from participants and to content analyze these experiences to determine whether a given emotional appraisal antecedent matches

with participants' self-generated life experiences. The other method is to create hypothetical scenarios based on certain emotional appraisal antecedents, place participants into these scenarios, and examine whether particular emotions are elicited in line with the theoretical antecedents. These two approaches are supplementary to each other, but neither of these two approaches can stand alone to provide a whole picture in terms of appraisal antecedents for any emotion. With regards to guilt and shame, while several appraisal antecedents have been tested to determine their predictability for guilt or shame, the debate over the sufficiency of these antecedents remain unresolved.

One antecedent which has been suggested by Weiner (1985) for disentangling guilt from shame is the element of controllability. While Weiner speculated on this explanation, controllability has rarely been empirically tested. The study examines whether controllability could be a potential alternative inducement for guilt and shame. Hence, the first study utilizes the autobiographic recollection technique to examine whether specific personal or the other person's failure or transgression which the actor had control or did not have control would result in guilt or shame respectively. The second study, along the lines suggested by Weiner (1985), includes controllability as one manipulated independent variable in addition to causal agency to examine whether guilt and shame could be elicited separately when the level of controllability is varied. The first study establishes a foundation for the second study which assesses whether there is empirical evidence to demonstrate that guilt and shame have a different impact on information processing. These two studies strive to offer a complete picture of guilt and shame with controllability as the appraisal antecedent and information processing and attitude change as the outcome variables.

The following sections will introduce the theoretical background for each study and hypotheses and research questions are proposed. The current project is grounded in two relevant theories—the Attributional Theory of Achievement Motivation and Emotion (Weiner, 1985) and the Cognitive Functional Model (CFM, Nabi, 1999). A further rationale for inclusion of these theories in particular will be presented in the discussion.

CHAPTER 1: ANTECEDENTS OF GUILT AND SHAME

Discrete and Dimensional Perspectives of Emotion

The debate about whether emotions are dimensional based on their valence (e.g., pleasant vs. unpleasant) or discrete based on their different eliciting antecedents and distinct outcomes has implications for the proposed study. Watson and Tellegen (1985) proposed a map in which emotions are categorized based on a positive-negative continuum. Emotions such as happiness, satisfaction, and surprise are considered to be positive; fear, anger, and guilt are thought to be negative. These emotions differ in terms of their degrees in valence. In contrast, several theorists (e.g., Izard, 1977) argue that emotions are discrete and consider several emotions such as happiness, fear, sadness, hostility, guilt, surprise, and interest as “basic” emotions that are present from birth and have distinct adaptive values (Izard, 1992).

The two perspectives have generated two bodies of research. In the area of communication, several studies have investigated the effects of positive and negative emotions on a variety of cognitive and behavior outcomes, such as attitude change, information seeking and behavioral outcomes (Yang & Kahlor, 2013). The practice of grouping and analyzing emotions with the same valence together is based on the assumption that emotions with the same valence ought to generate similar cognitive and behavioral outcomes. However, such an assumption is not well supported. Dillard and Peck’s study (2001) indicates the importance of examining the effects of emotions in the same valence category individually given that each negative emotion tended to have a unique impact on attitude change (Study 1, Dillard & Peck, 2001). Therefore, the current study is based on the assumption that emotions are discrete and strives to investigate whether controllability is capable of distinguishing guilt from shame and whether they influence attitude change in a similar or dissimilar way.

Distinction in Antecedents of Guilt and Shame

Guilt is defined as “a negative emotional state aroused when an actor’s conduct is at variance with the actor’s own standards” (O’Keefe, 2002, p. 239). Shame, as another self-conscious emotion (Tangney & Dearing, 2002), is defined as “an affective state that follows public exposure (and disapproval) of some impropriety or shortcoming” (Tangney, Miller, Flicker, & Deborah, 1996a, p.1256). These two emotions have been examined together for more than half century (e.g., Ausubel, 1955; Benedict, 1946). Researchers in general have reached the consensus that compared to guilt, shame is a more painful affective experience which lasts for a longer period of time and takes more efforts to recover (Tangney, 1996). However, although the two emotions can be differentiated conceptually, the debate about whether guilt and shame are distinguishable in terms of their causal antecedents and actual personal experiences remains unsettled, and empirical research has yielded mixed results with regards to under what circumstances guilt is experienced and under others shame is experienced. The following section will review traditional approaches that researchers have adopted in distinguishing guilt from shame. A discussion about appraisal antecedents of these two emotions is of great importance for the current investigation as controllability will be later introduced as a new avenue for guilt-shame distinction.

Approach I: Public-private exposure of transgressions

Public-private exposures of transgressions have been regarded as the first distinction between guilt and shame made by early philosophers as well as recent social and behavioral scientists. As described by McKeon (2009), Aristotle has suggested that human beings tend to feel ashamed when our misconducts are exposed to others. Psychology theorists continued this tradition by extending conceptualization and by providing additional empirical evidence for this

distinction between guilt and shame. For instance, William James (1890) has suggested that shame is related to an individual's social self by stating "my social self-love, my interest in the images other men have framed of me... these thoughts in other men's minds... come and go, and grow and dwindle and I am puffed up with pride, or blush with shame, at the result" (p.321). A number of researchers have suggested that the primary distinction between guilt and shame is the private or public locus of negative evaluation (Ausubel, 1955; Benedict, 1946; Buss, 1980, 2001; Hogan, Cheek, Suhls, & Greenwald, 1983). This body of research suggests that people tend to feel guilty when their transgressions are private (i.e., known only to them) whereas shame usually is experienced when transgressions are publicly confronted (i.e., other people know what happened). Ausubel (1955) concluded that guilt is "a special kind of negative evaluation which occurs when an individual acknowledges that his behavior is at variance with a given moral value to which he feels obligated to conform" (p. 378), and shame is "an unpleasant emotional reaction by an individual to an actual or presumed negative judgment of himself by others" (p.382). From this perspective, a disapproving audience of a transgression is the key in distinguishing shame from guilt. To a certain extent, the body of research derived from this distinction between guilt and shame has provided supportive evidence. For example, Smith, Webster, Parrott, and Eyre (2002) found that transgressions that were publicly exposed were more highly correlated with a feeling of shame rather than a feeling of guilt in people's memories. In addition, Comb, Campbell, Jackson, and Smith (2010) manipulated the publicity of misconduct and found that participants' reports of shame increased when the misconduct was witnessed by others compared to when the transgression was kept secret.

Approach II: Locus on Self vs. Behavior

Public exposure of transgression as the critical element distinguishing between guilt and shame was abandoned after publication of several disconfirming empirical studies. In fact, Lewis (1971) provided an alternative conceptual distinction between guilt and shame by elaborating that people usually feel guilty when they think their “*transgressions*” are criticized whereas they feel shameful when they think the “*self*” is the target of degradation. In other words, guilt occurs when people realize that “I did the wrong *thing*” and shame occurs when people recognize that “*I* did the wrong thing.”

Tangney, Marschall, Rosenberg, Barlow, and Wagner (1994) studied both children’s and adults’ recall of guilt and shame experiences, and they found that guilt was not reported to more likely than shame to happen in private settings where transgressions were not exposed to a wide public. An overlap was found in people’s autobiographical recall that many transgressions were mentioned by both children and adults, regardless of whether they were asked to recall a shame- or a guilt-evoking incident. Therefore, the authors concluded that there were very few “unique” shame- or guilt-evoking events. More importantly, Tangney et al. (1994) also found that both guilt and shame might be experienced when others were present. In other words, the presence of a third party “audience” and the disapproval from the audience should not be regarded as a unique prerequisite for shame. Subsequent to this study, many investigations which adopted the “experience recalling” technique have reached similar conclusions (e.g., Tangney et al., 1996a). Niedenthal, Tangney, and Gavanski (1994) used the “counterfactual thinking” technique and asked participants to think about what they would do if they committed a transgression. Niedenthal et al. (1994) assigned participants to the “shame-inducing” condition (i.e., you gave wrong answers in front of a whole class) and the “guilt-inducing” condition (i.e., watching a bird for a neighbor and the bird was frozen to death because you turned on the air conditioner for an

entire night), and found that participants in the “wrong answer” condition scored higher on shame than their counterparts and participants in the “dead bird” condition scored higher on guilt. Moreover, participants in the “wrong answer” condition thought “if I was a better student, I would not be in such a situation”, whereas participants in the “dead bird” condition thought “if I had not turned off the air conditioner, I would avoid the situation”. As a result of these studies, the *self-behavior* distinction between shame and guilt started to gain more attention and endorsement from scholars.

However, this “*action* versus *self*” distinction is not without controversy. Smith et al. (2002) pointed out that this conclusion reached by much guilt/shame research may be untenable because a majority of research asked participants to report situations where they felt guilty/shameful. Situations reported by participants were read by coders who were blind to research questions and hypotheses to decide whether guilt/shame occurred privately or publicly, and then researchers concluded that guilt was also experienced in public. A potential confound in this approach is that if guilt is truly a private feeling in which absolutely none other than the wrongdoer knows this misbehavior, how likely would people feel comfortable to report their guilty feeling to a third person (i.e., researchers)? Reporting personal misconducts would push guilt into the public domain. In addition to this issue, the traditional technique used to detect guilt and shame heavily relies on respondents’ comprehension of these two emotions as well as their ability to distinguish guilt from shame. The overlap between guilt- and shame-inducing events could be well produced by people’s lack of ability in separating these two emotions mentally. Thirdly, the hypothetical scenarios used in studies to induce guilt and shame also varied in dimensions of self/behavior. For instance, in Niedenthal et al. (1994), the wrong answer and dead bird scenarios also differed from each other in terms of the presence of other observers (e.g.,

other classmates), the consequence of the transgression, the severity of consequence, and whether the behavior was intentionally performed. With so many potential confounds, it is too early to conclude that self/behavior distinguishes shame from guilt.

In fact, Smith et al. (2002) found that the public/private distinction better explained difference in guilt and shame experiences, and Wolf, Cohen, Panter, and Insko (2010) have provided similar evidence. Hence, asking people to self-report guilty responses presents an obvious problem in this line of research that attempts to distinguish guilt from shame. Up to this point, the debate between these two traditional approaches has not been settled. Other scholars have examined guilt and shame from a motivation-attribution standpoint and suggested that other than *private-public* and *self-behavior* approaches, controllability is an alternative to separate these two emotions because often emotions are often bonded with the ascriptions we made about a success or a failure (Weiner, 1985).

An Attributional Theory of Achievement Motivation and Emotion (ATAME)

The *ATAME* focuses on a few critical emotions that individuals experience and use as regulators for human behaviors (e.g., anger, guilt, pride, shame) and proposes three important appraisal dimensions for these emotions to occur. According to Weiner (1985), causal attributions play a key role in motivation and emotion, and three important properties of *ATAME* include locus, stability, and controllability. The following sections will elaborate on the three properties and concentrate on controllability as a potential alternative in differentiating guilt from shame.

Locus of causality.

Developed from the Social Learning Theory (Rotter, 1954), locus of control conceptualizes the extent to which an individual believes that he/she can control events.

Individuals can be grouped into internal vs. external locus of control. People characterized as internal locus believe that outcomes of events should be attributed to their own control, and in contrast, people with external locus of control in general believe the consequences of events are caused by external circumstances over which they have no control. Weiner (1979, 1985) draws a distinction between “locus of control” derived from the Social Learning Theory and the dimension of controllability in *ATAME*. He re-labels the locus of control as the “*locus of causality*” (Weiner, 1985, p.552) either within a person (e.g., an individual’s action) or outside a person (i.e., the social environment). In fact, internal causes can be either controllable or uncontrollable. For instance, if a pupil who is born with cognitive challenges fails to acquire an academic skill even though every effort was made to teach this student, the failure may be attributed to lack of ability which is uncontrollable. In comparison, if the student does not have intellectual or cognitive challenges but still fails academically, failure may be explained by controllable lack of effort. Essentially, lack of aptitude and lack of effort are both internal locus of control based on the conceptualization given by Rotter (1954, 1975).

Stability.

The stability dimension defines “causes on a stable (invariant) versus unstable (variant continuum)” (Weiner, 1979, p.6), “a temporal duration of a cause” (Weiner, 2000, p. 4), and concerns “the extent to which the causes of events have a permanence beyond the specific event caused” (Tracy & Robins, 2006, p. 1340). According to Heider (1958), some dispositional and fixed characteristics such as disability are more stable than other fluctuating factors such as effort and luck. Rosenbaum (1972) specifies that mood, fatigue, and temporal effort, for example, are unstable causes. Weiner (1985) recognizes the distinctions among these unstable causes by reasoning that different from mood or fatigue, temporal effort is often a subject of volitional

control, while mood and fatigue under most circumstances may not be altered solely based on our willingness to change. Therefore, characteristics lower in volitional control are considered as “unstable causes” (e.g., mood, chance, etc.), and factors that have volitional control are considered as “stable causes” (e.g., diligence/laziness).

Controllability.

Weiner (1979, 1985) did not provide a clear definition for controllability, but rather classified several causes along a controllability continuum. However, this dimension can be conceptualized as the degree to which a cause is “*volitionally alterable*” and the extent to which an individual has the ability to increase or decrease effort expenditure in order to prevent negative consequences as a result of personal failure. Among internal locus of causality, for example, mood and effort are distinctive such that mood tends to be out of an individual’s volitional control; however often times an individual can make an intentional decision about whether an extra effort expenditure is required and whether he/she can do it (e.g., I can and I want to get rid of the habit of being lazy). Among internal locus of control, aptitude may be considered as uncontrollable, especially when it is genetic or regarded as a heritage from a family. Nevertheless, aptitude can be considered as more variant in the degree of controllability when learning is possible (Weiner, 1985). A similar reasoning also applies to effort. Effort is more controllable when a label of laziness or industriousness is attached to an individual. Weiner (1985) concludes that, in general, poor aptitude should be considered as an uncontrollable cause whereas lack of effort should be regarded as controllable.

In his original theoretical work, Weiner (1985) reviewed the literature on attribution of success and failure and identified these three properties (i.e., locus of causality, stability, and controllability) as dominant rules for ascription of success and failure. Later Weiner linked the

three properties with the elicitation of emotions by offering laws connecting attributional thinking and specific feelings (for a discussion of the assumption guiding this approach, see Weiner, 1982). This connection is the foundation for the present study, and will be reviewed below in detail.

A sequence of how a particular emotion is experienced is described in the attributional framework such that cognitions of the complexity of attribution enter into the emotion process to help better define and distinguish emotional experiences (Weiner, 1985). Usually, a general affective outcome is generated when people experience success/achievement/recognition or failure/loss/derogation, which is we feel happy for success and sad for failure. Besides the general affective outcome, individuals habitually seek further causal ascriptions so that a different set of emotions is generated by the particular attributions. For instance, if a success is mainly due to luck, surprise rather than contentment is likely to be evoked. In contrast, success generated from long-term diligence tends to produce serenity and calmness as people believe that they deserve such success if they expended a large degree of effort. Weiner (1985) labels surprise and serenity as “*attribution dependent*” as they are caused not by primary appraisals (i.e., success or failure), but secondary appraisals (i.e., luck versus diligence).

According to Weiner (1985), attributional appraisal also influences the emotional process. That is, when we perceive internal locus of success or failure, our self-esteem tends to be raised or lowered. Conversely, if an external locus of success or failure is regarded as the main reason for success or failure, our perception about the “*self*” is less likely to be affected. The view of an attribution-emotion connection enables researchers to further probe which specific emotion is elicited. Although Weiner (1985) argues that all three properties can influence which emotion is experienced, in his later work, Weiner (2000) suggests the three properties often have unique

effects on expectancy of future success/failure and affective states experienced after people make attributions based on these three properties. The following sections will review how guilt and shame are distinguished with regard to the three properties outlined in the attributional framework.

Locus of causality: Based on the definitions of guilt and shame given earlier, it is clear that the elicitation of both emotions involves an individual's recognition of his/her inappropriate behaviors (can be volitional or non-volitional). Although scholars may have slightly different focuses (e.g., an acknowledgement of un-fulfillment of personal responsibilities, violation of personal or social standards), definitions laid out earlier suggest that both emotions are elicited from internal causes (e.g., someone's own actions caused failure). This commonality between guilt and shame in terms of the locus of causality is shown by Tracy and Robins (2006) where four studies were conducted and consistent results with the locus of causality were provided. Tracy and Robins (2006) found that both guilt and shame were experienced when a transgression was attributed to internal causes. Research on collective guilt and shame has found that external causes (e.g., a person around me committed a transgression) could bring guilt or shame to individuals who were innocent while maintaining a personal relationship with the individual who transgressed (e.g., Schmader & Lickel, 2006). Hence, both internal/external locus of causality may not serve sufficiently as a distinguishing feature between guilt and shame.

Stability: Weiner (1985) did not distinguish guilt from shame on the dimension of stability. Subsequent work by Tracy and Robins (2006, study 3) asked participants to recall an incident which caused them to feel either guilty or ashamed. Later, four judges were trained to code the responses regarding the three attributions. In terms of stability, the judges decided whether the participant thought the cause would occur again in the future, which was considered

as a dimension for stability. If something could happen again in the future, it is considered to be more stable than something that happens only once. They found that shame was more strongly related to stable causes and guilt was more strongly related to unstable causes. According to Weiner (1986, 2000), stability tends to be influential in predicting individuals' expectancy of following success/failure rather than specific affective states experienced during a particular success/failure. For instance, if a failure on an exam is considered due to habitual laziness, future failure is likely to be anticipated. On the contrary, if the failure is attributed to bad luck such as being sick with flu, a future failure is unlikely to be expected.

Controllability: Among the three properties listed in *ATAME*, Weiner (2000) points out that controllability in particular is often related to what feeling states might be experienced. Especially for whether guilt or shame is experienced, an attribution of failure to insufficient effort often elicits feelings of guilt and remorse, whereas an ascription to an absence of aptitude often leads to feelings of shame and humiliation (Tracy & Robins, 2006; Weiner, 1985). Weiner (1985) argues that people tend to feel guilty when controllable reasons caused a negative outcome (e.g., I failed the exam because I did not make enough effort ahead of time), and shame is usually experienced when causes are less controllable (e.g., I failed the exam because I was so bad at math). A small body of empirical research on the effect of cause controllability on guilt and shame elicitation is consistent with Weiner (1985)'s proposition (e.g., Brown & Weiner, 1984; Tracy & Robins, 2006; Weiner, Russell, & Lerman, 1978). Weiner (1994, 2000) argues that controllability influences whether guilt or shame was experienced following failure to attain certain goals. Attribution of failure to insufficient effort, which is often labeled as internal and controllable, often evokes feelings of guilt.

Weiner et al. (1979, study 1) observed that among college students, guilt was more associated with an attribution to an absence of stable effort whereas shame was more strongly associated with incompetence. Weiner, Graham, and Chandler (1982) asked college students to recall a situation in which they felt guilty, and the most frequent guilt-related situations involved cheating on an exam, betraying a relationship partner, and lying to parents. More importantly, a vast majority of these situations (94%) were rated as personally controllable by participants. From a developmental perspective for children ages 6 to 11, Graham, Doubleday, and Guarino (1984) found there was an increasing linkage between a feeling of guilt and children's perceived controllability over negative events. In contrast, often regarded as an internal and uncontrollable cause, an ascription to lack of aptitude generally induced shame. Brown and Weiner (1984) conducted six experiments with 493 subjects showing that blaming poor performance on ability, an internal, stable, and uncontrollable factor often led to a feeling of shame or related feelings such as humiliation.

More recently, Tracy and Robins (2006) differentiated guilt from shame from the perspective of their different appraisal antecedents regarding controllability (study 4). Guilt was found to be more highly related to controllable aspects of self compared to shame. Tracy and Robins (2006) indicated that when failures occurred due to particular shortcomings of an individual, people are less likely to attribute the failures to the overall stable self characteristics, but rather tend to reason that the failure is caused by lack of effort or running short of some resources (e.g., time) which are more controllable. Hence, guilt as opposed to shame is likely to be experienced. Besides studies in which participants were either exposed to manipulated vignettes or asked to recall personal experiences of guilt and shame, research in developmental psychology and psychiatry echoes this claim that controllability is a distinguishing feature

between guilt and shame. For instance, Tangney, Wagner, and Gramzow (1992) found that individuals who are inclined to make internal, stable, and uncontrollable attributions were more prone to shame whereas individuals who tended to attribute failures to internal, unstable, and controllable causes were more prone to guilt. Based on the reasoning given in Weiner (2000) about the predictive role played by controllability in emotional experience along with the empirical evidence, the first hypothesis is proposed solely with respect to controllability:

Hypothesis 1: Internal uncontrollable attributions (e.g., aptitude) will lead to a greater level of shame than guilt, whereas internal controllable attributions (e.g., effort) will lead to a greater level of guilt than shame.

The difficulty in distinguishing guilt from shame is not solely due to the conceptual similarities they share and the meaning overlap they have in people's mind, but also because of some methodological issues. Often used techniques to examine emotional experiences involve asking participants to recollect a personal guilty/shame experience and placing participants into a hypothetical situation which is supposedly capable of evoking some particular emotions. In both techniques, the participants are the "main figure". For example, in recollection studies, participants are often asked to recall a situation in which he or she felt guilty/shamed/happy/angry (Tangney et al., 1994). In a study using hypothetical scenarios, participants themselves are often portrayed as the people who succeed/failed. Schmader and Lickel (2006) argued especially for guilt and shame-related experiences, when people were asked for their own experiences, it was often difficult for them to make a clear separation between "a wrong behavior" and "an incompetent person", which results in a wide overlap between guilt and shame experiences. Schmader, Lickel, and their colleagues have shown that in the realm of intergroup transgressions, especially anti-terrorism wars, guilt is often induced when

people realized that soldiers of their country harmed innocent people in another country. In contrast, for people who believed that the war strengthened a shared group-identity, shame is often experienced (Iyer, Schmader, & Lickel, 2007; Schmader & Lickel, 2006). When someone else commits the transgression, the overlap between guilt and shame is found to be much smaller (Schmader & Lickel, 2006). So far research has taken the two extremes on the self-other-collective guilt/shame continuum. The “other” perspective on this continuum has been largely neglected. Intercultural research has examined whether people experienced a feeling of guilt or shame when others who they knew committed misconducts. For example, Stipek (1998) conducted a cross-cultural comparison and found that Chinese participants exhibited a feeling of shame when their brothers cheated on an exam. This study suggested that individuals could experience these self-conscious emotions even if someone else they know had transgressed. Hence, another hypothesis is tested:

Hypothesis 2: Guilt and shame will correlate with each other at a lower degree when a transgression committed by someone else is recalled than when a transgression committed by the person him/herself is recalled.

Previous research which used experience recollection to study the difference between guilt and shame rarely examined participants’ own guilt/shame experiences and someone else’s experiences together. In addition, researchers have induced recollections from participants with regards to both their failure (e.g., Tracy & Robins, 2006) and transgressions (Tangney et al., 1994). Indeed, failure and transgression are different. In the Merriam-Webster dictionary, failure is primarily defined as “omission of occurrence or performance” whereas transgression is defined as “a breaking of a moral or legal code”. Hence, essentially failure is an absence of success and goal-achievement, whereas transgression is a misconduct resulting from violating

social or legal standards. For example, being expelled from school due to poor grade is seen as a failure, but not a transgression. In contrast, being expelled from school due to plagiarism is primarily regarded as a transgression, but not a failure. While conceptual differentiation between failure and transgression has not been systematically made, the research has shown that people's attributions about others vary according to whether this person failed a task or transgressed (Larrance & Twentyman, 1983). Given such distinction between the two terms, previous research has not been clear in terms of whether a) participants' own guilt/shame experiences or those of someone else they know differ from each other and b) participants' recollections of failures or transgressions would generate distinct outcomes regarding the effect of controllability on guilt/shame and the association between guilt and shame. Moreover, previous studies have suggested that there may be an association between guilt and shame based on whether the actor was someone themselves or someone else (e.g., Schmader & Lickel., 2005). These studies primarily focused on transgressions that had political implications (e.g., occupation of or withdrawal from Iraq, Iyer et al., 2007). Research has rarely examined whether the association between guilt and shame varies in the same manner in an interpersonal setting when a failure occurred. Therefore, three research questions are proposed.

Research question 1: Does participants' recollection of their own experience or someone else's experience influence the effects of controllability of causes on guilt and shame?

Research question 2: Does participants' recollection of failures or transgressions affect the impact of controllability of causes on guilt/shame?

Research question 3: Does the impact of self/other on the association between guilt and shame change when a failure or a transgression is recalled?

Method

Study Design

The first study was designed to test whether people who perceive that they had control over a failure feel guiltier and less ashamed than people who perceive that they had no control over a failure. Participants were assigned to one of four conditions in which they were asked to recall to recall a “critical incident” in which either a) they themselves or b) someone else they know a) failed on a task or b) transgressed. Participants were asked to describe the situation in terms of (1) what happened, (2) whether they think the failure was due to incompetence (i.e., an uncontrollable cause), lack of effort (i.e., a controllable cause), or other reasons (Weiner et al., 1979), (3) the consequences of the situation, (4) what emotion(s) they or the other person experienced in the critical incident recalled, and (5) whether they think they or the other person could have done something to change the outcomes resulting from the incident. Besides these open-ended questions, participants were asked to rate the intensity of each listed emotional states ranging from 1 = minimal feeling to 10 = a very intense feeling. Participants were also asked to identify whether they or the other person felt guilty/ashamed in the situation described, to rate these two emotions, and to rate the extent to which they perceived themselves or the other person had control over the situation on the 10-point scale as described.

Brown and Weiner (1984) suggested that the importance of the task may be a confounding variable for research inductions and may have resulted in confusion in the relationship between controllability and guilty/shame. Hence, both groups of participants were asked to rate the importance of the situation to the person recalling guilt or shame on a 10 point scale, ranging from 1= not important at all to 10 = extremely important.

Coding Scheme Development, Pretests, and Inter-coder Reliability

One hundred and two participants (35 males, 64 females, 3 gender unidentified) with a mean age of 21.16 ($SD = 1.01$) enrolled in a large Midwest university were recruited to participate in a pretest to fine tune the coding scheme for the main study. The coding scheme was adapted from Tracy & Robins (2006, See Appendix A for coding scheme). Using the coding procedure suggested by Lacy and Riffe (1996), two coders whose native language was English and the author coded this set of data to establish coder reliability. The coders received an eight-hour training session prior to coding the responses and all coded the 102 cases. The inter-coder reliability using Krippendorff's alpha for all coding categories exceeded .80 (See Table 1 for inter-coder reliability summary) and the discrepancies were solved via among the coders and the author. After the acceptable inter-coder reliability was established, the main dataset was split between the two coders.

Mains Study Participants, Survey Instrument, and Procedure

The main study was conducted after the pilot testing was carried out and inter-coder reliability was established. In total, one hundred and seventy three college students (52 males, 119 females, two gender unidentified) with an average of age 20.38 ($SD = 1.01$) were recruited to participate in this online survey study to receive extra credit. Among these participants, 70.4 % ($n = 132$) identified as White/Caucasians, 11.6 % as African American ($n = 22$), 6.3% Asian American ($n = 12$), 1.6% Latino/Hispanic ($n = 3$), 0.5% as multiracial ($n = 1$), and 1.1% other ($n = 2$). After giving consent, participants were randomly assigned to one of four conditions and responded to survey questions as described above.

After giving consent, participants were directed to a survey site. To begin the study, participants read a description stating: "We all have experienced certain types of failures/transgressions through the years we grow up. Failure implies a situation in which we

generally did not reach our expected achievement (in the transgression condition, it read as “Transgression does not only mean law violations, but also can imply a situation in which we violated social standards). These experiences are particularly important for our identity establishment, our growth, and our social interactions with people around us”. Then participants will be asked to “recall a failure/transgression event that happened to YOU/SOMEONE else you are familiar with any time in your or the other person’s life”. This sentence was intended to serve as an experimental induction.

After describing a situation in which either they or someone else did something wrong or failed, participants provided details about the identified incident including a) what happened, b) whether they think the failure was due to incompetence (i.e., an uncontrollable cause), lack of effort (i.e., a controllable cause), or other reasons, c) what emotion(s) they felt, d) what consequences they or the other person had, and e) whether they or the other person could have done something to prevent the negative event. After providing responses to the substantive questions, participants rated the intensity of the emotions they identified, feelings of guilt and shame, the importance of the incident to them, and the extent to which the actor had control over the situation on a 10-point scale. To avoid biasing participants, one question was asked after participants provided responses to these open-ended questions—would you/the other person feel guilty/ashamed in the situation described above if you did not identify guilt or shame above? Participants’ rating of guilt and shame was recorded using the same emotion intensity scale specified above. Afterwards participants were debriefed and thanked. The survey took approximately 15-20 minutes to finish.

Results

Among all the 173 recalled experiences, 78 cases (45.1%) described failing grades, poor performance in sports, or other competitions, 19 cases (11%) were about undesirable behaviors occurring between friends, 18 cases (10.4%) described problems in romantic relationships (e.g., cheated on a relationship partner), 18 cases (10.4%) were about problems/conflicts/disagreement among family members, and 15 cases (8.7%) were about personal goals or moral issues. 23 cases (13.3%) described problems in unspecified relationships. 26.0% of the participants ($n=45$) attributed the failure/transgression they recalled to lack of competence as the cause; whereas 38.7% of them ($n = 67$) thought that the failure/transgression was due to lack of effort. The remaining participants thought the failure/transgression was due to other reasons, such as personality ($n = 36$), one-time reasons ($n = 11$), and physical and mental limitations ($n = 9$). When participants were asked whether there were things that could have been done to avoid the consequences, 93.1% of them ($n=163$, 77 in failure condition and 86 in transgression conditions) provided a solution (See Table 2 for key variable distributions). Chi-square analyses were conducted to examine whether failure/transgression experimental inductions affected participants' recall of events and the extent to which they thought they or the other person could control the negative events. The Chi-square analyses showed that participants in the failure condition ($n=64$) recalled more achievement-related events than participants in the transgression condition ($n=14$), $X^2(5)=64.75$, $p<.001$. There was no significant difference between the two conditions in terms of whether participants thought that they could have done anything to prevent the negative events from happening, $X^2(1)=1.85$, $p>.05$.

The first hypothesis predicted that internal uncontrollable causes would lead to a higher level of shame than guilt whereas internal controllable causes would lead to a higher level of

guilt than shame. This hypothesis was tested in two different ways—using one-way ANCOVA and chi-square.

One-way ANCOVA was conducted using participants' choice of incompetence or lack of effort as the independent variable and participants' rating of guilt/shame intensity as the dependent variable, controlling for the effects of experimental conditions. The results showed that inaptitude (i.e., incompetence) did not lead to a higher level of shame, $F(1, 107) = 1.45$, $p = .17$, $\eta^2 = .01$, nor lack of efforts led to a higher level of guilt, $F(1, 108) = 0.68$, $p = .41$, $\eta^2 = .01$. In fact, the means indicated that there were higher levels of guilt and shame when the cause was due to a lack of effort than a lack of competence (See Table 3 for descriptive statistics).

Chi-square was conducted using participants' choice of inaptitude (i.e., incompetence) or lack of effort as the independent variable and coders' coding of presence or absence of guilt/shame feelings from participants' descriptions as the dependent variable. The results showed that when participants identified inaptitude (i.e., incompetence) as the cause for a failure or transgression, they did not show more shame, $X^2(1) = 0.84$, $p = .36$; and participants did not show more guilt when lack of effort was identified as the cause either, $X^2(1) = 1.50$, $p = .22$. Hence, the data were inconsistent with the first hypothesis.

The second hypothesis was tested using significance testing of two different correlations suggested by Blalock (1972) who advised that several steps be followed to test the difference between two correlations. The first step is to transform each of the r 's into z 's through Fisher transformation $[z = \frac{1}{2} \ln(\frac{1+r}{1-r})]$. The correlation between guilt and shame when self was the actor of a failure or transgression was .68, and when other was the actor the correlation was .42. Using the Fisher transformation, $z_1 = 0.83$ and $z_2 = 0.45$. The standard error of the difference between two z scores was calculated using this formula:

$$\sigma_{z1-z2} = \sqrt{\frac{1}{N1-3} + \frac{1}{N2-3}} = \sqrt{\frac{1}{91-3} + \frac{1}{82-3}} = 0.15$$

To calculate z score: $Z = \frac{(Z1-Z2)}{\sigma_{z1-z2}} = \frac{(0.83-0.45)}{0.15} = 2.53$. The critical z-score with $\alpha = .05$ (one-

tail) is 1.65 whereas the calculated z-score is larger than the critical z-score. Therefore, the association between guilt and shame when self was the actor of a failure or transgression was significantly greater than the association between guilt and shame when other was the actor.

Hence the data were consistent with H2.

The first two research questions investigated whether (1) the recollection of self or others' experience and (2) the recollection of failure or transgression would have any impact on the way that controllability of causes influenced guilt and shame. Two sets of three-way ANOVAs were conducted to answer the research questions with self/other, failure/transgression, and incompetence/lack of effort entered as the main predictor and guilt or shame entered as the dependent variable. The results indicated, neither self/other's experiences nor failure/transgression interacted with incompetence/lack of effort to influence guilt/shame, all $F_s < 1.00$, $p_s > .05$. Thus, the influence of incompetence/lack of effort on guilt and shame did not change no matter whether participants recollected their own or someone else's experience or whether such an experience was about a failure or transgression.

The last research question asked whether the impact of self/other on the correlation between guilt and shame would vary when a failure or transgression was recalled. To answer this question, the Fisher's transformation was conducted within the failure or transgression condition respectively. When a failure was recalled, the correlation between guilt and shame was .72 for the participants' own experience and was .35 for others' experiences; when a transgression was recalled, the correlation was .65 for the participants' own experience and was .61 for others' experiences. The Z score for the correlation difference when a failure was recalled was 4.8,

whereas when a transgression was recalled, the Z-score was 0.27 (*n.s.*). The results suggested that when a failure was recalled, a higher correlation between guilt and shame was yielded when the participants recalled their own experiences than when they recalled someone else's experience. Such a guilt-shame correlation difference between one's own experience versus others' was diminished when a transgression was recalled.

Discussion

Framed in the attributional theory of achievement motivation and emotion (Weiner, 1979), this investigation had three goals in mind. First, this study aimed at probing whether attribution to incompetence (i.e., an uncontrollable cause) or lack of effort (i.e., a controllable cause) as the cause for a failure or transgression would lead to different levels of guilt and shame among participants in general via asking participants to recall a personal experience of a failure or transgression. Secondly, this study attempted to establish a foundation for the following study by examining the validity of controllability of causes in distinguishing guilt from shame. Lastly, this study also strived to provide an answer to whether a failure or transgression experience would result in different impacts of controllability on guilt and shame.

The results of the first study indicated that when participants were asked to recall their personal or someone else's experiences of failure or transgression, the level of guilt or shame was not influenced by the controllability of causes. That is, regardless of whether participants attributed the causes as controllable (i.e., lack of effort) or uncontrollable (i.e., incompetence), they experienced relatively similar levels of guilt and shame. The results, although inconsistent with the hypotheses, may be attributable to the nature of the methodology employed in this study. Although permitting participants to provide detailed and more vivid thoughts, earlier studies show that the incident recollection technique has several limitations. Researchers have indicated

that when being asked about previous experiences, survey respondents often need to recreate things that happened depending on different demands of survey questions (Tourangeau & The Gallup Organization, 2000). The limited details stored in memory were likely to restrain survey respondents' ability to accurately report their experiences and lead to biased memory. When survey respondents were forced to choose the reason for the failure or transgression they recalled from lack of effort, lack of competence, or other reason, they had to rely in filling in blanks using secondhand reports or even imagination, which could have compromised the validity of the selected reason. Indeed, when participants were asked whether they thought there were things that could be done to avoid the consequences, 93.1% of them ($n = 163$, 91.7% of participants in failure condition and 96.5% of participants in transgression condition) provided solutions for the recalled misdeed even if some of them identified lack of competence as the cause. In addition, given that survey respondents were asked to recall unpleasant experiences, they might have the tendency to minimize and deny their negative emotions, as suggested by researchers previously (Cassidy, 1994; Tangney et al., 1996a), which also explained the median levels of guilt and shame experienced by survey respondents.

Given these results using the incident recall technique, a second study is warranted in which controllability will be experimentally manipulated to induce guilt and shame. Beyond examining the current hypotheses, the second study will also investigate the effects of guilt and shame on information seeking and attitude change in order to further distinguish these two emotions.

CHAPTER 2: GUILT, SHAME, MOTIVATION TENDENCY, AND THEIR PERSUASIVE IMPACTS

Introduction

Very often research seeks to control to rule out confounds and to contribute to clarity in measurement. But messages exchanged by people in real interactions are rarely controlled and un-confounded. Often troubled relationships are at stake or difficult, emotional life-transforming decisions are being made by interactants and are these exchanges are influenced by the presence of positive and negative emotions. Guilt and shame are especially powerful emotions generated between people over the course of their interactions. For communication scholars, understanding the impact of these kinds of emotions on attitudinal change is of interest; therefore, the primary goal for this dissertation is to comprehend how the elicitation of guilt or shame through exposure to emotionally inducing messages may influence recipients' information processing and attitudinal change. While the first study provided some evidence about how guilt and shame are differentiated on the dimensions of controllability and causal agency given the real-life examples provided by participants, the second study outlines the theoretical paths taken by guilt and shame respectively in affecting information processing and changes in attitudes.

As powerful persuasive tools, emotional appeals mandate systematic research to answer questions such as when and how certain emotional appeals are influential for altering attitudes towards unhealthy or risky behaviors. Therefore, the second study investigates how guilt and shame result in persuasion. The study provides answers to how guilt and shame should be induced, and what specific impacts guilt and shame individually have on attitudinal change. This study places participants in a hypothetical scenario and is guided by the overarching framework

that is outlined in the Cognitive-Functional Model (CFM, Nabi, 1999), with an extension of this framework to guilt and shame.

Cognitive Functional Model

Having its root in the elaborative likelihood model (ELM, Petty & Cacioppo, 1986) and the heuristic-systematic model (HSM, Chaiken, 1980), the cognitive functional model (CFM hereafter, Nabi, 1999) is selected as the overarching theoretical framework for this investigation for two reasons.

First, as the central focus for this study is the impacts of guilt and shame on information processing and attitude change, the CFM considers and outlines the cognitive function that negative emotions serve in persuasion. The CFM outlines the persuasive paths that five emotions including anger, fear, sorrow/sadness, guilt/shame, and, disgust take. Studies conducted under the direction of the CFM with anger and fear as the dominating emotions have found supportive evidence for the validity and explanatory power of this model. Hence, the CFM is a promising framework for this endeavor.

Among the five negative emotions, fear and anger are two emotions that have been studied extensively (e.g., Nabi, 2002a, 2003; Yan, Dillard, & Shen, 2010), and recently researchers started to examine how positive emotions such as happiness, humor, and hope affect individuals' information processing and attitude change (e.g., Nabi, 2007; Yan, 2008). Among the five negative emotions being identified in the model (Nabi, 1999), guilt and shame were combined indicating the similarity of the two emotions in terms of their eliciting antecedents and behavioral outcomes. Indeed, the theoretical hypotheses derived for guilt and shame were identical, according to the CFM. However, assigning identical theoretical properties for guilt and shame is problematic in view of the long history in psychology of differentiating between guilt

and shame. Therefore, this project adds to the literature by expanding understanding about the potential different persuasive impacts of guilt and shame on attitude changes.

Second, some studies have indicated that affective status can function as information stimuli that may alter message recipients' attitudes towards a given issue. For example, Schwarz and Clore (1983) have shown that people who were induced with positive moods evaluated their life satisfaction higher than people who were induced with negative moods. Studies that were derived from ELM examining the effect of mood on information processing have shown that argument strength is more influential for participants who were induced with a negative mood than for participants with a good mood (Bless, Mackie, & Schwarz, 1992, study 1), and participants in a positive mood were more vulnerable to a counter-attitudinal message featuring a global evaluation than participants in neutral or negative mood (Bless et al., 1992, study 2). These studies conclude that affective status, especially positive affects functions as a peripheral cue in persuasion settings (Schwarz, Bless, & Bohner, 1991).

Despite these empirical pioneers in the field of emotion and persuasion, a couple of issues deserve further scrutiny. The most apparent issue is that a majority of these studies dichotomized emotions to be either positive or negative and simply equalized individual effects of all positive/negative emotions. Ignoring the differences among discrete positive emotions (e.g., happy, satisfied, joyful) and among negative emotions (e.g., fearful, angry, pity, empathetic, guilty, ashamed) is likely to cause misleading results in these studies. In fact, Dillard and Peck (2001) have provided evidence showing that positive and negative emotions varied in directions and magnitudes with respect to their persuasive effects. Hence, given the call for investigating discrete emotions (Dillard & Peck, 2001), the current proposal selects the CFM as the theoretical guidance which specifies different persuasive outcomes of discrete emotions based on

motivation tendencies resulting from the negative emotions that message receivers have towards processing information in forthcoming messages.

Theories on the effects of discrete emotions on persuasion are limited. In particular, most guilt appeal studies remain a-theoretical (e.g., Basil, Ridgway, & Basil, 2006; Brennan & Binney, 2010; Cotte, Coulter, & Moore, 2005; Hibbert, Smith, Davies, & Ireland, 2007; Koestener, Houlihan, Paquet, & Knight, 2001). Basil, Ridgway, and Basil (2008) proposed a model (i.e., a process model of empathy and efficacy) to synthesize the results of guilt appeal research in charity donation; however, such a model strives to map onto the fear-appeal framework, and still fails to provide an explanation about why when people feel guilty, they are more vulnerable to donation requests. Such a model is also insufficient to explain the relationship between guilt feelings and information processing. In contrast, the CFM specifically outlines the path that a guilt feeling takes in affecting information processing and attitude change.

Information processing, in dual process models, such as ELM and HSM, is regarded as the primary outcome in persuasion. Greenwald and Leavitt (1984) described four stages for information processing, ranging from preconscious awareness to cognitive elaboration. They suggest that these four stages are hierarchical and the previous stage cues later stages. Consistent with the Greenwald and Leavitt, Chaiken (1987) and Petty and Cacioppo (1986) indicated that information processing ranges from low to high depending on individuals' motivation and involvement. According to Greenwald and Leavitt (1984), *pre-attention* is a stage when people have subconscious evaluation of information stimuli that are of personal relevance. For example, a person's *focal attention* might be prompted when an email consisting of information about breast cancer screening arrives if this person is under observation for possible development of breast cancer. When focal attention is activated, individuals move to *message elaboration*

involving an integration of “the message content to existing knowledge by making personal connections or references from the information and imagining events related to the message” (McQueen, Vernon, & Swank, 2013, p. 191). At the last stage is *message assessment*, individuals tend to make evaluation of the message received and make decisions about whether to actively support or disagree with the message.

To this point, scholars have treated discrete negative emotions as individual episodes influencing attitude and behavioral change instead of considering their commonalities. The Cognitive Functional Model (CFM, Nabi, 1999) theorizes the persuasive effects of a variety of negative emotions on information processing and attitudes while incorporating the cognitive factors relevant to these affective states. The following sections review will the Cognitive Functional Model, in light of the literature on the motivation tendency of guilt and shame to develop research questions and hypotheses for the second study.

The Cognitive Functional Model (CFM, Nabi, 1999) illustrates different persuasive paths taken by negative emotional appeals. One defining feature of the CFM is that it takes approach-avoidance motives and message reassurance into account when explaining the underlying mechanism of persuasive effects of discrete negative emotions. Indeed, over the years, many scholars have emphasized two motivation tendencies (i.e., approach and avoidance motivation tendencies) believed to shape individuals’ consequent behaviors. An approach motive can be defined as “the energization of behavior by, or the direction of behavior toward, positive stimuli (objects, events, possibilities)” (Elliot, 2008 p.3), whereas an avoidance motive is defined as “the energization of behavior by, or the direction of behavior away from, negative stimuli (objects, events, possibilities)” (Elliot, 2008 p.3). While researchers have generally dichotomized that negative emotions are related to avoidance motivation tendency and positive emotions are related

to approach motivation tendency, Carver, Avivi, Laurenceau (2008) have pointed out that discrete emotions differ in their motivation tendencies even if they share the same valence. In particular, in a series of studies conducted by Carver (2004), it was found that anger was positively related to approach tendency whereas fear and sadness were related to avoidance motivation tendency. While much research has been done applying approach-avoidance to a few emotions such as anger, fear, sadness, and happiness, this dissertation focuses on the relationship between two negative emotions (i.e., guilt and shame) and these two motivation tendencies (i.e., approach and avoidance).

Consistent with the existing literature on emotion and motivation, the CFM suggests that negative emotions often result in one of the two motivation tendencies. For instance, anger, which is defined as an affective state that individuals have when they “*believe that someone has deliberately or through indifference treated you or others you care for rudely and/or unfairly (without consideration)*” (Smedslund, 1993, p.14) often triggers an approach motivation so that individuals want to take further actions such as behavioral noncompliance or revenge in order to facilitate goals that are consistent with the affective state of anger. In contrast, when people feel scared they often adopt an avoidance motivation tendency and tend to flee or isolate themselves as a strategy to avoid potential danger to personal safety. However, Nabi (1999) following Lazarus’ (1991) classification of negative emotions in which guilt and shame are grouped together indicated that the two emotions are often elicited simultaneously by the same incident (i.e., having transgressed a moral imperative). Following this presumption, Nabi (1999) theorizes that both guilt and shame are usually followed by an avoidance motivation tendency stating that “receivers experiencing negative emotions that discourage engaging with the affect’s source or the affect-inducing situation generally, for example, fear, disgust, and guilt, will experience

reduced motivation to carefully process subsequent message information” (proposition 3a, p. 306), and guilt was grouped with fear, disgust, and shame speculated to result in avoidance tendency in proposition 5b (p. 309). Nevertheless, the discussion about why guilt leads to an avoidance tendency in the same manner as shame and fear is rather weak and even contradictory with the existing literature. The following section reviews the literature on guilt, shame, and their motivation tendencies, and derives hypotheses from this discussion.

Motivation Tendency Distinction between Guilt and Shame

While some early scholars argued that guilt and shame are virtually indistinguishable (Smith & Ellsworth, 1985), contemporary researchers have started to develop a way to differentiate guilt from shame in terms of their motivation tendencies. Theorists suggest that guilt is often associated with an approach motive, whereas shame is associated with an avoidance motive (Tangney, Wagner, Hill-Barlow, Marschall, & Gramzow, 1996b; Wicker, Payne, & Morgan, 1983). Because guilt is characterized as a gnawing feeling which is experienced when someone has done something wrong, the actor feels the urge to do something to set things right and repair damages caused by the misdeed so that guilt can be dissipated. Reparation often takes different forms, such as seeking punishment or making atonement for the wrongdoing (Lazarus, 1991). In comparison, shame involves negative global self-evaluation in response to some personal shortcoming. Therefore, shame often results in avoidance which insulates oneself from the public and potentially forthcoming negative evaluation (Lewis, 1971). Rather than having the desire to repair damages caused by transgressions, individuals tend to isolate themselves from other people after experiencing shame (Smith, et al., 2002).

Such a distinction between the approach and avoidance motivation tendencies is derived from the locus of blame following transgressions. When an individual transgresses and the

behavior is the locus of blame (i.e., I did *something* wrong), a feeling of guilt is activated and leads the individual to think about remedies to release oneself from the guilt feeling and make reparation for what was harmed by the misconduct. In contrast, if the individual's global "*self*" is blamed (i.e., I *did* something wrong), the individual is likely to choose to escape from public exposure and avoid further interactions with others. Essentially, a shamed person is concerned about the impaired "*self*", whereas a guilty person is concerned about effects of a *transgression* on others, which leads this individual to consider ways to remedy the harm and possibly restore the relationship with the person who got harmed (Silfver, 2007).

Empirical evidence has been found to be consistent with the motivation tendencies of guilt and shame with samples from a wide range of populations (i.e., from early childhood to older adults) and with different methodologies. In a study conducted by Ferguson, Stegge, and Damhuis (1991), children aged 7-12 read concrete scenarios (either a moral transgression or a social blunder with high or low controllability). The results showed that moral transgression scenarios elicited a greater level of guilt compared to social blunder scenarios which induced a stronger feeling of shame. It was also found when children felt guilty they tended to look for ways to resolve their problematic situations. In contrast, when a feeling of shame was experienced by children, they often responded with a fear of being ridiculed, a desire to avoid detection, a concern over what impression they have made on others, and a need to escape from others.

Sheikh and Janoff-Bulman (2010) conducted three studies with undergraduates and similarly found that guilt was related to approach and shame was related to avoidance (study 1). In the second study, undergraduates were primed with either a prescriptive morality induction (i.e., what should you do if your goal is to be moral or immoral?) or a proscriptive morality

condition (i.e., what should you not do if your goal is to be moral or immoral?). The results showed that when probed with a prescriptive morality prime, participants showed a higher degree of guilt which led to an approach motive than participants who were probed with a proscriptive morality prime. Leith and Baumeister (1998) placed guilt-shame and approach-avoidance motive in an interpersonal conflict setting. They found that guilt-proneness (study 1a and 1b) and guilt-dominant stories (study 2) led people to perspective taking of their counterpart in a conflict and the relationship was improved, while shame harmed the relationship. Leith and Baumeister (1998) suggest that because guilt motivated one party in the conflict to repair the harmed relationship, a positive relationship outcome always occurred subsequently to a feeling of guilt. Given the above reasoning, the first hypothesis for study two is developed:

Hypothesis 1: Guilt is positively related to an approach motive when shame is controlled (H1a), and shame is positively related to an avoidance motive when guilt is controlled (H1b).

Given the primary objective for this project is to assess the individual effect of guilt and shame on information processing, it is critical to separate them with greater clarity. With this objective in mind, the second study follows the argument made in the first study with regard to the role played by controllability in distinguishing guilt from shame, and places participants into hypothetical scenarios which are intended to elicit guilt or shame rather than relying on participants' recollection of their past experience. Hence, the hypothesis in the first study is also tested in the second study, with controllability (i.e., an ascription to a lack of effort vs. an ascription to a lack of aptitude) manipulated by the researcher. Hence, the second hypothesis is examined:

Hypothesis 2: An ascription to a lack of effort (i.e., controllability) leads to a feeling of guilt (H2a), and an ascription of a lack of aptitude (i.e., uncontrollability) leads to a feeling of shame (H2b).

The Role of Causal Agency in the Relationship between Guilt and Shame

Although with different theoretical propositions and methodological approaches, high correlation between guilt and shame has been reported by many scholars (Schmader & Lickel, 2006; Sheikh & Janoff-Bulman, 2010; Tangney & Dear, 2002; Zhuang & Bresnahan, 2012). If it is possible to distinguish guilt from shame with more clarity, their distinct impacts on information processing can be better assessed. Hence, besides examining controllability, the second study includes another potential factor—causal agency based on the idea that transgressions caused by *self* or *others* generate guilt and shame with different degrees of overlap with each other, and that the extent to which individuals can differentiate their feelings of guilt and shame when they or someone else commits transgressions also varies (Schmader & Lickel, 2006).

Indeed, guilt and shame have often been found to co-exist when personal responsibilities are identified as the defining feature for transgressions and personal failure (i.e., *I did something* wrong, see Smith & Ellsworth, 1985). Recently researchers suggest that it is easier for individuals to experience guilt and shame distinctly when another person is the causal agency (Iyer et al., 2007; Schmader & Lickel, 2006). When the causal agency is the “*self*”, the boundary between guilt and shame becomes blurry and individuals who committed transgressions tend to experience both guilt and shame with similar if not identical levels of magnitude. In contrast, when the causal agency of a transgression is “*others*”, it is by definition detached from the perceiver’s sense of self. Therefore people might feel guilty over another person’s transgression

because they may believe that the transgression harmed someone else and they might have held accountable for not preventing negative consequences from happening (Schmader & Lickel, 2006). On the other hand, a collective shame is experienced when people perceive that the transgression reflects badly on the whole group and the group-image or identity is threatened (Schmader & Lickel, 2006). Empirically, researchers have shown that collective shame instead of collective guilt increased for both American and British citizens when they read a message which portrayed that their country's image was threatened by their countries' occupation of Iraq (Iyer et al., 2007). Schmader and Lickel (2006) found that when participants recalled a time when they themselves did something wrong, a greater blending of feelings of guilt and shame emerged than when they recalled a time in which a transgression was caused by others. This finding indicates that people did experience feelings of guilt and shame when they were not the causal agency for a given transgression.

However, when another person is the causal agency for a transgression, someone may not feel either guilty or ashamed unless they share some identity or commonality at certain level. The reason for people to feel guilty or ashamed for misconduct that they are not personally responsible for is because that they identify themselves with a group of people who are held accountable for the transgression (Lickel, Schmader, & Barquissau, 2004; Lickel, Schmader, Curtis, Scarnier, & Ames, 2005). Lickel et al. (2004) differentiate collective guilt from collective shame by connecting the literature on appraisal antecedents of guilt and shame with the social identity and self-categorization perspective (Tajfel & Turner, 1986). They argue that a person feels guilty because out-group members are hurt by some in-group members' harmful deeds, even though they are not involved in the transgression and consciously oppose them. In contrast, a person tends to feel ashamed when he or she feels their group-image is threatened by an in-

group member's inappropriate behaviors and they are personally reflected badly because of another group member's misconducts. Shared identity is a necessary condition for a person to feel guilt or shame when he or she is not personally responsible for a given misbehavior. Hence, with a strongly overlapped identity, an individual might feel both guilty and ashamed for another person's wrong doing if he or she believes that a) the transgression harmed someone else, and b) the transgression harmed their group image. As sense of shared identity fades, both feelings of guilt and shame are dampened or disappear. As such, the third hypothesis is advanced:

Hypothesis 3: When the causal agency of a transgression is the "*self*", the correlation between feelings of guilt and feelings of shame will be higher than when the causal agency of a transgression is the "*other*".

The argument regarding under what circumstances an individual feels guilty or shamed when another in-group member commits misconduct is largely based on the devaluation of *behavior* or *self* as the appraisal antecedents for guilt and shame. Empirical evidence is also consistent with such claim (e.g., Iyer et al., 2007, Scarnier, Schmader, & Lickel, 2009), indicating that when the global self/group-image is suspected to be devaluated for another person's wrong doing, an individual tends to feel more ashamed rather than guiltier. On the other hand, when damage is only believed to generate injuries on other people without the global self/group-image threatened, a feeling of guilt instead of shame is evoked. Given the interest in controllability, does controllability of misconduct interact with causal agency to influence the induction of guilt and shame? As discussed in Chapter I, controllability as an appraisal antecedent for guilt and shame to certain extent suggests whether a "global" self or a particular aspect of the self is the target of blame for a transgression or failure. That is, when a failure is attributed to a lack of effort (or other controllable causes), an individual's "*self*" is not likely to

be affected (e.g., I am bad at math because I never made effort to learn it); when a failure is regarded to be due to a lack of aptitude (or other global ascription), the individual's value of "*self*" is likely to be attacked and devaluated (e.g., I have learning difficulties so I can never be good at math). Although research connecting controllability and causal agency is limited, an interaction relationship is predicted based on the reasoning above:

Hypothesis 4: Controllability interacts with causal agency to influence guilt, such that the effect of lack of effort on guilt would be stronger when self is the causal agency than when other is the causal agency.

A similar prediction can be made with regard to shame, that is uncontrollable causes lead to a stronger shame feeling than controllable causes, but such effect is more evidenced when self rather than other is the causal agency given that it is easier for individuals to distinguish attributions to aptitude versus efforts when other is the causal agency. Hence, the fifth hypothesis is proposed:

Hypothesis 5: Controllability interacts with causal agency to influence shame, such that the effect of lack of aptitude on shame would be stronger when self is the causal agency than when other is the causal agency.

Guilt, Shame, Information Processing, and Attitude Change

Decades of research based on the dimensional approach of emotion has been shown to have an impact on individuals' attitudes. For example, Krosnick, Betz, Jussim, and Lynn (1992) showed that exposure to subliminal positive photos (e.g., a group of smiling friends) resulted in more positive ratings of a target's activities compared to exposure to negative photos (e.g., a bucket of snakes). A subsequent study revealed affective status mediated the relationship between a disliked out-group member and other's biased judgment (Jussim, Nelson, Manis, &

Soffin, 1995). These researchers suggested that both cognitive and affective factors mediate the relationship between group labels and biased judgments towards the out-group. In fact, many theorists have recognized the interconnection among affective, cognitive, and behavioral bases of attitudes (Petty & Wegener, 1998).

In communication research, there is an emerging need for conducting research examining the persuasive effects of discrete emotions on attitude changes (Dillard & Peck, 2001, Nabi, 2002b). With such a call for research in discrete emotions, contemporary research starts to switch emphasis and has demonstrated that discrete emotions influence information processing, attitudes, and decision-making in different ways. Among these discrete emotions, fear is the one that has been investigated the most systematically and thoroughly (Dillard & Seo, 2012), and anger and fear are often selected as a pair and compared against one another (e.g., Lerner & Keltner, 2000, 2001; Lerner, Gonzalez, Small, & Fischhoff, 2003; Nabi, 2002a, 2003) showing that discrete emotions have distinct effects on information processing. Rather than grouping emotions based on their valence, some contemporary research selects one single positive emotion, contrasts its persuasive effects against a single negative emotion, and generalizes such different persuasion effects to positive and negative emotions (e.g., Banas, Turner, Shulman, 2012)

Previous studies on guilt appeals in communication have rarely used theoretical frameworks explicitly developed for discrete emotions to explain the persuasive impact of guilt appeals (e.g., Hullett, 2004; Wang, 2011). Instead, theories such as the functional theory (Herek, 1986) and the integrative model of behavioral prediction (Fishbein & Cappella, 2006) not intended to illustrate emotional appeals' influence on attitudes change were adopted. The Cognitive-Functional Model (CFM) (Nabi, 1999) provides a useful framework for understanding

how negative discrete emotions generate different motives and how these motives further shape information processing and attitude change.

Although grounded in dual process models such as ELM and HSM, the CFM starts from the assumption that emotions are discrete and each emotion has a unique impact on person-environment relationships (Nabi, 2002a). Therefore, each emotion is related to individual goals and action tendencies that are intend to achieve those goals. Despite other models that account for the process of persuasion, the CFM is unique in its perspective of the role played by emotion in persuasion. That is, the CFM views emotion as determinant of motivation that influences information processing depth, whereas the ELM considers that emotions' influence when the motivation level has been determined (Nabi, 2002a, Petty, Cacioppo, & Kasmer, 1988; Petty, Gleicher, & Baker, 1991). Consistent with functional emotion theories (e.g., Lazarus, 1960, 1991), which suggests that discrete emotions result in different motivation levels, the view of emotion and motivation in the CFM extends the understanding about how emotions are intertwined with motivation tendencies to influence information processing and attitude change.

The CFM suggests that approach and avoidance motivation tendencies are the essential determinants for whether individuals would further think through information carefully, read it quickly and decide its usefulness based on heuristic cues, or simply ignore it due to the emotional burden (Nabi, 1999). Although the CFM fails to specify the unique individual motivational responses generated by guilt and shame, this model still provides a plausible framework for the current investigation with regard to how guilt and shame influence information processing and attitude change through distinct motivation tendencies. The CFM indicates that when the approach motivation is activated through experiencing certain negative emotions (e.g., anger), people are likely to cognitively engage with a forthcoming message,

while when the avoidance motivation is generated (e.g., when fear is elicited), individuals are less likely to engage with forthcoming information content and tend to instead focus on peripheral cues, e.g., source credibility, argument length, etc. (Nabi, 1999). Following the approach motivation, if individuals continue to perceive that they have the ability to engage with a message (e.g., not overwhelmed by extreme emotions), it is plausible that they will take the central/systematic route (e.g., evaluate messages based on argument quality and strength).

Limited research based on the CFM has lent some support to such claims. Nabi (2002a) demonstrated that compared to fearful message receivers, angry message receivers processed information more systematically presumably due to their approach tendency. Partially based on the CFM, Yan et al. (2010) have demonstrated that approach and avoidance motivations as individual dispositions were elicited via recalling different life events (study 1). Yan et al. (2010) also demonstrated that emotions (i.e., happiness and sadness) distinctively interacted with gain- and loss- message framing to influence attitude change (study 2) such that happy message receivers changed their attitudes when reading gain-framed messages while sad message receivers changed their attitudes when reading loss-framed messages. In a separate study, Yan, Dillard, and Shen (2012) showed approach mediated the persuasion of angry and happy message receivers when reading gain-framed messages while avoidance mediated the persuasion of fearful message receivers when reading loss-framed messages. Yan et al. (2010, 2012) indicate the important role of motivation tendency played in persuasion.

However, so far research has focused on examining some traditional emotions (e.g., fear and anger) which are known to have different motivation tendencies, or comparing positive with negative emotions to test the potential mediating role in persuasion effects played by motivation tendencies. The impact of guilt and shame on persuasion through motivation tendencies is still

largely unexplored. In addition, previous research has regarded the tendency to approach or avoid as individual traits, rather than state-based motivation tendencies that an individual is likely to experience while encountering a novel message exposure. Yan et al. (2010, 2012) have not yet illustrated whether approach- or avoidance- motivation follow emotions that are evoked through message exposure, and whether the state-based motivations mediate the relationship between persuasion and discrete emotions. Hence, this study put its emphasis on examining the effects of state-based as opposed to trait-based motivation tendencies on persuasion. The following sections will review the literature on guilt, shame, and their persuasive effects in linkage with their motive tendencies.

Guilt, Approach Motivation, Information Processing, and Attitude Change

CFM (Nabi, 1999) brings cognitive and affective factors of information processing together suggesting that discrete negative emotions influence information processing and attitude change through approach or avoidance motivation. Information processing can be carried out at different levels of depth, and the greater the depth of processing, the greater the degree of systematic analysis, and the more superior the retention of target information (Barker, McInerney, & Dowson, 2002). With respect to guilt, in the light of previous literature, guilt is thought to be likely to result in approach motivation. When a persuasive message elicits a feeling of shame-free guilt among message recipients, the approach motivation is activated and stimulates message recipients to seek possible remedies from the message they are about to read in order to alleviate their feelings of guilt. Therefore, the approach motive will encourage message recipients to engage in more careful subsequent information processing (i.e., central information processing, Nabi, 1999, proposition 3b, p. 308).

Research in education and psychology has provided tests for these claims. For example, Barker and colleagues (2002) randomly assigned toddlers and students in primary schools into one of four conditions (mastery manipulations, performance approach, performance avoidance, and the control group). The performance approach condition focused participants' attention on improving their ability, whereas the performance avoidance condition directed participants' attention to avoiding the appearance of lack of ability. The study found that students in the performance approach condition demonstrated superior recall compared to students in the performance avoidance condition. Along these same lines, Leikas, Lindeman, Roininen, and Läähteenmäki (2007) found that individuals' orientation in avoidance motivation was negatively correlated to both analytic and intuitive thinking but positively related to risk scariness and other people's likelihood to experience the risk. In contrast, approach orientation was positively related to analytic and intuitive thinking as well as the likelihood of experiencing the risk.

Framed in the functional model, previous studies examining how emotions and motivation tendencies influenced information processing showed that the behavioral inhibition system mediated the relationship between fear and peripheral information processing whereas behavioral activation system mediated the relationship between anger and central information processing (Sheikh & Janoff-Bulman, 2010; Yun, 2008; Yun et al., 2010, 2012). However, these studies deviated from the fundamental assumptions of the functional model. That is, motivation tendencies are post-emotion stages leading individuals to different information processing manners, as opposed to individual traits which precede emotions. This current study investigates how state-motivation tendencies influence the relationship between emotions and information processing. While previous research has not yet examined the relationships among guilt,

approach motivation, and information processing, the same logic may apply. Thus, the first hypothesis is proposed:

Hypothesis 6: Approach motivation will lead to central information processing.

In combination with the discussion regarding guilt and approach motivation, a mediation relationship emerges. That is, when guilt is provoked, individuals tend to engage in an approach motivation tendency. Such motivation leads people to in-depth information processing in order to achieve goals associated with guilt (e.g., relationship amendment, reparation of the wrong that has been done). Another hypothesis is proposed:

Hypothesis 7: Approach motivation mediates the relationship between guilt and central information processing.

Researchers have conducted a series of studies investigating the impact of guilt appeals on attitude change. For example, Pinto and Priest (1991), Pinto and Worobetz (1992), and Coulter and Pinto (1995) have found that moderate guilt appeals were more effective in persuading consumers compared to either low or high guilt appeals. In other words, an inverse U-shape relationship was found between guilt intensity and attitude change in studies on commercial advertisement. When high guilt appeals are used, message recipients' responsibility for a hypothetical transgression is often clearly identified (Coulter & Pinto, 1995). The high-guilt condition included an accusation of responsibility stating "It is YOUR responsibility to make sure that your kids have healthy eating habits...DO IT RIGHT!"). Under such circumstances, participants tended to perceive this commercial message tries to make money by manipulating them. However, without an inclusion of message respondents' anger responses, it was difficult to assess the role played by anger in attitude change in this context. O'Keefe (2002) concluded that such messages "create greater guilt and they may also arouse other negative

feelings (e.g., anger) that interfere with persuasive success” (p.331). Indeed, when anger is evoked, people tend to take actions (e.g., ignore the message, behave opposite to the recommendation) as a way to reduce their anger.

Outside of the commercial advertising domain, communication researchers have examined the effect of guilt on several health behaviors (e.g., unprotected sexual behaviors, organ donation, binge drinking, Hullett, 2004; Lindsey, Yunn, & Hill, 2007; Wang, 2011). However, the inverse-U shape relationship between guilt and attitude change was not found in any of these studies. These studies have suggested that guilt appeals provoke feelings of guilt varying in intensity which led to different degrees of attitude change towards the target subjects. As these studies reported a positive linear relationship between guilt and attitude change in health and pro-social behavior domains, it is possible that individuals are more receptive to the intention of persuasive messages, and they might hold more positive emotions towards the topic, which may co-vary with feelings of guilt to influence attitudes change. The literature reveals mixed results in terms of the relationship between guilt and attitude change, and this confusion might be attributed to the variation in targeted subject domain (i.e., purchasing behavior vs. health-promotion/protection), perceived persuasive intention (i.e., persuading purchase vs. promoting health), and inconsistency in the inclusion of other emotions (i.e., whether anger, empathy, and other potential emotions were measured and included in a model). Hence, due to the inconclusive direction of the relationship between guilt and attitude change, a research question is proposed:

Research Question 1: Does guilt have an impact on attitudes?

Shame, Avoidance Motivation, Information Processing, and Attitude Change

According to Nabi (1999), when negative emotions are experienced which result in an avoidance motive, message recipients automatically engage in peripheral information processing in which attitude change relies on consideration of cues related to the emotion-inducing situation and alleviation of negative effects (proposition 3a, p.308). Previous research has demonstrated that shame usually leads to an avoidance motive. As defined earlier, avoidance motivation serves as a catalyst of “moving-away” behaviors as responses to negative stimuli. When encountering an unpleasant event, individuals usually try to forget the painful experience by avoiding further mental effort to think about it and potential interaction with people who could possibly remind them of it, or they may completely isolate themselves from the public in order to seek security. In the realm of information processing, avoidance motivation likely results in peripheral information processing because individuals in such a situation do not expect that careful information processing could alleviate the negative emotional states that they have experienced (Bohner, Chaiken, & Hunyadi, 1994). Hence, avoidance motivation either prompts individuals to completely ignore further information that they might be encountering, or simply focus on peripheral/heuristic cues (e.g., source credibility) to determine whether the information is acceptable or not (Bohner et al., 1994).

The relationship between avoidance motivation and peripheral information processing has been demonstrated in several studies. Bohner et al., (1994) found that with compared to participants who experienced happiness, participants put into sadness condition, which presumed to engender avoidance motivation, showed a lower engagement in further information processing occurred, and they used the emotion as a heuristic cue to make a judgment about a forthcoming message based on “how I feel about it”. Förster, Friedman, Özelsel, and Denzler (2006) have found that enactment of avoidance motivation constricted people’s attitudinal scope, led to an

emphasis on local perceptual details, and restrained further mental access to deeper analytic processing. Fear-appeal research has demonstrated that when induced with high-fear messages, people are likely to process messages peripherally where avoidance motivation is presumably the outcome of high-fear appeal (Hale, Lemieux, & Mongeau, 1995). Based on this reasoning, another hypothesis regarding the relationship between avoidance motivation and peripheral information processing is proposed.

Hypothesis 8: Avoidance motivation will lead to peripheral information processing.

Incorporating the discussion regarding the relationships between shame and avoidance motivation, and between avoidance motivation and peripheral information processing, a mediation relationship also emerges. When individuals feel ashamed, they automatically try to avoid further interaction with the outside world as a way to reduce painful self-devaluation. Such avoidance in turn results in ignorance of forthcoming information, or making a decision about accepting information or not based on peripheral cues. Hence, another hypothesis is developed to test the mediation effect:

Hypothesis 9: Avoidance motivation mediates the relationship between shame and peripheral information processing.

Research on the association between shame and attitude has been largely exploratory without clear theoretical guidance. A vast majority of studies have focused on the devastating aspects of shame by illustrating that shame is positively related to negative body attitudes (Andrews, 1997), and negative attitudes towards individuals who have chronic pain (Werner, Isaksen, & Malterud, 2004). In the realm of health, environment, and risk communication, there has been growing interest in shame. A recent study conducted by the author found a positive relationship between shame and attitudinal change towards STD testing (Zhuang & Bresnahan,

2012). Several scholars studying ecology and environmental conservation have found that “responsible feelings” (i.e., guilt, shame, embarrassment) trigger attitudinal change when individuals are reminded that their behaviors violate social norms (Kaiser, Ranney, Hartig, & Bowler, 1999). Many aspects of the impact of shame on attitudes and behaviors remain unclear prompting the proposal of the following research question.

Research Question 2: What is the relationship between shame and attitudinal change?

Negative Emotions, Approach-Avoidance Motivation, Information Processing and Attitudinal Change

Attitudinal change following an approach motivation tendency tends to be predicted by central information processing. When message respondents hold an approach motivation tendency, they are likely to process information in more depth by paying attention to central cues, such as argument strength, which is defined as message respondents’ subjective perception of the arguments in a given persuasive message as “*logically sound, defensible and compelling*” or “*open to skepticism and easy refutation*” (Petty, Cacioppo, & Heesacker, 1981, p. 435). Message receivers’ attitudes are more likely to change when strong arguments as opposed to weak arguments are present. Therefore, another hypothesis is proposed.

Hypothesis 10: When approach motivation is dominant, strong persuasive messages are more likely to generate attitude change than weak persuasive messages.

Avoidance motivation is presumably an obstacle for careful information scrutiny because individuals in such a momentum desire to escape and hide from further confrontation of potentially unpleasant information, or they simply do not have the ability to process forthcoming information. Therefore, peripheral cues such as source credibility or length of argument might

change their attitudes, whereas central cues such as argument strength are less likely to change their attitudes. Therefore, the last hypothesis predicts that:

Hypothesis 11: When avoidance motivation is dominant, strong persuasive messages are not superior in generating attitude change compared to weak persuasive messages.

Method

Study Design

As an extension of the first study, the second study made two modifications to investigate two major questions. Compared to Study 1 which asked participants to recall a personal or other failure/transgression, the second study presented scenarios which varied levels of controllability (*effort vs. capability*) and the causal agency (*self vs. others*) to explore whether controllability causes different degrees of guilt and shame and whether guilt and shame would result in distinct motivation tendencies. In addition to examining the effects of controllability and causal agency on participants' feelings of guilt and shame, the second study also investigated whether guilt and shame would lead to different motivation tendencies and therefore vary in their effects on information processing and attitude change.

The second study was comprised of two parts. The first part tested whether the two manipulated dimensions (i.e., controllability and causal agency) induced different levels of guilt and shame, as well as different motivation tendencies among participants. The second part of the study tested whether argument strength interacted with motivation tendencies to influence attitude change. This resulted in a 2 (controllability: effort vs. aptitude) X 2 (causal agency: self vs. others) X 2 (argument strength: weak vs. strong) between-subject factorial design.

Pretests and Modification of Message Inductions

Guilt- and shame-message inductions were tested with two pretests. Ninety seven (38 males, 58 females, and one gender unidentified, age ranging from 18 to 23, $M = 19.56$, $SD = 1.21$) and one hundred and eight (41 males, 65 females, and two gender unidentified, age ranging from 18 to 24, $M = 20.95$, $SD = 1.04$) college students were recruited for the two waves of pretesting. The first pretest indicated that message recipients did not understand the message as intended since the manipulation check failed to show the direction predicted.

The author revised the message inductions to strengthen the distinction between controllable and uncontrollable causes (See Appendix B for message inductions) and reworded the manipulation check items to better reflect the message inductions. The second round of pretest using one-way ANCOVA showed that message recipients understood the messages such that recipients in uncontrollable cause conditions agreed more that the accident occurred due to the actor's lack of competence compared to participants assigned to controllable cause conditions, $F(1, 105) = 32.92$, $p < .001$, $\eta^2 = .14$, controlling for the effect of self/other manipulation. Message recipients assigned to controllable cause conditions agreed more that the accident was caused by the actor's lack of effort in driving carefully than participants assigned to uncontrollable cause conditions, $F(1, 105) = 8.21$, $p < .01$, $\eta^2 = .07$ with the effect of the self/other manipulation controlled. Moreover, the effects of the message inductions on the two focal emotions (i.e., guilt and shame) were shown to be in the predicted direction, and participants' guilt and shame emotions were elicited successfully as the mean scores were above or around the mid-point of the scale in all conditions (See Table 4 for descriptive statistics for this pretest). In the two waves of pretest, participants ($n = 205$) also proceeded to the second part of the study in which they read the persuasion message and were asked to list all their thoughts

after reading the message. This set of listed thoughts was used as coder training dataset for this study.

A third pretest was conducted to assess message strength. Fifty nine participants were recruited (22 males, 36 females, 1 gender unidentified) with age ranging from 18 to 27 ($M = 21.21$, $SD = 1.25$). Message strength was measured with both Nabi (2002) message strength index and a newly developed message strength scale (Zhao, Strasser, Cappella, Lerman, & Fishbein, 2011). Independent sample T-tests indicated that with both measures, the strong argument message was perceived to contain stronger arguments than the weak argument message, $t(57)s > 4.35$, $ps < .001$ (See Table 5 for descriptive statistics). Given such evidence, the author decided to proceed to main data collection.

Main Study Participants and Procedure

Prior to conducting the main study, power analysis was performed to calculate the required sample size to detect significant effects of a given size. The alpha value was set at the .05 level and the effect size was set to be .25 which was the effect size reported in the relevant literature for the message stimuli on negative emotions (e.g., Nabi, 2002a). The minimum sample size calculated using G-Power 3.1 was 210 subjects.

403 undergraduate students (190 males, 212 females, and one gender unidentified) enrolled at a large Midwest University were recruited from a research participant pool to participate in the main study in exchange for research credit. The average age was 19.99 ($SD = 1.83$), ranging from 18 to 38. Among them, 73.4% ($n=296$) were White/Caucasian, 7.4% ($n = 30$) were African American, 5.7% ($n = 23$) were Asian American, and 2.7 % ($n = 11$) were Hispanic/Latino.

Participants received an email containing a URL which randomly assigned them to one of four experimental conditions in part one of the study. Upon arriving at the survey website, participants were first asked for informed consent. Upon giving consent, participants proceeded to pages containing survey question items. Before reading the experimental induction, they were asked about their initial attitudes towards risky driving behaviors. After providing answers to these items, participants proceeded to read one message induction and complete manipulation check items and questions assessing their guilt, shame, and anger feelings, and their approach-avoidance tendencies. At the end of the first part of the study, participants were asked to enter a password which was used later as a code to match participants' responses in the two parts of the study. After providing a password, participants were randomly assigned to either strong or weak argument strength condition to read a news article about an anti-risky driving campaign in Lansing. Participants were asked to list their thoughts and indicate their attitudes towards driving in snow with extra care as well as their perception about the source credibility and believability of the article after reading the message. The entire survey took approximately 20 minutes to complete. Participants were directed to a separate web page where they were debriefed, thanked, and left their information for credit record.

Stimuli

Risky driving in snow was chosen as the content vehicle for this study. Controllability and causal agency were manipulated in the first part of this study. In terms of controllability, the manipulation adhered to the conceptualization given by Weiner (1985). A lack of effort was regarded as a controllable cause, whereas a lack of ability was considered as an uncontrollable cause. In the risky driving scenarios, in terms of controllability, ability to drive or making an effort to drive safely on a slippery snow-covered road was manipulated. In the controllable

conditions, the scenario was framed as: “You have been driving for quite a few years, and you are very confident about your competence and skill as a driver... You are driving at a normal speed without slowing down as you want to get home as soon as you can.” In the uncontrollable conditions, the scenario was framed as “You just moved to Michigan, have no skills driving in the snow or ideas about what to do in a skid, even though you have been driving for quite a few years... You are driving at a normal speed without realizing that you need to slow down as you want to get home as soon as you can.”

Regarding the factor of causal agency (*self* vs. *other*), a participant him/herself or a sibling was portrayed as the actor of the transgression. The *self* condition read as “Towards the end of the semester you go home for a winter break, and you want to go to a really big party with friends that you grew up with.” The sibling condition read as “Towards the end of the semester your sibling goes home for a winter break, and he/she wanted to go to a really big party with friends that he/she grew up with.”

Argument strength was manipulated in the second part of this study. A student newspaper article was presented to each participant reporting a new anti-risky driving campaign launched in the Lansing area and providing recommendations about how to avoid risky driving in snow. Each version of the student newspaper article contained six arguments varying in terms of argument strength. The strong arguments are stated in a cogent and convincing way in favor of the recommended solutions using evidentiary statements retrieved from official reports. An example of a strong argument read as “Many people need to get to their destination on time every morning. However, driving safety in snow and ice must be prioritized. SLOW DOWN and drive well below the posted speed limit in snows can increase 45% of your chances of getting to your destination safely and decrease 60% of your chance involving in an accident”. The

numerical figures were drawn from official public transportation sites. In the weak argument condition, bland and non-evidentiary statements were used. An example of a weak argument read as “Many people need to get to their destination on time every morning. Security of driving in snow must be prioritized. SLOW DOWN as well as try your best to get to your destination as fast as you can”. (See Appendix B for Full Experimental Inductions)

Key Measures

Unless described otherwise, all the following measures are in the form of 7-point Likert scales, with 1 indicating Strongly Disagree and 7 indicating Strongly Agree. Validity was tested using LISREL and reliability was assessed for all measures (See Appendix C for full scales and Table 6 for scale validity summary and descriptive statistics).

Guilt. Guilt was measured by four items from Lickel, et al., (2005) including a) I would be feeling guilty; b) I would regret; c) I would feel sorry; d) I would remorse in the situation described above.

Shame. Items adopted from Lickel et al. (2005) were used to measure the feeling of shame. Items included: a) I would be feeling ashamed; b) I would be feeling humiliated; c) I would be feeling disgraced; d) I would be feeling embarrassed in the situation described above.

Approach motivation tendency. Drawing from the existing literature, the approach motive was operationalized as “*making reparations*” and assessed with four items (Schmader & Lickel, 2006), including: a) I feel like I should do something after the event to make it better; b) I would try to do something after the event to make it better; c) I feel like I should apologize for what happened; d) I would try all the things I can to redeem what I have done.

Avoidance motivation tendency. The avoidance motive was operationalized as keeping distance from an event that occurred. Five items was used to measure the avoidance motive

(Schmader & Lickel, 2006). Sample items included: a) I want to be completely unassociated with the event; b) At the time, I would wish that I could remove my association to what happened.

Attitudes towards driving in snow with extra care. Participants' attitudes towards driving in snow with extra care were measured using semantic-differential scales ranging from 1 to 7 both before and after the experimental inductions in the study. The bipolar scales were adopted from Burner, James, and Hensel (2001), permitting tapping both affective and instrumental components of attitude, which is suggested by Fishbein and Ajzen (1975). Participants needed to indicate to what extent they think driving in snow days with extra care is good/bad, foolish/wise, harmful/beneficial, negative/positive, irresponsible/responsible, dangerous/safe, unpleasant/pleasant.

Angry responses. A four-item scale adopted from Forgays, Forgays, & Spielberger (1997) was used to measure the feeling of anger experienced by participants in the situation described in the message. Sample items included: a) I would feel furious in the situation described above; b) I would feel burned up in the situation described above.

Message believability. Message believability was measured with a seven-point likert scale consisting of four items (e.g., I found the information presented in this article believable) adopted from Peng, Zhuang, and Lapinski (2013). Higher scores indicate stronger believability.

Source credibility. Source credibility was measured with a semantic differential scale consisting of eighteen items adopted from McCroskey (1966). The scale consists of three dimensions: competence, goodwill, and trustworthiness, with each consisting of six items.

Information processing. Information processing depth was assessed by the thought-listing technique (Cacioppo, Harkins, & Petty, 1981). After reading the persuasive message, respondents were asked to "...write down all the thoughts or feelings that you recall having

while reading the above news article”. In the pretest, 187 participants listed thoughts after reading the persuasion message and this set of thoughts ($n = 187$) were set aside for coder training. These thoughts were coded by three trained coders who received a 10-hour training session. The current study adapted four steps suggested by Dillard and Shen (2007), the training also involved four sessions, involving coding thought units, coding of relevant/irrelevant thoughts, coding emotional expressions, and coding thought valance as evaluations for messages (see Appendix D for detailed coding instructions). Coders coded thoughts based on four categories (i.e., topic-relevant, message-relevant thoughts, positive, and negative thoughts) on Excel spreadsheet. Inter-coder reliabilities for all four categories exceeded .80 using Krippendorff’s alpha inter-coder-reliability index (See Table 7 for inter-coder reliability). Disagreements were solved via discussion with the author.

After satisfactory inter-coder reliabilities were obtained, three coders divided the data evenly and judged whether responses were topic or message relevant, and whether the responses carried positive/negative evaluations about the message. The total number of message-relevant thoughts was used as an indicator of message processing depth. According to Nabi (1998, 2002a), the number of relevant thoughts is a primary indicator of information processing, and the number of thoughts with different valence (i.e., positive or negative) was a second indicator for information processing, as more positive thoughts was supposed to be given to strong arguments and more negative thoughts to weak arguments in central information processing. Neutral valence was set to be the default for any given thought if positive or negative valence was not evidenced. The number of topic/message-relevant thoughts and the numbers of positive and negative thoughts were summed up respectively to form individual indices for the depth of information processing.

Results

Random Assignment Success Check

The success of random assignment was examined by testing whether participants' age, gender, and ethnicity did not differ across the experimental conditions. ANOVA and Chi-square were conducted and the results showed that across the eight experimental conditions, participants' age did not differ, $F(7, 388) = 0.94, p > .05, \eta^2 = .01$, neither did participants' gender $X^2(14) = 15.85, p > .05$, or their ethnicity, $X^2(42) = 47.34, p > .05$, suggesting the success of random assignment.

Manipulation Check

Participants were asked whether they thought the accident depicted in the scenario was due to the actor's lack of effort to slow down or incompetence in driving. Two sets of two-way ANOVAs were conducted with the self/other and controllable/uncontrollable experimental inductions as the independent variables and lack of effort/incompetence as the dependent variables. The results indicated that participants assigned to uncontrollable conditions ($M = 5.36, SD = 1.25$) believed that the accident was caused by the actor's incompetence more than participants in the controllable condition ($M = 4.14, SD = 1.54$), $F(1, 397) = 75.96, p < .001, \eta^2 = .16$. Participants assigned to controllable conditions ($M = 4.89, SD = 1.38$) thought that the accident was due to the actor's lack of effort more than participants assigned to uncontrollable condition ($M = 4.23, SD = 1.40$), $F(1, 397) = 15.04, p < .001, \eta^2 = .04$. The ANOVA results also indicated that the self/other condition did not influence participants' perception about the controllability of the accident, $F_s < 0.4, p_s > .05, n.s.$ The self/other and controllable/uncontrollable manipulations did not interact with each other to influence participants' perception on this issue either, $F_s < 0.3, p_s > .05, n.s.$

Participants were also asked whether they thought the accident was caused by someone else or themselves. Participants in the *self* condition ($M = 5.96$, $SD = 1.01$) thought that the accident was caused by themselves more than participants in the *other* condition ($M = 3.87$, $SD = 1.21$), $F(1, 397) = 108.69$, $p < .001$, $\eta^2 = .24$. Participants in the *other* condition ($M = 5.23$, $SD = 1.37$) thought that the accident was caused by someone other than themselves compared to participants in the *self* condition ($M = 4.01$, $SD = 1.34$), $F(1, 397) = 87.69$, $p < .001$, $\eta^2 = .19$. Similarly, the controllability dimension was not shown to influence this perception, neither did the interaction between the two experimental inductions, $F_s(1, 397) < 0.9$, $ps > .05$, *n.s.* These results suggested that the participants clearly understood the message inductions (See Table 8 for descriptive statistics for key variables across conditions).

Covariate Determination

Before testing hypotheses, one-way ANOVA was conducted to examine whether participants scored differently on anger, message believability, and source credibility across conditions. The results indicated that participants' angry responses, perceived message believability, and source credibility did not differ across eight experimental conditions, $F_s(7, 386) < 1.65$, $ps > .05$, *n.s.* Moreover, anger was suspected to be highly related with participants' guilt and shame, so anger was correlated with guilt and shame. Bivariate correlation analyses indicated that shame but not guilt was significantly correlated with anger, $r_{\text{guilt-anger}} = .06$, $p > .05$, and $r_{\text{shame-anger}} = .16$, $p < .05$. Therefore, anger was included as a covariate for the following hypothesis testing involving shame. In addition, given the high correlation between guilt and shame reported in previous studies (e.g., Lickel & Schmader, 2006; Tangney & Dearing, 2002; Zhuang & Bresnahan, 2012), the correlation between guilt and shame was tested in the current investigation. The result showed that guilt was significantly associated with shame,

$r = .64, p < .001$. Therefore, guilt was included as another covariate to test hypotheses involving shame, and shame was treated as a covariate when hypotheses involving guilt were tested. In addition, message believability and credibility were compared between strong and weak argument strength conditions to determine whether they should be included as covariates. Independent-sample t-test analyses showed that the two argument strength conditions did not differ from each other on message believability or credibility, $t(385) < 1.18, ps > .05, rs < .05$. Therefore, message credibility and believability were not included as covariates.

Hypothesis Testing

The first hypothesis predicted that guilt was associated with approach motivation tendency (H1a) and shame was associated with avoidance motivation tendency (H1b). Ordinary least squares regressions were conducted to test these two hypotheses. Following the recommendation given by Aiken and West (1991), and guilt and shame were mean-centered. To test H1a, mean-centered shame and mean-centered guilt were entered into the model with approach motivation tendency entered as the criterion variable. The results showed that the whole model was significant, $F(2, 394) = 173.05, p < .001, adj.R^2 = .46$; guilt significantly predicted approach motivation tendency, $\beta = .59, t = 12.53, p < .001$, indicating that the stronger the feeling of guilt participants experienced, the more likely they held approach motivation tendency. To test H1b, mean-centered guilt, anger, shame were entered into the model, and avoidance motivation tendency was treated as the criterion variable. A significant model was yielded, $F(3, 394) = 69.77, p < .001, adj. R^2 = .26$. Shame was shown to be positively associated with avoidance motivation tendency, $\beta = .52, t = 9.22, p < .001$, suggesting the stronger the feeling of shame participants experienced, the more likely they held an avoidance motivation tendency. Hence, the data were consistent with both H1a and H1b.

Hypothesis 2 predicted that an attribution to a lack of effort would lead to a higher level of guilt than shame (H2a) whereas an attribution to a lack of aptitude would lead to a stronger feeling of shame than guilt (H2b). One-way ANCOVA, with manipulated controllability as the independent variable, and guilt or shame as the dependent variables, controlling for the effect of self-other causal agency manipulation was used to test these two hypotheses. The results showed that although participants in the controllable conditions ($M = 5.96$, $SD = 1.20$) scored higher on guilt compared to participants in the uncontrollable condition ($M = 5.74$, $SD = 1.28$), the difference was not statistically different, $F(1, 394) = 3.02$, $p > .05$, $\eta^2 = .02$. Similarly, an insignificant difference was yielded between controllable ($M = 5.00$, $SD = 1.65$) and uncontrollable conditions ($M = 5.23$, $SD = 1.54$) in terms of shame, $F(1, 394) = 2.07$, $p > .05$, $\eta^2 = .01$, although the difference was in the direction predicted. Hence the data were not consistent with H2a or H2b.

It was hypothesized that when self was the agency of a transgression, the correlation between guilt and shame would be higher than when the agency of a transgression was someone else (H3). The procedure suggested by Blalock (1972, p. 432) was followed to test this hypothesis.

As suggested by Blalock (1972), z scores were created through Fisher transformation

$$[z = \frac{1}{2} \ln\left(\frac{1+r}{1-r}\right)]. \quad r_{\text{self}} = .65, \quad r_{\text{other}} = .52.$$

$$Z_{\text{self}} = 0.77, \quad Z_{\text{other}} = 0.57.$$

$$N_{\text{self}} = 193, \quad N_{\text{other}} = 202$$

$$\sigma_{z1-z2} = \sqrt{\frac{1}{N1-3} + \frac{1}{N2-3}} = \sqrt{\frac{1}{193-3} + \frac{1}{202-3}} = 0.1$$

$$Z = \frac{(Z1-Z2)}{\sigma_{z1-z2}} = \frac{(.77-.57)}{0.1} = 2.00 \text{ which was larger than critical z score 1.65. Hence the difference}$$

between the guilt-shame correlation for self-other conditions was significant and the data were consistent with H3.

Hypotheses 4 and 5 predicted an interactive effect between controllability level of a transgression and the causal agency on guilt and shame. Hierarchical linear regressions were conducted to test the two hypotheses. To test H4, mean-centered shame (Block1), dummy coded controllability and causal agency conditions (Block2) and the product term between controllability and causal agency conditions (Block3) were entered into the model with guilt treated as the criterion variable. The results suggested a significant model, $F(4, 396) = 68.20, p < .001, adj. R^2 = .41$, but the interaction was not statistically significant, $\beta = .06, t = 0.85, p > .05$ (See Table 9 for model summary).

To test H5, mean-centered anger and guilt (Block 1), dummy coded controllability and causal agency experiment inductions (Block2) and the product term of the dummy coded experimental conditions (Block3) entered into the model and shame was treated as the criterion variable. Although the entire model was significant, $F(5, 391) = 59.35, p < .001, adj. R^2 = .42$, the interaction between two experimental induction dimensions was not shown to be significant, $\beta = .11, t = 1.21, p > .05$ (See Table 10 for model summary). Hence the data were inconsistent with H5.

Hypothesis 6 predicted that approach was positively associated with central information processing. The hypothesis was tested with regressions treating mean centered approach motivation tendency as the predictor and the numbers of topic relevant thoughts and message relevant thoughts as the criterion variables respectively, controlling for the effects of message inductions. The results showed both models were significant, $F(3, 347) = 2.08, p < .05, adj. R^2$

=.05 for topic relevant thoughts, and $F(3, 347) = 2.68, p < .05, \text{adj. } R^2 = .06$ for message relevant thoughts. Approach motivation tendency was found to significantly predict both topic relevant thoughts $\beta = .12, t = 2.13, p < .05$, and message relevant thoughts, $\beta = .15, t = 2.57, p < .05$, suggesting that the more approach motivation tendency held by participants, the more topic- and message-relevant thoughts they generated. As indicated by Nabi (1999, 2002a), the numbers of thoughts carrying positive and negative evaluations about the message can be used as secondary indicators for information processing. Another set of regressions was conducted following the same procedure but with the numbers of positive/negative thoughts treated as the criterion variables respectively. The results showed that when the number of positive thoughts was the criterion variable, the entire model was insignificant, $F(3, 347) = 1.61, p > .05, \text{adj. } R^2 = .04$, and approach motivation tendency did not predict positive thoughts, $\beta = .01, t = 1.54, p > .05$. When the number of negative thoughts was the criterion variable, approach motivation tendency was not a significant predictor, $\beta = .05, t = 0.95, p > .05$, despite significance of the entire model, $F(3, 347) = 6.55, p < .001, \text{adj. } R^2 = .13$. Hence the data were partially consistent with H6.

Hypothesis 7 predicted that approach motivation tendency mediated the relationship between guilt and central information processing. To test this hypothesis, several hierarchical regression analyses were conducted following the recommendation given by Baron and Kenny (1986) with the five indicators of information processing (i.e., numbers of topic/message relevant thoughts, numbers of positive and negative thoughts). In each set of hierarchical regression, three sub-regression analyses were conducted. The first analysis was conducted to establish the relationship between guilt and central information processing and the predictors were dummy coded experimental conditions and mean centered shame (Block1) and mean centered guilt (Block2). The second analysis was conducted to establish the relationship between approach

motivation tendency and information processing which was tested in H6. The third analysis was carried out to establish the mediation relationship. That is, when approach motivation tendency was included in the model, the relationship between guilt and information processing reduced or diminished.

Given that approach motivation tendency significantly predicted topic- and message-relevant thoughts provided the evidence in H6, the examination for H7 only focused on these two variables. The results showed that guilt was not significantly associated with the number of topic relevant thoughts, $\beta = .11$, $t = 1.52$, $p > .05$, but was positively related to the number of message relevant thoughts, $\beta = .20$, $t = 2.87$, $p < .01$, which also had a significant model yielded, $F(4, 345) = 3.00$, $p < .05$, *adj. R*² = .06. The third-step analysis was performed with the number of message relevant thoughts as the criterion variable, mean-centered guilt as the predictor, and approach motivation tendency as the mediator (Block2), controlling for the effects of dummy coded experimental conditions, and mean-centered shame (Block1). A significant model was yielded, $F(7, 342) = 2.25$, $p < .05$, *adj. R*² = .05. As predicted, the effect of guilt on information processing reduced to insignificant, $\beta = .12$, $t = 1.47$, $p > .05$. The effect of approach motivation tendency on the number of message relevant thought was statistically significance, $\beta = .14$, $t = 1.96$, $p < .05$. Hence, the data were partially consistent with H7 (See Table 11 for mediation model summary).

Research question 1 probed whether guilt influenced attitude change towards risky driving in snow. Previous research suggested both curvilinear and linear positive relationships between guilt and attitude change. Both possibilities were tested using hierarchical linear regression. To test the curvilinear relationship, participants' score on guilt was first mean centered and then squared following the recommendation given by Aiken and West (1991). The quadratic term was included to test the curvilinear relationship. Mean-centered pre-tested attitude,

and mean-centered shame (Block1), mean-centered guilt (Block2), and squared mean-centered guilt (Block3) were entered into the model, with post-test attitude as the criterion variable. The analysis revealed a significant model, $F(4, 383) = 192.03, p < .001, adj. R^2 = .66$, whereas a significant curvilinear relationship was not yielded, $\beta = -.03, t = -0.81, p > .05$. Instead, a positive linear relationship was exhibited between a feeling of guilt and attitudes towards risky driving in snow, $\beta = .10, t = 2.54, p < .01$, indicating that the guiltier participants felt, the less favorable attitudes they held towards risky driving in snow (See Table 12 for model summary).

It was predicted that avoidance motivation tendency was positively associated with peripheral information processing (H8). The stronger the avoidance motivation tendency participants held, the fewer thoughts they would produce relevant to topic or message. To test this hypothesis, a group of linear regressions were conducted with mean-centered avoidance motivation tendency and dummy-coded message inductions were entered into the model. The four indicators of information processing (i.e., topic- and message-relevant thoughts, the number of positive- and negative- thoughts) were the criterion variables respectively. The results showed that among the four criterion variables, significant entire models were yielded when topic- and message-relevant thoughts, and the number of negative thoughts were the criterion variables respectively, $F(3, 347)_{\text{topic-relevant}} = 2.61, p < .05, adj. R^2 = .03$; $F(3, 347)_{\text{message-relevant}} = 2.99, p < .05, adj. R^2 = .03$; $F(3, 347)_{\text{negative}} = 6.55, p < .001, adj. R^2 = .05$. Models were insignificant when the number of positive thoughts was the criterion variables, $F(3, 347)_{\text{positive}} = 1.54, p > .05, adj. R^2 = .01$. Avoidance motivation tendency was shown to significantly predict topic-relevant thought and the number of negative thoughts, $\beta_{\text{topic-relevant}} = -.12, t_{\text{topic-relevant}} = -1.96, p_{\text{topic-relevant}} = .05$; $\beta_{\text{negative}} = -.19, t_{\text{negative}} = -3.30, p_{\text{negative}} < .01$,

suggesting that the stronger avoidance tendency participants had, the fewer topic-relevant and critical thoughts they generated. Therefore, the data were partially consistent with the hypothesis.

Avoidance tendency was hypothesized to mediate the relationship between shame and peripheral information processing (H9). To test this hypothesis, a similar procedure as H7 was followed while the analysis was limited with topic-relevant thought and the number of negative thoughts treated as the dependent variables given the evidence provided in H8 testing that avoidance motivation tendency was only significantly related to these two indicators of information processing. Following Baron and Kenny's recommendations (1986), three steps of analyses were conducted. In Step 1, the relationship between shame and information processing was to be established. Hence dummy coded experimental conditions, mean-centered guilt, and mean-centered anger and mean-centered shame were entered into the model, with topic-relevant thoughts and the number of negative thoughts treated as the dependent variable respectively. As the results showed, shame was not associated with topic-relevant thoughts, $\beta = -.08$, $t = -1.13$, $p > .05$, and a significant model was not yielded, $F(5, 344) = 1.83$, $p > .05$, $adj. R^2 = .01$. With regard to the number of negative thoughts, a significant model was found, $F(5, 344) = 3.63$, $p < .01$, $adj. R^2 = .04$, and shame was found to be negatively associated with the number of negative thoughts, $\beta = -.26$, $t = -3.75$, $p < .001$. In Step 2, avoidance motivation needed to be related to information processing. Test of H8 showed that avoidance tendency was significantly related to topic-relevant and negative thoughts. Combining results from steps 1 and 2, the analysis in step 3 focused on establishing the mediating relationship between shame and avoidance tendency on the number of negative thoughts. Dummy coded experimental inductions, and mean-centered guilt and anger (Block1) and mean-centered shame and avoidance tendency (Block2) were entered into the model with the number of negative thoughts treated as the criterion variable. The

results showed a significant model, $F(7, 342) = 3.94, p < .001, adj. R^2 = .06$. The effect of shame on the number of negative thoughts reduced but remained significant, $\beta = -.21, t = -2.84, p < .01$, while the effect of avoidance motivation tendency on negative thoughts was approaching significance, $\beta = -.11, t = -1.87, p = .06$ (See Table 13 for model summary). The reduction of the effect of shame on the number of negative thoughts was shown to be not statistically significant using Bootstrap technique (95% confidence interval $-.03, .01$). Therefore, the data were inconsistent with H9.

The second research question investigated how shame affected attitudinal change towards risky driving in snow. Linear regression was conducted with dummy coded experimental conditions, mean-centered pre-test attitude, anger, guilt, and shame entered into the model, and post-test attitude treated as the criterion variable. A significant model was yielded, $F(7, 380) = 6.96, p < .001, adj. R^2 = .68$, and shame was shown to be positively related to less favorable attitudes towards risky driving in snow, $\beta = -.23, t = -3.61, p < .001$, suggesting that the stronger the feeling of shame participants experienced, the less favorable attitudes they had towards driving in snow with extra care.

Hypothesis 10 predicted that when approach tendency was dominant, messages with strong arguments were likely to change attitudes compared to those with weak arguments, and this effect would be reduced when approach motivation tendency was weak. To test this hypothesis, hierarchical linear regression analysis was conducted, with mean-centered pre-test attitude (Block1), mean-centered approach tendency and dummy coded strong/weak argument message inductions (Block2), and the interaction between mean-centered approach and message inductions (Block 3) entered into the model and the post-test attitude treated as the criterion variable. A significant model was yielded $F(4, 384) = 111.05, p < .001, adj. R^2 = .66$, but the

interaction between approach motivation tendency and argument strength was not significant, $\beta = .02$, $t = 0.36$, $p > .05$ (See table 14 for model summary). Hence the data were inconsistent with H10.

The last hypothesis (H11) predicted that messages containing strong or weak arguments would not differ from each other when message respondents' avoidance motivation tendency is dominant. In other words, avoidance motivation tendency does not interact with argument strength to affect attitude change. To test this hypothesis, hierarchical linear regression analysis was conducted, with mean-centered pre-test attitude (Block1), mean-centered avoidance tendency and dummy coded strong/weak argument message inductions (Block2), and the interaction between mean-centered avoidance and message inductions (Block 3) entered into the model and the post-test attitude treated as the criterion variable. A significant model was yielded, $F(4, 384) = 155.37$, $p < .001$, *adj. R*² = .66, and not surprisingly pre-attitude counted for most of the variance in post-attitude, $\beta = .81$, $t = 27.40$, $p < .001$. The interaction between avoidance motivation and argument strength was shown to be insignificant, $\beta = -.04$, $t = -0.85$, $p > .05$ (95% confidence interval [-.13, .05]) indicating that the effect of argument strength on attitude change was not moderated by avoidance tendency. Indeed, the descriptive statistics indicated that attitude change remained the same across messages varying in argument strength (See Table 15 for model summary). Hence, the data were consistent with H11.

Additional analyses were conducted to explore the impacts of message inductions on information processing and attitude change. Several three-way ANOVA analyses were conducted with controllable/uncontrollable causes, self/other causal agency, and strong/weak argument strength entered as the independent variables and the four information processing indicators and post-test attitude as the dependent variables respectively. Two main effects of

controllability were found on the amounts of positive thoughts, $F(1, 343) = 4.13, p < .05, \eta^2 = .01$. Participants assigned to the controllable cause condition ($M = 0.91, SD = 0.08$) generated more positive thoughts than participants assigned to the uncontrollable cause condition ($M = 0.67, SD = 0.08$). Argument strength was found to have a main effect on the number of negative thoughts generated, $F(1, 343) = 8.20, p < .01, \eta^2 = .03$, suggesting that participants assigned to the weak argument condition ($M = 0.17, SD = .03$) generated more negative thoughts than participants assigned to the strong argument condition ($M = 0.04, SD = 0.03$).

The analyses also yielded an approaching-significance two-way interaction between causal agency and controllability on the amount of message-relevant thoughts, $F(1, 343) = 2.96, p = .08, \eta^2 = .01$. The descriptive statistics suggested that when self was the causal agency, participants in the controllable condition ($M = 1.86, SD = 0.12$) generated more message-relevant thoughts than participants in the uncontrollable condition ($M = 1.54, SD = 0.13$), whereas when other was the causal agency, the direction of the difference reversed. That is, participants in the controllable condition ($M = 1.44, SD = 0.13$) generated equivalent amount of message-relevant thoughts than participants in the uncontrollable condition ($M = 1.56, SD = 0.12$). More interestingly, a significant three-way interaction emerged among self/other, controllability, and argument strength on the numbers of negative thoughts, $F(1, 343) = 3.78, p < .05, \eta^2 = .01$. The results indicated that when self was the causal agency and the cause was controllable, participants exposed to the weak argument ($M = 0.31, SD = 0.02$) generated more negative thoughts than participants exposed to the strong argument ($M = 0.05, SD = 0.02$); however, such difference diminished when the cause was uncontrollable ($M_{\text{weak}} = .10, SD_{\text{weak}} = .30; M_{\text{strong}} = .03, SD_{\text{strong}} = .16$). When other was the causal agency, a significant difference between strong ($M = 0.01, SD = 0.01$) and weak argument ($M = 0.18, SD = 0.01$) emerged when the cause was

attributed as uncontrollable, and the difference disappeared when the cause was controllable ($M_{\text{weak}} = .07$, $SD_{\text{weak}} = .27$; $M_{\text{strong}} = .06$, $SD_{\text{strong}} = .44$).

With regard to attitude, a two-way interaction between argument strength and self/other condition was yielded, $F(1, 344) = 6.68$, $p < .01$, $\eta^2 = .02$. When self was the causal agency, weak argument ($M = 6.22$, $SD = 0.97$) generated more favorable attitudes towards driving with extra care in snow than strong argument ($M = 5.87$, $SD = 1.01$), but the pattern was the opposite when other was the causal agency. That is, participants exposed to the strong argument message ($M = 6.06$, $SD = 1.02$) showed more favorable attitudes than those who were exposed to the weak argument message ($M = 5.87$, $SD = 1.03$).

Discussion

The second study was designed to (1) provide a more rigorous test for whether different levels of controllability would predict people's feelings of guilt and shame, (2) investigate how guilt and shame affect information processing and attitude change towards risky driving in snow, and (3) examine the mechanism underlying the process. In this study, two levels of controllability (i.e., lack of effort and lack of aptitude) which were adherent to Weiner's initial conceptualization for controllability were manipulated, coupled with two different causal agencies (self vs. other). This investigation strived to expand understanding about how guilt could be distinguished from shame, whether their effects on information processing and attitude change are similar or different, and what the underlying mechanisms are. Some interesting findings were yielded and are of interest both theoretically and empirically. The following discussion is organized based on the three goals identified for the second study.

Goal 1: Are controllability and causal agency sufficient to distinguish guilt from shame?

Rather than relying on participants' recollection of their life experiences and coders' judgments about whether the failure/transgression was attributed to lack of effort or aptitude, the second study attempted to examine whether manipulating levels of controllability of an accident would lead to different magnitudes of guilt and shame. However, the results did not lend support for this claim when the experimental conditions were used to predict guilt and shame.

To the author's knowledge, thus far, only Brown and Weiner (1984) have manipulated levels of ability and effort when they attempted to induce shame, and they successfully found that lack of ability was positively associated with people's feeling of shame. In Brown and Weiner (1984), an old man was depicted as the actor of a failure. As Brown and Weiner suggested, in order for shame to be elicited through attributing the cause to low ability, it is important to stress that making an effort to avoid failure or transgression is impossible in a given situation. In the current investigation, it was possible that participants perceived the viability of certain kinds of precaution such as leaving earlier, gaining pre-knowledge about the weather condition in winter, or even general sense about winter driving could be taken in order to avoid the situation despite of the effort made to stress that the actor had no chance to improve driving skills in winter. When participants filled in the precautions to the "lack of aptitude" hole, the predictive power of uncontrollability on shame may be reduced. Indeed, evidence found from Study 1 speaks to this issue. Very few participants admitted that nothing could be done to avoid the outcome when they were asked whether they could have done anything to prevent the consequences from happening. Admitting helplessness in a given situation and hopelessness in obtaining ability through making efforts tends to result in self-devaluation and mental health problems such as depression (Seligman, 1975). Therefore, people's desire for control and being in charge might interact with the level of aptitude to influence shame. That is, when people have

less desire for control, lack of aptitude is more likely to result in a feeling of shame than when people have a strong desire for control. A related issue is that most if not all of the participants in this study were likely to have extensive experience driving in the snow in a northern snow state. Although the author attempted to select an involving topic, participants in the study might be optimistic about their driving skills in snow, and they may not realize how someone would not know what to do when skidding on an icy road. Chaos on the roads often results with just a dusting of snow in South Carolina and Texas. People living in the snowy north might not identify with the lack of controllability for driving described in the uncontrollable research induction. Future research should factor in the effect of desire for control when intention to elicit shame through a lack of ability manipulation is made.

Causal agency was the other predictor that has been identified to separate guilt from shame (e.g., Iyer et al., 2007; Schmader & Lickel, 2006). Consistent with the prediction, when causal agency for a transgression was *someone else*, participants were more able to distinguish guilt from shame than when the causal agency was the *self* (H3). Following this argument, it was hypothesized that causal agency would interact with controllability to influence guilt and shame such that when *self* was the causal agency, the intensity of guilt and shame would not differ between controllable or uncontrollable causes, whereas when *other* was the causal agency, the intensity of guilt and shame feelings would differ (H4 and H5). However, the analyses did not find consistent results with the predictions. When the data were scrutinized more closely, it was possible that the absence of significant interaction might be attributed to participants' high score on their perception about their close identity with their sibling ($M = 5.89$, $SD = 1.33$ on a 7-point scale). In other words, such a high mean score indicated a ceiling effect, and hence when participants highly identified with their sibling who was portrayed as the actor of the accident in

the scenario, they almost thought it was themselves causing the accident. Therefore, the power of controllability to distinguish guilt from shame in the “other” condition diminished. It would be informative in the future research to manipulate different levels of identity overlap and examine the interaction effects between controllability and various degrees of overlapping identity on guilt and shame.

Goal 2: How do guilt and shame affect information processing through motivation tendencies?

The second goal examined how guilt and shame affected information processing through motivation tendencies (H1, H6, H7, H8, H9). One defining feature for the cognitive functional model from other dual process models is that it considers emotions as the determinants for subsequent motivation tendencies which in turn result in distinct ways of information processing. The CFM treats guilt and shame as the same emotion and argues that they are followed by avoidance motivation tendency (Nabi, 1999). In contrast to this claim, the existing psychological literature suggests that guilt tends to generate an approach motivation tendency whereas shame results from avoidance (Tangney et al., 1996b; Wicker et al., 1983). Compared to Nabi (1999), this study treated guilt and shame as separate affective states and examined whether they lead to different motivation tendencies. To test these theoretical propositions, the second study incorporated approach and avoidance motivation tendencies as situational factors resulting from the elicitation of guilt and shame. In addition, this study tested the relationships among emotions, motivation tendencies, and information processing. As predicted, guilt was positively associated with approach (H1a) and shame was positively associated with avoidance (H1b). More importantly, guilt and shame were not found to predict each other’s motivation tendency. Hence, the findings provided strong evidence for the claim that guilt and shame should be treated as

different emotions and their effects on information processing and other outcome variables such as attitudes and behavioral change should be examined individually as opposed to be grouped as one emotion.

After the emotion-motivation tendency link was established, this study attempted to explore how motivation tendencies affect information processing depth (H6 and H8). The results suggested that approach motivation tendency positively predicted the amount of topic- and message-relevant thoughts generated after exposure to persuasion messages; avoidance motivation tendency, as predicted, negatively predicted the amount of topic-relevant thoughts and negative thoughts towards the winter driving campaign message. That is, the more respondents wanted to seek a further solution, the more thoughts were generated about risky driving in snow in general and in response to the winter driving campaign message. However, approach motivation tendency was not found to predict the amount of positive or negative thoughts towards the winter driving campaign. On the other hand, when respondents perceived a strong motivation to avoid further information exposure (i.e., avoidance motivation tendency), they generated fewer thoughts relevant to the winter driving campaign message, and were less capable of reading this message critically even though the weak argument message was drafted with a flawed argument (e.g. SLOW DOWN as well as try your best to get to your destination as fast as you can). Avoidance motivation tendency did not predict other information processing outcomes, such as message-relevant or positive thoughts.

Adding to the existing research on motivation tendencies, the findings of the current study provide firsthand evidence for how motivation tendencies influence information processing. Assuming that fear resulted in avoidance motivation tendency and anger was followed by approach motivation tendency, Nabi (2002) found that an anger affective state yielded more

negative thoughts towards weak persuasion messages than a fear affective state. Shen and Dillard (2007), along with other researchers (e.g., Yan, 2008; Yan et al., 2010, 2012) found that behavioral activation system as a dispositional motivation activated more cognitive reactions than behavioral inhibition system. The cognitive functional model proposes a causal chain for the persuasion effects of emotions, that is, emotion framing → emotion in target → approach or avoidance motivation tendency → information processing depth → attitude changes. This model theorizes that an approach or avoidance motivation tendency is an outcome of emotions elicited through emotionally framed messages instead of a dispositional trait that exists prior to message exposure. Without actually measuring motivation tendency, Nabi (2002, 2003) assumed that after exposure to persuasion messages, anger would be followed by approach motivation tendency whereas avoidance motivation tendency was a fixed outcome for fear. However, the findings of the current study indicated that approach and avoidance motivation tendencies were not mutually exclusive or necessarily negatively related to one another. In fact, these motivation tendencies were associated with each other positively ($r = .36, p < .001$), suggesting that one individual can hold these two motivations simultaneously and that both emotions act as antecedents for different motivational tendencies. By statistically controlling for one motivation's effect on information processing, the impact of the other motivation tendency was established and indeed the results showed that these two motivation tendencies varied in terms of the way they affected information processing.

The current investigation tested the underlying mechanism of the emotion-information processing relationship and found some evidence to explain how emotions play a central role in cognition. Approach motivation tendency was hypothesized to mediate the relationship between guilt and information processing (H7), and avoidance motivation tendency was predicted to

mediate the relationship between shame and information processing (H9). After controlling for the effects of emotions that co-occurred after message exposure such as anger, the findings suggest that approach motivation tendency mediated the relationship between guilt and the amount of message-relevant thoughts. That is, when approach motivation tendency was introduced into the model, the significant relationship between guilt and the amount of message-relevant thoughts diminished to insignificant which is a critical element in establishing a relationship of mediation (Baron & Kenny, 1986). Combining with the significant relationships found between guilt and approach motivation tendency and approach motivation tendency and the amount of message-relevant thoughts, a full mediation model was supported. In terms of H9, partial mediation was found such that when avoidance motivation tendency was introduced into the relationship between shame and the number of negative thoughts, the effect of shame on the number of negative thoughts reduced, but remained significant (p -value for the shame-negative thoughts relationship dropped from .001 to .01). Therefore, a partial mediation model was found especially given the large sample size in this study (See Rucker, Preacher, Tormala, & Petty, 2011 for review of full and partial mediation). The partial mediation also suggested other potential mediating factors for the shame-information processing relationship such as the role of awareness, and personal relevance to stimuli (MacLeod & Rutherford, 1992).

These findings suggest the importance of taking approach/avoidance motivation tendency into account when attempts to explore how emotions affect information processing and attitude change are made. Although previous research claims the cognitive functions served by emotions in persuasion, and motivation tendencies are theorized as the underlying mechanisms that activate cognitive responses (e.g., information processing), studies conducted to explore these relationships are still rare. The findings resulting from the current investigation suggest the

plausibility of continuing this line of research by incorporating motivation tendencies as outcomes of emotions to probe how emotions lead to information processing and attitude change.

Goal 3: Putting pieces together: Emotion, motivation tendency, information processing, and attitude change

Ultimately, attitude and behavioral changes are the desired outcomes for persuasion. The current study has placed its emphasis on attitude change. Given the mixed findings in the literature regarding the effect of guilt on attitude change and limited research on the impact of shame on attitude change, two research questions (RQ1 and RQ2) were proposed to probe how guilt and shame would change participants' attitudes towards risky driving in snow with extra care. The results suggested that guilt had a positive linear relationship with attitude towards driving in snow with extra care, while shame exerted a negative linear effect on attitudes change with pre-attitude controlled. Although this linear relationship echoes the results found in a meta-analysis on the guilt-attitude relationship (O'Keefe, 2000). O'Keefe (2000) suggested the reason for a curvilinear relationship between guilt and attitude found in the literature might be due to the fact that other emotions such as anger might have confounded the effect of guilt on attitude making a curvilinear relationship less viable. As a matter of fact, in more recent studies on the guilt-attitude relationship, as in the current study, a significant linear relationship was found (Hullett, 2004; Lindsey, Yunn, & Hill, 2007; Wang, 2011) in a variety of behavioral domains including binge drinking, organ donation, and tailgating littering. In terms of the relationship between shame and attitudes towards desirable behaviors, previous research did not provide much direction. However, exploratory research (e.g., de Hooge, Breugelmans, & Marcel, 2008; Zhuang & Bresnahan, 2012) has consistently shown a positive relationship indicating the stronger the feeling of shame, the more favorable attitude people have towards desirable

behaviors. However, in the current study, a strong negative relationship was evidenced between a feeling of shame and attitudes towards driving in snow with extra care. Whether shame is an “ugly” emotion that backfires the effort to change attitude towards a desirable direction needs further research in behavioral contexts that are more individually-oriented and do not have clear social benefit implications.

Chapter 3: RECAP OF STUDY 1 AND STUDY 2

General Discussion

This dissertation consists of two studies pursuing several goals. First, controllability has been identified as a defining feature for differentiating shame from guilt but to this point has been only minimally tested. Other features thought to differentiate shame from guilt have had mixed results (self v. behavior and public v. private explanations) and so this makes systematic study of controllability all the more important. Hence, this project designed two studies with different methodologies to examine whether controllability is capable of distinguishing guilt from shame with more clarity. Second, guilt has been applied to multiple contexts as a persuasion tool to change attitudes and behavior. The persuasion potential of guilt has been demonstrated through practical application. Nevertheless, there are legitimate concerns about whether guilt overlaps with shame both conceptually and empirically as well as the distinctive functions served by guilt and shame on motivation. It is important to expand understanding about how these two emotions are distinctive and how they uniquely influence information processing and attitude change. A third goal of this project was to explore the role played by motivation tendencies in the connection between emotion-information processing-attitude change as an attempt to unfold the mechanism underlying this process. The two studies included in this project provided empirical evidence that both confirm the plausibility of the cognitive functional model (CFM, Nabi, 1999) and call for future research to further discover the relationships among emotion, information processing, and attitudes.

With these three goals in mind, the first study employed the life incident inventory technique to examine whether people's attribution of causes for failures or transgressions to either controllable or uncontrollable reasons would affect the magnitudes of their feelings of

guilt and shame. Adherent with the conceptualization of controllability proposed by Weiner (1985), the second study manipulated the level of controllability of causes for a transgression to test whether respondents' feelings of guilt and shame were a function of different levels of cause controllability. However, controllability did not predict different levels of guilt or shame feelings in either study. It was possible that participants in both studies were hesitant to admit that they had no control over their failure or transgression and to admit their inaptitude in avoiding negative outcomes. Recognizing that one's failure was due to inability and cannot be redeemed via making an effort is extremely hard to manipulate. Moreover, with young people who are in their early 20's, it may be difficult for them to realize that there are situations in which they are able to do nothing (Steptoe, Wardle, Vinck, & Tuomisto, 1994). Indeed, in the first study when participants were asked whether there was anything that could be done to alter the given situation, a vast majority of participants came up with a solution even if they attributed the failure or transgression to a lack of aptitude. Therefore, future studies need to eliminate the possibility of making efforts to eliminate negative outcomes and stress that the negative outcomes are solely due to lack of aptitude when testing the effect of controllability on feelings of guilt and shame.

Perhaps the goals of most interest of the study are to examine the relationships among emotions, information processing, and attitude change and to unpack the underlying mechanism. Previous communication research either ignored the influence of shame on information processing and attitude or has treated shame and guilt equally and interchangeably assuming that the two emotions affect information processing and attitude change in the same way. However, such an assumption is contradictory to the psychological literature which suggests that guilt and shame differ in terms of their way to be induced, their motivational outcomes, and their impacts on a variety of physical and psychological outcomes. Indeed, the current investigation lends

support to this claim which suggests differences between guilt and shame despite the fact that they often co-occur. As shown in study 2, guilt was associated with approach but not with avoidance motivation tendency (H1a). Shame predicted avoidance motivation tendency but not approach motivation tendency (H1b). Approach motivation tendency was positively associated with the amount of topic- and message-relevant thoughts (H6), and avoidance motivation tendency was negatively associated with the numbers of topic-relevant thoughts and negative thoughts (H8). Furthermore, approach motivation tendency was found to mediate the relationship between guilt and the number of message-relevant thoughts (H7), and avoidance motivation tendency mediated the relationship between shame and the number of negative thoughts (H9). The evidence speaks to the argument that guilt and shame are different in their influences on information processing and their different motivation tendencies provided explanation for their different influences.

As a distant persuasion outcome, attitude change was included in this study. Guilt had a positive relationship with attitude change towards driving in snow with extra care, but shame was negatively associated with the attitude. Contrary to what was predicted, approach motivation tendency did not interact with argument strength to affect attitude change (H10), whereas consistent with the prediction, attitude change was not a function of an interaction between avoidance motivation tendency and argument strength (H11).

One factor in CFM—message reassurance—was not included in the current investigation intentionally for two reasons. First, in the original development and following test of CFM, the conceptualization of message reassurance was rather weak. According to Nabi (1998, 1999, 2002), people are motivated to resolve problematic situations by taking emotionally-consistent actions. That is, they tend to seek protective information when feeling fearful and retributive

information when feeling angry. Nabi (2002) argues that people should be willing to process “valid and relevant efficacy, or reassuring information” (p.206). Following Gleicher and Petty (1992), the CFM suggests that message reassurance is a state of message receivers’ expectation about the extent to which the forthcoming message would provide the information that can fulfill their emotional goals. According to CFM, message reassurance is likely to moderate the relationship between avoidance motivation and information processing, but would not change approach motivation tendency. That is, when people are uncertain about whether a forthcoming message would provide useful information to help them achieve certain emotion-relevant goals, they would be motivated to process the information even if their bottom-line motivation tendency is avoidance and hence people are more likely to pay attention to central information processing cues such as argument strength. However, uncertainty may not switch the information processing style of people who hold approach motivation tendency since their motivation tendency already places them in the central information processing route. Their central information processing might be strengthened when they experience uncertainty as opposed to certainty. However, several problematic issues emerge. First, how to determine whether people are certain or uncertain about the forthcoming message? CFM and previous research suggests two sub-dimensions of message reassurance—a. the extent to which message receivers believe that the forthcoming message would provide valid information and b. the extent to which message receivers are concerned about the target topic. The question becomes whether message receivers’ expectation of message would change over the time period when they read the message and when we would decide that message receivers reached the “certainty” level or still remain “uncertain” about forthcoming messages. Gleicher & Petty (1992) and Nabi (1998) measured message receivers’ level of message reassurance using two items before exposing

message receivers to persuasion messages. Nabi (2002) manipulated message reassurance levels to be either certain or uncertain by including either an optimistic or a divided evaluation about a legislative bill in a news headline and introductory text. However, none of the studies found interaction between message reassurance and motivation tendency in influencing information processing. In fact, message reassurance might not be a function of whether message receivers are concerned about a given topic or whether they expect information would provide valid solutions to release negative emotions they experience on a specific occasion. It can be an individual difference (Nabi, 2002a). For example, cynics might not think forthcoming information is helpful regardless of whether they are concerned about a given topic. Therefore, both conceptual and operational issues call for further elaboration on this concept before it is integrated into message designs and further testing.

Limitations, Implications, and Future Directions

While there are many strong points in the current project, there are some limitations that warrant discussion, including having samples with less generalizability, focusing on a single behavior (Study 2), and not including behavioral outcome variables. Although none of the limitations would change the interpretations and validity of the results, they do limit the implications that could be drawn from the data.

First, in both studies, the sample consisted of mostly White college students reflecting enrollment at the university where this data was collected. This limited the ability to generalize the findings to other population groups who do not share demographic commonalities with this college student sample. Future research should be broadened to other population groups, such as adults, older people, and ethnic minority groups with target behaviors that are pertinent to a given population group.

Second, in Study 2, only one behavior was selected as the content vehicle to elicit guilt and shame. While the findings were promising, caution should be given to the extent to which the findings are behavior-dependent. There is a consensus that shame in particular is a public emotion often following public exposure of a transgression. Future research needs to situate these hypotheses and research question in other behavioral contexts especially in private or semi-public behaviors.

Third, study 2 focused on information processing and attitude change as the two primary persuasion outcomes, and excluded other attitudinal and behavioral outcomes, such as information seeking and behavioral intention to perform the recommended behavior. However, the ultimate goal for public health and risk campaigns is to alter public behaviors. Hence, future research is needed to examine how guilt and shame affect behavioral intention and other persuasion outcomes.

Despite these limitations, this study provides direction for future research both theoretically and practically. Although guilt and shame have been considered as the “hallmark” emotions for human beings for over five decades, they continue to give rise to research interest in multiple disciplines. In health communication, guilt appeals remain prevalent. Therefore, it is important to conduct research to examine how guilt affects a variety of attitudinal and behavioral outcomes. Shame has been marked as an “ugly” feeling and rarely thought to have positive impact on attitudes and behaviors. Nevertheless, recent research consistently found shame could change attitudes and behaviors in a favorable manner. More attention should be given to systematically examine how shame would change people’s attitudes and behaviors in a variety of contexts.

Unfolding some of the underlying mechanisms of the process of persuasion provides more information about how outcome variables are changed. The current study focused on testing the mediating role played by approach and avoidance motivation tendencies. However, the partial mediation relationship found in shame-information processing and the absence of mediation relationship between guilt/shame and certain information processing indicators suggests other potential mediators beyond avoidance motivation tendency. Hence, future research needs to advance understanding about how shame changes information processing. Of note, as discussed earlier, message reassurance is an important feature for CFM; however, more work needs to go into its conceptualization to explain the relationship between motivation tendency and information processing. Future effort is also needed to elaborate message reassurance and theorize it with more solid definition and operationalization.

Conclusion

This study provided evidence that guilt and shame differ in terms of their antecedents in the controllability of causes, their subsequent motivation tendencies, and their persuasive effects. In addition, this study also unpacked the underlying mechanism in the emotion-persuasion process. Although there are several limitations, this study provides evidence both indicating the viability of the cognitive functional model in explaining the emotion-persuasion process and suggesting the need to revise this model given the different impacts on information processing and attitude change that guilt and shame had. Moreover, the practice of grouping guilt and shame conceptually or measuring one using the other should be questioned or abandoned given their distinctive effects on a variety of outcome variables.

This study has both theoretical and practical implications. Theoretically, it provides evidence mapping the relationships among emotions, motivation tendencies, information

processing, and attitude change. Practically, it suggests the persuasion power of guilt and shame and their potential implications for campaign designs. Future research should more fully explore this arena and offer more systematic findings.

APPENDICES

Appendix A: CODING SCHEME FOR STUDY 1

For the first set of inductions, two specific categories were coded:

(1) Types of events: Tracy and Robins (2006, study 3) provided an outline for coding types of

guilt- and shame-eliciting events. This category consists of

a. Achievement (involving school, grades, exams, work-related events/behaviors)

Example: I received poor grades my freshman year.

b. Romantic relationships

Example: I cheated on my girlfriend.

c. Family relationships (involving family members)

Example: Once in an argument with my mother about a street name, I bet her money that the name was spelt a certain way. We ended up driving past the street later that week, and after all of my arguing and supporting for my case, I ended up being wrong.

d. Personal (involving personal goals or morals, failure at an identity/self goal or expectation).

Example: I buried a living fish when I was a kid.

Example: I got a speeding ticket.

e. Friendship:

Example: I told my friend that I wanted to take a break from seeing her and canceled on going to hayride with her the day before it was supposed to happen.

f. Other unspecified relationships

Example: I was sexually assaulted at my aunt's wedding reception.

(2) Cause for the event: participants were asked to select whether they think the cause for the event was (a) lack of effort, (b) lack of aptitude, (c) other reasons. If participants chose "other reasons", they were asked to specify the reason. The coders were asked to categorize these specified reasons into:

a. One-time reason

Example: They had a bad day.

b. Personality

Example: I think it was due to usually being right and now (*sic: not*) being able to accept being wrong.

c. Mental or physical illness:

Example: Through college I've delt (*sic: dealt*) with anxiety and depression which makes my hard classes even hard because I worry so much.

d. Other reasons

Example: This person was young and didn't have a good male figure to look up to.

Example: Because they were curious.

- (3) Controllability over the situation: participants were asked whether they thought they could have done something to prevent the situation from occurring and to describe detailed thoughts.

Because there were no coding scheme regarding this issue available, coders were instructed to code presence and absence of solutions (i.e., something that they could have done differently to prevent the event from happening) provided by participants. In addition, following the suggestion given by Weiner (2006), if participants write about self-blame, personal responsibility, my fault, these statements are considered as "controllable" causes, whereas if they use phrases such as "no, I/he/she could not really help it", "that is the way I/he/she am is", "I/he/she have/has no idea what to do", these statements will be regarded as "uncontrollable".

- (4) Guilt-related feeling: Following the technique used in Tracy and Robins (2006, study 2), guilt-related feelings also included "expressing a sense that he/she has done the wrong thing, feels badly about what he/she has done, and focus on the event that made him/her feel bad" (p. 1343). Guilt-related feelings also included expressions such as "remorse" and "regret".

(5) Shame-related feeling: Tracy and Robins (2006, study 2) suggested that shame-related feeling also included “ashamed of him/herself, expressing a sense that his/her self is bad or a failure” (p. 1343). Shame-related feelings also included expressions such as “humiliated”, “embarrassed”, “disgraced”, and “ashamed”.

Appendix B: MESSAGE INDUCTIONS FOR STUDY

Controllable X Self as the causal agency

Towards the end of Fall semester you go home for winter break and you want to go to a really big party with friends you grew up with so you borrow your dad's brand new car to go to the party about 50 miles away from your home. **You have been driving for quite a few years, and you are very confident about your competence and skill as a driver.** As you leave the party, it is just beginning to snow. **You are driving at a normal speed without slowing down** as you want to get home as soon as you can. As you drive down a hill, you brake and skid into a ditch hitting a tree. There is a big dent in the hood of the car.

Controllable X Brother as the causal agency

Towards the end of Fall semester your brother goes home for winter break and he wants to go to a really big party with friends he grew up with so he borrows your dad's brand new car to go to the party about 50 miles away from your home. **He has been driving for quite a few years, and he is very confident about his competence and skill as a driver.** As he leaves the party, it is just beginning to snow. **Your brother is driving at a normal speed without slowing down** as he wants to get home as soon as he can. As he drives down a hill, he brakes and skids into a ditch hitting a tree. There is a big dent in the hood of the car.

Uncontrollable X Self as the causal agency

Towards the end of Fall semester you go home for winter break and you want to go to a really big party with friends you grew up with so you borrow your dad's brand new car to go to the party about 50 miles away from your home. **You just moved to Michigan, have no skills driving in the snow or ideas about what to do in a skid,** even though you have been driving for quite a few years. As you leave the party, it is just beginning to snow. **You are driving at a normal speed without realizing that you need to slow down** as you want to get home as soon as you can. As you drive down a hill, you brake and skid into a ditch hitting a tree. There is a big dent in the hood of the car.

Uncontrollable X Brother as the causal agency

Towards the end of Fall semester your brother goes home for winter break and he wants to go to a really big party with friends he grew up with so he borrows your dad's brand new car to go to the party about 50 miles away from your home. **He just moved to Michigan, has no skills driving on icy roads or ideas about what to do with skid**, even though he has been driving for quite a few years in the South. As he leaves the party, it is just beginning to snow. **Your brother is driving at a normal speed without realizing that he needs to slow down** as he wants to get home as soon as he can. As he drives down a hill, he brakes and skids into a ditch hitting a tree. There is a big dent in the hood of the car.

Part Two of Study 2 Message Induction

Strong Argument

An Effective Winter-driving Safety Campaign is Launched in Lansing

The State News by Katie Connell

“This campaign will be very effective in educating the public about the danger of driving on snowy days without preparation”, said by Dr. Atkin, a faculty member in the Department of Communication and expert in public campaigns. “Every winter there are numerous accidents caused by risky driving. This safe-driving campaign will help people to realize the dangers of winter driving, and will teach them how to avoid fatal accidents with instruction about careful winter driving.”

The City of Lansing recently launched a Winter-driving safety campaign. Six reasons are given for why careful driving is a MUST on snowy days.

- On snowy days when roads are slick and icy, the best thing a driver can do is to SLOW DOWN and drive under the posted speed limit. This simple caution can increase your chances of getting to your destination safely by 45% and decrease your chance of getting involved in an accident by 60%.
- Each year 33% of winter accidents are caused by short distance between vehicles. Shorter distance always results in insufficient stopping time and winter road conditions often result in longer stopping distance than you expected. INCREASE the distance between you and the vehicle in front of you.
- Blurry vision also contributes to winter accidents. In the past year, 15% of accidents were due to drivers' unclear vision. TURN ON the full lighting system on your vehicle as snow and blowing snow compromise visibility substantially and you want to see and to be seen.
- It takes 4.5 times longer to slow down or accelerate when driving in snow or on an icy road than when you drive on dry pavement. DO NOT use cruise control and give it the chance to make bad decisions for you.
- Talking on the phone or texting increases your chance to be involved in a car accident by 26%. DO NOT distract yourself with talking on the phone or texting as they are dangerous for drivers even in dry pavement.
- AVOID excessive actions while steering, braking, or acceleration to lessen the chance of losing control of your vehicle, as 21% of car roll-overs are caused by sudden braking in short distances.

Weak Argument

An Effective Winter-driving Safety Campaign is Launched in Lansing

The State News by Katie Connell

“This campaign will be very effective in educating the public about the danger of driving on snowy days without preparation”, said by Dr. Atkin, a faculty member in the Department of Communication and an expert in public campaigns. “Every winter there are numerous accidents caused by risky driving. This safe-driving campaign will help people to realize the dangers of winter driving, and will teach them how to avoid fatal accidents with instruction about careful winter driving.”

The City of Lansing recently launched a Winter-driving safety campaign. Six reasons are given for why careful driving is a MUST on snowy days.

- Many people need to get to their destination on time every morning. SLOW DOWN as well as try your best to get to your destination as fast as you can.
- Shorter distance always results in insufficient stopping time and winter road conditions often result in longer stopping distance than you expected. INCREASE the distance between you and the vehicle in front of you as the driver in front of you may feel anxious about being closely followed.
- TURN ON the full lighting system on your vehicle as it increases the chance for you to be seen.
- Cruise control does not help you in bad weathers. DO NOT use cruise control and give it the chance to make bad decision for you.
- DO NOT distract yourself with talking on the phone or texting as they prevent you from paying full attention to the road.
- AVOID excessive steering, braking, or acceleration to lessen the chance of losing control of your vehicle, as sudden braking causes you to lose control of your vehicle.

Appendix C: MEASUREMENT SCALES FOR STUDY 2

Note: Items labeled with asteroids were deleted from final analyses given their low factor loadings.

Pre-test attitude

Please indicate your thoughts on driving in snow with extra care using scales below.

For me, driving in snow with extra care is...

- | | | | | | | | |
|-----------------|-----|-----|-----|-----|-----|-----|--------------------------------|
| (1) Unpleasant | ___ | ___ | ___ | ___ | ___ | ___ | Pleasant * |
| (2) Harmful | ___ | ___ | ___ | ___ | ___ | ___ | Beneficial |
| (3) Foolish | ___ | ___ | ___ | ___ | ___ | ___ | Wise |
| (4) Good | ___ | ___ | ___ | ___ | ___ | ___ | Bad (Reverse coded) |
| (5) Dangerous | ___ | ___ | ___ | ___ | ___ | ___ | Safe |
| (6) Negative | ___ | ___ | ___ | ___ | ___ | ___ | Positive |
| (7) Responsible | ___ | ___ | ___ | ___ | ___ | ___ | Irresponsible* (Reverse coded) |

For me, driving in snow with extra care is something I...

- | | | | | | | | | |
|-------------|-----|-----|-----|-----|-----|-----|-----|--------|
| (1) Dislike | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Like * |
|-------------|-----|-----|-----|-----|-----|-----|-----|--------|

Post-test attitude

For me, driving in snow with extra care is...

- | | | | | | | | | |
|-----------------|-----|-----|-----|-----|-----|-----|-----|--------------------------------|
| (1) Negative | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Positive |
| (2) Dangerous | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Safe |
| (3) Unpleasant | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Pleasant * |
| (4) Harmful | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Beneficial |
| (5) Good | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Bad (Reverse coded) |
| (6) Responsible | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Irresponsible* (Reverse coded) |
| (7) Foolish | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Wise |

For me, driving in snow with extra care is something I...

- | | | | | | | | | |
|-------------|-----|-----|-----|-----|-----|-----|-----|--------|
| (8) Dislike | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Like * |
|-------------|-----|-----|-----|-----|-----|-----|-----|--------|

Feelings of guilt (Lickel, et al., 2005)

- (1) I would feel guilty in the situation described above.
- (2) I would regret in the situation described above.
- (3) I would feel sorry in the situation described above.
- (4) I would feel remorse in the situation described above.

Feelings of shame (Lickel, et al., 2005)

- (1) I would be feeling ashamed in the situation described above.
- (2) I would be feeling humiliated in the situation described above.
- (3) I would be feeling disgraced in the situation described above.
- (4) I would be feeling embarrassed in the situation described above.

Approach motive (Schmader & Lickel, 2006)

- (1) I feel like I should do something after the event to make it better in the situation described above.
- (2) I would try to do something after the event to make it better in the situation described above.
- (3) I feel like I should apologize for what happened in the situation described above.
- (4) I would try all the things I can to redeem what I have done in the situation described above.

Avoidance motive (Schmader & Lickel, 2006)

- (1) I want to be completely unassociated with the event in the situation described above.
- (2) At the time, I would wish that I could remove my association to what happened in the situation described above.
- (3) I would desire to disappear in the situation described above.
- (4) I would desire to hide myself from others in the situation described above.

Anger responses (Forgays, Forgays, & Spielberger, 1997)

- (1) I would be mad for being blamed in the situation described by the message I just read.
- (2) I would be angry in the situation described by the message I just read.
- (3) I would feel irritated in the situation described by the message I just read.
- (4) I would be resentful in the situation described by the message I just read.

Message believability:

- (1) I found the information presented in this article believable.
- (2) The information presented here seems true.
- (3) It is hard to believe that the information presented in this article is right.* (Reverse coded)
- (4) The article presented believable information.

Source credibility:

To me, the source of information in the article is...

- | | | | | | | | | |
|-------------------------------|-----|-----|-----|-----|-----|-----|-----|---|
| (1) Intelligence | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Unintelligence |
| (2) Untrained | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Trained |
| (3) Inexpert | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Expert |
| (4) Informed | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Uninformed |
| (5) Incompetent | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Competent |
| (6) Bright | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Foolish (Reverse coded) |
| | | | | | | | | |
| (7) Cares about me | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Does not care about me |
| (8) Has my interests at heart | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Does not have my interests at heart (Reverse coded) |
| (9) Self –centered | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Not self-centered |
| (10) Concerned with me | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Not concerned with me (Reverse coded) |
| (11) Insensitive | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Sensitive |
| (12) Not understanding | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Understanding (Reverse coded) |
| | | | | | | | | |
| (13) Honest | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Dishonest (Reverse coded) |
| (14) Untrustworthy | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Trustworthy |
| (15) Honorable | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Dishonorable (Reverse coded) |
| (16) Moral | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Immoral (Reverse coded) |
| (17) Unethical | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Ethical |
| (18) Phoney | ___ | ___ | ___ | ___ | ___ | ___ | ___ | Genuine |

Appendix D: CODING INSTRUCTIONS FOR STUDY 2

Step 1: Thought Units

A thought unit is defined as “the minimum meaningful utterance having a beginning and an end. It is typically operationalized as a simple sentence or independent clause in which the subject and predicate may be expressed or implied” (Hatfield & Weider-Hatfield, 1978, p. 46). Coders were instructed to put a slash after each independent thought unit. Specific rules are described below.

1. An utterance consists of only one independent thought.
Example: The facts are informative./
2. A sentence that consist of two or more thought units.
Example: I feel like this is a good program/ and that it would benefit many people,/ even though I do think a good amount of people will still ignore this advice./
3. Sometimes it is necessary to fill in missing words when breaking sentences into thought units.
Example: Some new facts that I did not know, /(and they) will help me for winter coming up.
4. Conjunction words such as “but”, “even though” indicates the need to separate thoughts.
Example: this article gives good suggestions, /but who would use cruise control on icy road?
5. Conjunction words such as “and” might indicate the need to separate thoughts, but it depends on the meaning of the clauses that it connects.
Example of separate clauses: good campaign/and useful information
Example of one clause: I feel shocked and surprised./
6. Sentences are NOT separated into different thought unit if “because”, “as”, or “since” is used to provide evidence for a statement.
Example: This campaign is unnecessary because if people cannot handle the responsibility of driving safely, they should not get a driver’s license./
7. One-word replies are coded as independent thought units.
Example: Good/I agree./
Example: Okay/I will follow these tips./
8. When to group thoughts?
 - a. Repetitive adjectives
Example: concerned and worried, scared and afraid, shocked/surprised

9. When NOT to group thoughts?
 - a. Adjectives that are NOT used interchangeably

Example: panic and worry

Step 2: Message Relevant and Irrelevant Thought Coding

Coders were instructed to code thoughts that are relevant to the campaign message they read. The general rule for this step is that the thought unit needs to direct to the message sources, campaign content, and advocacy of the campaign. If a given thought unit is too general, vague, or not directly targeting the campaign message, it is counted as a thought irrelevant to the message.

Relevant Thoughts

Example: I thought this reading provided very helpful and valid suggestions for safe driving in snow.

Example: I will follow the 6 tips given in the campaign.

Example: Why do you ask someone from the Comm department to advocate this campaign?

Irrelevant Thoughts

Example: Scared.

Example: I hate snow so I feel mad about it.

Example: Nervousness, anxiety, fear

Additional notes:

RULE 1: words/phrases that are directly drawn from the message

- b. Mention the name of the campaign PLUS a comment about the campaign (e.g., a good idea, the campaign is useful/helpful)
- c. Mention the statistics included in the message PLUS a comment about the statistics (e.g., the statistics are accurate, informative, boring)
- d. Mention / comment on any of the six reasons addressed in the message.
NOTE: each one should be counted as ONE individual thought.
For example, if one person mentioned both keeping distance and avoiding excessive braking, these are TWO separate message-relevant thoughts

Step 3: Coding of Emotional Expressions

Positive emotion categories:

Happiness: Happy, Pleased, Cheerful, Glad

Satisfaction: Content

Interest: Interested/interesting, Intrigued/intriguing, Engaged/engaging

Negative Emotion Categories

Anger: Angry, Annoyed, Resentful, Irritated/irritating

Fear: Fearful, Scared/scary, Afraid

Sadness: Sad, Dismal, Sorrowful

Neutral Emotion Categories

Surprise: Surprised/surprising, Astonished/astonishing, Shocked/shocking

Step 4: Coding Thought Valence and Evaluations

Types of Codes for Message-relevant Thoughts: For each given thought unit, coders were instructed to judge whether it carries positive/negative/neutral evaluations.

Negative evaluations (Disagreement/counterarguments): A given thought that carries a negative evaluation of the message content, the source of the message, and the advocacy.

Example: First bullet was contradictory. Turning on your brights in the third bullet is probably not good for oncoming traffic.

Example: I thought the point about slowing down, but still trying to get to your destination as fast as you can sounds wrong.

Positive evaluations (Agreement/Supporting Arguments): A given thought that carries a positive evaluation of the message content, the source of the message, and the advocacy.

Example: Good for people who need to reach their destinations and is very agreeable.

Example: Everything above is true.

Neutral Thoughts: A given thought that does not carry a positive or negative evaluation of the message content, the source of the message, and the advocacy.

Example: Statistics

Example: They are common sense.

Evaluation Rules

Some thoughts are easy to code for their positive or negative valence, such as explicit expressions of agreement and disagreement. However, there are many cases where respondents did not explicitly articulate their agreement or disagreement. In such cases, the coders were asked to consider the following rules.

The Impact Rule

It was not uncommon for respondents to indicate that they would follow the recommendations provided in the message, which showed that the message had an impact on the respondents. In such cases, responses were coded as positive evaluations about the message.

When participants indicated that they learned something that is coherent and relevant to the advocated behaviors in the message, the responses were considered together with the overall tone of the responses. Simply a learning statement did not necessarily indicate agreement or supportive statements. However, if the overall tone was positive, the learning statement was coded as agreement; if the overall tone was opposing the message, the learning statement was coded as a neutral statement.

Example: It was good for me to learn those statistics which were new to me. /The campaign would reduce the accidents due to bad weather./ (Agreement)

Example: The first bullet point sounded counter-intuitive./ I did not know those statistics./ Are they true?/ (Disagreement)

The Identification Rule

Some participants expressed that they were able to identify with the message given their previous experience with driving in snow. For such expressions, they were considered in

combination with the overall tone of the responses. If the overall tone sounded positive, the expressions were coded as agreement. If the overall tone sounded negative or neutral, the expressions were coded as neutral. A single decontextualized identification expression was coded as neutral.

Example: I grew up in Michigan and I had a few cases when I almost hit another car or was hit by another car./ This campaign is very helpful especially if people can remember these tips./ (Agreement)

Example: I commute everyday so I can totally identify with this./ (Neutral)

Additional notes:

1. When a sentence contains both positive and negative thoughts, count the number of positive and negative thoughts respectively. Do NOT combine them and code it as neutral.
2. It is possible to have all three evaluations. For example, one person might pick up the controversial logic, think the tips are common sense, but also think it is useful to remind people or the campaign is good

Table 1. STUDY 1 INTER-CODER REALIABILITIES

Main category	Sub-category	Krippendorff's Alpha
Types of events		.96
Other reasons		
	Personality	1.00
	One-time reason (back luck, bad weather)	1.00
	Physical or mental illness	1.00
	Other reason	1.00
Feeling of guilt		.95
Feeling of shame		.94
Level of controllability		.89

Table 2. STUDY 1 DISTRIBUTION OF KEY CODING CATEGORIES

Main category	Sub-category	<i>n</i>	%
Type of event	Achievement	78	45.1%
	Romantic relationship	18	10.4%
	Family relationship	18	10.4%
	Personal	15	8.7%
	Friendship	19	11.0%
	Others	23	13.3%
Cause for event	Lack of effort	67	38.7%
	Lack of aptitude	45	26.0%
	Other reasons	60	34.7%
	Personality	36	21.0%
	Mental- or physical-illness	9	5.2%
	One-time causes	11	6.3%
	Others	4	2.3%
Feelings of guilt		134	77.5%
Feelings of shame		129	74.6%

Table 3. STUDY 1 DESCRIPTIVE STATISTICS FOR VARIABLES

	Attribution Category	<i>M</i>	<i>SD</i>
Guilt	Incompetence	6.33	2.43
	Lack of Effort	6.58	2.28
	Other	6.27	2.81
Shame	Incompetence	6.33	2.93
	Lack of Effort	6.64	2.46
	Other	6.35	2.90

Note: All mean scores were based on 10-point scales.

Table 4. STUDY 2 PARTICIPANTS' GUILT AND SHAME FEELINGS PRETEST
(N=108)

			Causal agency	
			Self	Other
Guilt	Controllability	Controllable	6.17	5.08
			(0.96)	(1.16)
		Uncontrollable	5.57	4.55
			(1.07)	(0.78)
			Causal agency	
			Self	Other
Shame	Controllability	Controllable	5.16	4.89
			(1.12)	(1.66)
		Uncontrollable	5.60	4.87
			(1.43)	(1.42)

Note: Standard deviations are in the parentheses.

All mean scores were based on 7-point scales.

Table 5. STUDY 2 DESCRIPTIVE STATISTICS FOR ARGUMENT STRENGTH
PRETEST (N=59)

	Strong argument	Weak argument
Nabi (2002) scale	5.94 (1.12)	4.75 (0.98)
Zhao et al. (2011) scale	6.13 (1.07)	4.71 (1.01)

Note: Standard deviations are labeled in the parentheses. Mean scores are based on 7-point scales.

Table 6. STUDY 2 SCALE VALIDATION AND DESCRIPTIVE STATISTIC SUMMARY

Scale	<i>df</i>	X ²	CFI	GFI	RMSEA	α	<i>M</i>	<i>SD</i>
Pre_attitude	5	32.00	0.97	0.95	0.09	.92	5.82	1.37
Post_attitude	6	88.06	0.98	0.93	0.07	.95	6.02	1.31
Guilt	2	16.02	0.99	0.98	0.06	.87	5.81	1.24
Shame	2	0.77	1.00	0.99	0.00	.91	5.07	1.59
Approach	2	0.00	1.00	1.00	0.00	.84	5.66	1.27
Avoidance	2	0.00	1.00	1.00	0.00	.84	4.44	1.60
Anger	2	4.36	0.98	0.98	0.04	.89	4.02	1.35
Closeness	-	-	-	-	-	-	5.89	1.33
Believability	2	3.26	0.99	0.99	0.02	.91	5.15	0.84
Source_competence	9	66.04	0.97	0.96	0.09	.89	5.51	1.14
Source_goodwill	9	69.07	0.96	0.95	0.10	.90	5.45	1.21
Source_trustworthiness	9	148.57	0.96	0.95	0.10	.95	5.64	1.22

Note: All mean scores were based on 7-point scales.

Table 7. STUDY 2 INTER-CODER RELIABILITY

	Krippendorff's Alpha
Topic-relevant thought	.92
Message-relevant thought	.94
Positive thought	1.00
Negative thought	1.00

Table 8. *STUDY 2 DESCRIPTIVE STATISTICS OF GUILT, SHAME, APPROACH, AND AVOIDANCE TENCIES ACROSS EXPERIMENTAL CONDITIONS*

Variables			
Guilt	Controllable	Self	Other
		6.13 (1.08)	5.58 (1.26)
	Uncontrollable	Self	Other
		5.87 (1.28)	5.66 (1.28)
Shame	Controllable	Self	Other
		5.39(1.47)	4.62 (1.73)
	Uncontrollable	Self	Other
		5.42 (1.31)	5.04 (1.70)
Approach	Controllable	Self	Other
		6.09 (1.07)	5.22 (1.22)
	Uncontrollable	Self	Other
		5.81 (1.28)	5.52 (1.34)
Avoidance	Controllable	Self	Other
		4.63 (1.69)	4.15 (1.65)
	Uncontrollable	Self	Other
		4.57 (1.60)	4.43 (1.43)

Note: Standard deviations are in the parentheses and all mean scores were based on 7-point scales.

Table 9. REGRESSION ANALYSIS OF INTERACTION BETWEEN CONTROLLABILITY AND CAUSAL AGENCY ON GUILT (H4)

	<i>adj. R</i> ²	ΔR^2	β	<i>t</i>
Block 1	0.40	0.40		
Shame			0.63	15.93***
Block 2	0.41	0.01		
Controllability			-0.10	-1.76
Causal agency			-0.07	-1.20
Block 3	0.41	0.001		
Controllability X Causal agency			0.06	0.85

Note: *** $p < .001$

Table 10. REGRESSION ANALYSIS OF INTERACTION BETWEEN CONTROLLABILITY AND CAUSAL AGENCY ON SHAME (H5)

		<i>adj. R</i> ²	ΔR^2	β	<i>t</i>
Block 1		0.42	0.42		
	Anger			-0.12	-3.19
	Guilt			0.62	15.94***
Block 2		0.43	0.01		
	Controllability			0.06	1.06
	Causal agency			-0.10	-1.86
Block 3		0.43	0.001		
	Controllability X Causal agency			0.11	1.21

Note: *** $p < .001$

Table 11. REGRESSION ANALYSIS OF MEDIATION EFFECT OF GUILT AND APPROACH TENDENCY ON THE NUMBER OF MESSAGE-RELEVANT THOUGHTS (H7)

	Predictor	Criterion Variable	β	t
Step 1				
	Guilt	Approach motivation tendency	0.59	12.53***
Step 2				
	Guilt	Message-relevant thoughts	0.20	2.87**
Step 3	Guilt		0.12	1.47
	Approach motivation tendency	Message-relevant thoughts	0.14	1.96*

Notes: *** $p < .001$, ** $p < .01$, * $p < .05$

Table 12. REGRESSION ANALYSIS OF THE EFFECT OF GUILT ON ATTITUDE CHANGE (RQ1)

		<i>adj. R²</i>	ΔR^2	β	<i>t</i>
Block 1		.66	.66		
	Shame			-0.03	-0.72
	Pre-test attitude			0.79	25.56***
Block 2		.66	.01		
	Guilt			0.10	2.41**
Block 3		.66	.001		
	Squared Guilt			-0.03	-0.76

Notes: *** $p < .001$, ** $p < .01$

Table 13. REGRESSION ANALYSIS OF MEDIATION EFFECT OF SHAME AND AVOIDANCE TENDENCY ON THE NUMBER OF NEGATIVE THOUGHTS (H9)

	Predictor	Criterion Variable	β	t
Step 1	Shame	Avoidance Motivation Tendency	0.52	9.22***
Step 2	Shame	Negative Thoughts	-0.26	-3.75***
Step 3	Shame		-0.21	-2.84**
	Avoidance Motivation Tendency	Negative Thoughts	-0.11	-1.87†

Notes: *** $p < .001$, ** $p < .01$, † $p < .10$

Table 14. REGRESSION ANALYSIS OF INTERACTION BETWEEN ARGUMENT STRENGTH AND APPROACH MOTIVATION TENDENCY ON ATTITUDE CHANGE (H10)

		<i>adj. R</i> ²	ΔR^2	β	<i>t</i>
Block 1		0.65	0.65		
	Pre-test attitude			0.80	26.63***
Block 2		0.66	0.01		
	Argument strength			-0.02	-0.75
	Approach motivation tendency			0.06	2.11*
Block 3		0.66	0.001		
	Argument strength X Approach Motivation tendency			0.02	0.36

Notes: *** $p < .001$, * $p < .05$

Table 15. REGRESSION ANALYSIS OF INTERACTION BETWEEN ARGUMENT STRENGTH AND MOTIVATION TENDENCY ON ATTITUDE CHANGE (H11)

	<i>adj. R²</i>	ΔR^2	β	<i>t</i>
Block 1	0.66	0.66		
Pre-test attitude			0.81	27.4***
Block 2	0.66	0.002		
Argument strength			-0.02	-0.82
Avoidance motivation tendency			0.03	1.13
Block 3	0.66	0.001		
Argument strength X Avoidance Motivation tendency			-0.04	-0.85

Note: *** $p < .001$.

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