Calibrating the Moral Compass:

The Effect of Tailored Communications on Non-Profit Advertising

By

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Abstract

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A growing body of scholarship focuses on influencing people to behave prosocially. Researchers typically take a one-size-fits-all approach even though domains such as health and communication have shown a greater persuasive impact of tailored messages. The dual process theory of moral judgment (DPT; Greene, Summerville, Nystrom, Darley, & Cohen, 2001) is a theoretical framework that outlines how people make moral decisions, and provides guidance on determining the variables to use to tailor prosocial messaging. Previous DPT research indicates that priming emotion and cognition can influence moral judgment (e.g., Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008; Guzak, 2015; Paxton, Ungar, & Green, 2011; Valdesolo & DeSteno, 2006). Based on these findings, three studies, consisting of six experiments, tested predictions that matching messaging to an individual's psychological state will be an effective way to increase prosocial behavior. Study 1 built on previous DPT literature to create and test psychological state manipulations to prime negative emotion and cognitive reflection. Results indicated that those primed to cognitively reflect using a computational task were more likely to focus on moral consequences of a trolley dilemma compared to a control group. Study 2 used a current charity advertisement and predicted that psychological state would influence people's processing of the same ad differently. Further, Study 2 predicted those primed to cognitively reflect would behave more prosocially because the ad focused on moral consequences.

Qualitative analyses indicated that people processed the same prosocial communication differently such that people primed to feel negative emotion reported more emotional responses than people primed to cognitively reflect. No support was found for the hypothesis that matching the state of cognitive reflection to moral consequences led to higher levels of prosociality. Study 3 tested the full matched message approach by conducting a between-subjects factorial design comparing psychological state (i.e., emotion vs. cognition) to message type (i.e., rules vs. consequences). Hypotheses were partially supported by a significant interaction between psychological state and message type on attitudes. Those primed to cognitively reflect had more favorable attitudes toward a charity focused on moral consequences compared to a charity focused on moral rules. However, data did not support the second matched-message condition since no effect was found for the negative emotion prime leading to more favorable attitudes for a moral rules charity compared to a moral consequences charity. A marginally significant interaction was also found when looking at low effort donation intentions in the same pattern as the interaction on attitudes. No interaction effect was found for high effort intentions. A moderated mediation model analysis was conducted and the pathway between attitudes and low effort intentions was statistically significant, indicating that the interaction between state and message type influenced attitudes, which subsequently influenced low effort intentions. Together, the results of the current dissertation partially support the notion that matching the message type (i.e., focused on rules or consequences of a moral scenario) to people's psychological state (i.e., emotional or cognitive) increases the effectiveness of the persuasive message, which has implications for the DPT and in nonprofit marketing communications.

Dedication

I dedicate this dissertation to my family – your unconditional support, encouragement, and love have taught me to stay curious while providing me with the opportunity to pursue knowledge for the sake of learning. I can't possibly express my appreciation in writing, so I'll just say efcharistó.

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CHAPTER 1: Introduction

Since 1975, apart from the financial recession in 2008 and 2009, charitable donation has steadily increased in all forms (e.g., corporations, foundations), but the most rapid increase is through individual donation. In 2016, individual Americans donated a total of approximately 280 billion dollars (Giving USA, 2017), with nearly two thirds of Americans (62%) giving to more than three organizations per year (Yu & Adkins, 2016). The current donation market offers a wealth of potential marketing opportunities for non-profit organizations, which makes it more important than ever to maximize persuasive messaging.

Research has been dedicated to understanding how to persuade people to act in the benefit of others, which is commonly referred to as prosocial behavior (Toumbourou, 2016). A majority of the literature investigating prosocial donation focuses on understanding why people choose to donate at all (e.g., Guy & Patton, 1989). Those who strive to increase prosocial behavior have employed various persuasion techniques to create the most effective messaging. Some techniques include priming moral emotions such as elevation (Siegel, Thomson, & Navarro, 2014; Thomson & Siegel, 2013), sympathy (Bae, 2008) and guilt (Hibbert, Smith, Davies, & Ireland, 2007; Kim & Johnson, 2013). Other prosocial researchers change arguments to emphasize egoistic and altruistic reasons (Kareklas, Carlson, & Muehling, 2014), atypical reasons (Ford & Smith, 1991), and reduce fear appeals (Ferrari & Leippe, 1992). Although these diverse strategies have successfully influenced prosocial behavior, the messaging typically employs a one-size-fits-all approach (e.g., Bae, 2008; Ferrari & Leippe, 1992). This general approach involves presenting the same manipulation to all people, regardless of their background, motivations, or current state.

Simply, in prior prosocial persuasion research, the message is typically aimed at a wide audience, with researchers rarely considering the ways in which differences in people's psychological state could influence their perceptions. On the other hand, the influence of a persuasive message can be maximized using tailoring strategies, which involve matching the type of persuasive message to people's characteristics (e.g., Choi, Yoon, Paek, & Reid, 2012; Noar, Benac, & Harris, 2007). Many other domains (e.g., health, Latimer, Katulak, Mowad, & Salovey, 2005; marketing, Choi et al., 2012) have used tailoring to increase the effectiveness of persuasive messages by matching the message to individual characteristics or psychological states. For example, Latimer and colleagues (2005) tailored communications about mammogram screening and better nutrition to match people's information-processing style and found that the matched messages were most effective at changing subsequent behavior. Latimer and colleagues' study represents one of many empirical studies in diverse domains that support the success of tailoring as an effective messaging strategy. Based on tailoring research, it is hypothesized that messages designed to increase prosocial behavior will be more successful if variables are identified that can match the prosocial message type to people's current state of mind.

To understand how to maximize the effectiveness of prosocial messages, the current set of studies uses the theoretical framing of the dual process theory of moral judgment (DPT; Greene, 2013; Greene, Nystrom, Engeil, Darley, & Cohen, 2004; Greene, Summerville, Nystrom, Darley, & Cohen, 2001). Moral judgment can be defined as using thoughts and emotions to determine whether a behavior is right or wrong (Olatunji & Puncochar, 2014). The DPT predicts that cognitive, rational thought (e.g., considering the costs/benefits) leads to utilitarian moral judgments (e.g., judgments focused on the consequences) and negative emotions

lead to deontological judgments (e.g., judgments focused on moral rules) (Greene et al., 2001). Similar to dual process theories of attitude change (e.g., Petty & Cacioppo, 1986; Zajonc, 1980), the DPT is based on the assumption that the emotional pathway is associated with quick, automatic, intuitive thinking, while the cognitive pathway is associated with slower and deliberative thinking.

Empirical studies testing the DPT (e.g., Paxton et al., 2011; Valdesolo & DeSteno, 2006) show that a negative emotional state increases the likelihood of making decisions based on rules, while a cognitive state, associated with deliberate thinking, increases the likelihood of making decisions based on consequences. Studies testing the DPT have manipulated cognitive resources in various ways (see Conway & Garwonski, 2013 for a review) and results show that those induced to reflect (Suter & Hertwig, 2011) and those performing a cognitive task (Paxton et al., 2011) were more likely to judge utilitarian responses to a moral dilemma as appropriate. Similarly, previous DPT research has shown that manipulating negative or positive affect can change moral judgment, and those induced to feel negative emotions were more likely to make a deontological judgment (e.g., Guzak, 2015; Valdesolo & DeSteno, 2006). In sum, the DPT suggests that priming an individual's psychological state to reflect the different processing pathways (i.e., emotional or cognitive) can influence the type of moral judgment formed (i.e., focusing on rules or consequences). To be sure, the DPT is not a theory of persuasion, but it can be used to predict how people will make moral decisions in different states.

The current research is based on the hypothesis that prosocial messages can be more effective by tailoring messages to reflect the way people are processing information. The DPT, and previous research testing the theory, offers a roadmap to determine how people make differing moral judgments depending on their psychological state. Merging the paradigms of the

DPT and tailoring research, the current dissertation hypothesizes that matching people's psychological state (i.e., emotional or cognitive) to the message type (i.e., focused on rules or consequences of a moral scenario) will increase the likelihood of prosocial behavior. Six experiments were conducted to test the theory that matched messaging conditions is an effective strategy to increase prosocial attitudes and behavior.

CHAPTER 2: Literature Review

"Always do what is right. It will gratify half of mankind and astound the other."

Mark Twain

The study of morality is not a new topic; philosophers have been exploring morality for centuries (Hume, 1751/2010; Kant, 1785/2002; Plato, see Irwin, 1995). In contrast, a relatively new field referred to as moral psychology, applies scientific principles to understand morality and how moral values relate to human behavior (Haidt, 2013). Some of the earliest psychological theorizing about morality investigated the ways in which people develop moral rules and studied children to learn about the development of moral responsibility and justice (Piaget, 1932). To describe the distinct stages of moral development, Kohlberg (1984) extended Piaget's research and coined the cognitive-developmental model of morality. The model proposed that children progress along moral stages, beginning with the undeveloped stage of understanding moral rules as a way to avoid punishment, and progressing to the advanced stage of understanding moral rules to fulfill social obligations. Kohlberg's developmental theory was founded on principles of cognition; he believed that moral judgment was based solely on using reason to solve moral dilemmas.

In line with Kohlberg's (1984) original theoretical contribution, the early days of moral psychology research assumed a rationalist perspective, that explicit cognitive reasoning was the sole contributor to moral judgment (Haidt, 2013). Moral psychologists accepted emotion as a necessary part of moral decision making processes two decades later, when the "affective revolution" highlighted emotion as a possible explanatory mechanism for moral judgment (Haidt, 2013, p. 283). The integration of emotion into moral psychology was, in part, due to the rise of neurological research and the ability to detect different regions of the brain associated

with emotion (e.g., amygdala) and cognition (e.g., ventromedial prefrontal cortex; Damasio, 1994). In the decades since the initial integration of cognition and affect to explain moral behavior, scholars have focused on influencing moral attitudes and behavior (Haidt, 2013), specifically trying to understand how to persuade prosocial behavior (i.e., acting in the benefit of others; Toumbourou, 2016).

Persuasion and Morality

Following the same trajectory as the field of moral psychology, persuasion in moral psychology has typically followed either a rational or emotional perspective (see Haidt, 2013 for a review); it can be classified into two main focuses: 1) the influence of *discrete moral emotions* on prosocial outcomes, and 2) the influence of *messaging* on prosocial outcomes.

Both positive and negative emotions have been studied in experimental and correlational research to understand the influence of *discrete moral emotions* on prosocial outcomes. Siegel and colleagues (2016) recently demonstrated that negative emotions inhibit the likelihood of prosocial intentions (e.g., organ donation registration), while elevation (i.e., an emotion linked to moral beauty), leads to a greater likelihood of donating to various charities (Siegel, Thomson, & Navarro, 2014; Thomson & Siegel, 2013). Kim and Johnson (2013) also found that higher ratings of ego-focused moral emotions (e.g., pride) and other-focused moral emotions (e.g., guilt) were associated with higher intentions to purchase a t-shirt for a social cause. Yet another study showed that higher levels of guilt in response to an advertisement were associated with increased donation intentions to a children's charity (Hibbert et al., 2007). Using the moral emotions of sympathy and empathy, Bae (2008) found that moral emotions were linked to increased attitudes toward donation, which were associated with higher intentions to register as a cornea donor.

Other research emphasizes the importance of considering how different discrete moral emotions influence moral judgment (Horberg, Oveis, & Keltner, 2011).

Another focus of persuasion in moral psychology aims to understand the ways in which *messaging* influences moral attitudes (e.g., Feiler, Tost, & Grant, 2012; Feinberg & Willer, 2015) or purchase intentions of moral products (e.g., Kareklas et al., 2014). For example, in a marketing study focusing on using moral messaging for consumer packaged foods (Kareklas et al., 2014), data indicated that when both egoistic and altruistic reasons are present in a message, they lead to the highest likelihood of attitudes and intentions to support a moral product (i.e., organic food). In the health domain, Ferrari and Leippe (1992) found that messages emphasizing reasons for donating blood, instead of fear reduction, led to more favorable attitudes and stronger moral obligation. Similarly, Ford and Smith (1991) found that "less typical" organ donation arguments led to enduring attitude change, suggesting that persuasive appeals that require more cognitive processing will be more effective in influencing moral attitudes. Together, these studies show that modifying the messaging can influence moral attitudes and behavior.

Although research investigating prosocial outcomes focuses on different antecedents to influencing moral attitudes or behavior, the common thread across prosocial scholarship is that it tends to adopt a one-size-fits-all approach—everyone receives the same manipulation or message. For example, Feiler and colleagues (2012) tested egoistic and altruistic messaging by comparing combinations of the two types of messaging to determine which was the most effective at influencing attitudes and intentions to donate. In other words, the message types were tested without consideration of how individuals with different characteristics would react to the different message types. The reliance on the one-size-fits-all approach is not apparent across all persuasion research, as many other domains use a matched messaging approach, which tailors

the message to individual characteristics or psychological states. As an example in the political domain, Feinberg and Willer (2015) introduced tailoring in reference to political values. Across six studies, they found support for the notion that matching arguments expressing political values to the political party of individuals (e.g., liberal arguments emphasizing fairness and conservative arguments emphasizing authority) increases the effectiveness of persuasive arguments. Extending this logic beyond political values, tailoring to moral values also has the potential to increase the efficacy of prosocial persuasive messaging.

Tailoring

With the goal of influencing attitudes or behavior, attitude researchers often conduct matched messaging studies, which use tailoring variables to match the message type to pre-determined individual characteristics (e.g., Petty, Wheeler, & Bizer, 2000). One of the earliest conceptualizations tailored persuasive appeals to match people's attitude function (Katz, 1960). Petty and Wegener (1998) added to the functional matching hypothesis by testing the notion that argument strength moderates the relationship between functional attitude matching and persuasion. A main effect of matching was found, whereby a matched message was more persuasive than a mismatched message. Additionally, an interaction signified that messaging containing a strong argument increased the effectiveness of messaging matched to people's attitude functions (Petty & Wegener, 1998). DeBono and Packer (1991) suggested that the main effect of functional attitude matching was due to the increased perceived self-relevance of a matched message. In other words, a message that matches an individual's functional attitude is perceived to be more relevant, thus increasing the persuasiveness of the message (DeBono & Packer, 1991). The functional matching hypothesis was also tested using a quasi-experimental study, and results indicated that messages to volunteer were the most persuasive when they

matched people's function attitude (Clary, Snyder, Ridge, Miene, & Haugen, 1994). For instance, when people have a social adjustive functional attitude, volunteer messages that emphasized a friend's approval were associated with increased message and speaker positively and increased intentions to volunteer (Clary, et al., 1994). Julka and Marsh (2005) replicated this effect in an experimental design by priming an attitude function and matching an organ-donation message to the functional need. In sum, this research demonstrates that functional attitudes can be tailored to increase the strength of a persuasive appeal. Even though a variety of matched messaging studies exist, the message variables that have been used in the past are specific to attitude functions (e.g., Julka & Marsh, 2005; Katz, 1960), as opposed to moral variables.

Other scholarship investigating tailoring variables has found that the most effective messages tailor the communication strategy to the respondent or product (e.g., Das, Kerkhof, & Kuiper, 2008; Kim, Baek, & Choi, 2012; Klein & Melnyk, 2016). Notably in the health domain, tailored communications have been more effective at attracting attention than threat messages (Kessels Ruiter, Brug, & Jansma, 2011). To test this proposition, Kessels and colleagues presented tailored nutrition messages that used people's self-reported food intake compared to a general nutrition message. The manipulations also varied on threat: high (e.g., this will increase your risk of heart disease) or low (e.g., this is not good for your health). Results indicated that both tailored messages and low threat messages, compared to the respective alternative, led to greater attention and more positive attitudes toward the message. Other effective campaigns include tailoring HIV messaging to different education levels (Janssen, De Wit, Hospers, Stroebe, & Kok, 2004); tailoring on individual difference variables (e.g., need for cognition) to promote mammogram screening and better nutrition (Latimer, et al., 2005); tailoring on demographics (e.g., gender, relationship status) to increase STD testing (Lustria, Cortese,

Gerend, Schmitt, Kung, & McLaughlin, 2016); and tailoring responsible drinking messages to match both self-schemas and values (York, Brannon, & Miller, 2012).

In the marketing domain, Choi and colleagues (2012) conducted a content analysis and found that pragmatic appeals were used more often in advertising for "think" products (e.g., credit cards) and value expressive appeals were commonly used for "feel" products (e.g., wine). Expanding on this work, Klein and Melnyk (2016) conducted three experiments and found that matching pragmatic messaging with think products and hedonic messaging with feel products increased positive evaluations of the products. In another test of the tailored approach in marketing, Thompson and Hamilton (2006) created analytical ads (e.g., focusing on the benefits of the product) and imagery ads (e.g., mentally picture the product) and measured individual differences in analytic (e.g., I look at each feature) and imagery (e.g., I imagine myself with the product) processing styles. Results indicated that when people viewed ads that matched their information processing style, the message was more persuasive, leading to higher evaluations of the brand and increased purchase intentions.

Some researchers also use computer technology to offer tailored message solutions based on psychological state, demographics, and individuals' goals (e.g., Dijkstra, 2008; Lustria, Cortese, Noar, & Glueckauf, 2009). The benefit of using computer technology is that it can account for real-time analysis of individual information and adjust messaging accordingly, which allows for a greater variety of tailoring variables (Dijkstra, 2008). Specifically, Dijkstra mentions three types of tailoring approaches that a computer can use to increase the persuasive impact of a message. The first type of tailoring is adaptation, which refers to matching a message to an individual's characteristics (e.g., female). The second type of tailoring is personalization, which refers to including personal information in the message (e.g., first name). Finally, feedback is the

third type of tailoring, which matches a message with the psychological or behavioral state (e.g., current emotions).

One approach to determine tailoring variables that would effectively persuade people to engage in prosocial behavior is to use a theoretical framework that outlines variables that influence information processing. In the moral domain, the dual process theory of moral judgment (DPT; Greene et al., 2001) is appropriate because it describes two types of processing (i.e., emotional and cognitive) that lead people to make different types of judgments (i.e., based on rules or consequences) when facing a moral dilemma. As such, the DPT provides a framework suggesting that matching the state of individuals with messaging emphasizing their respective types of moral judgment should increase the effectiveness of prosocial communications.

The Dual Process Theory of Moral Judgment

The dual process theory of moral decision making integrates and refines cognitive and emotional theorizing (Greene, 2013; Greene, Nystrom, Engeil, Darley, & Cohen, 2004; Greene, Summerville, Nystrom, Darley, & Cohen, 2001). The DPT describes two types of processing, one cognitive and one emotional, which are involved when forming moral judgments.

A useful analogy is to compare the cognitive and emotional processes described by the DPT to two modes available in a digital camera (Greene, 2013). The emotional pathway is similar to the automatic mode of a camera. Like a camera that automatically adjusts for different contextual effects (e.g., the light in the room, the distance of the objects), the emotional pathway leads to automatic processing that occurs outside our awareness. The cognitive pathway is similar to the manual mode of a camera, where the individual can adjust the settings based on the

context, such as the shutter speed and aperture. Likewise, the cognitive pathway involves deliberate thinking, such as weighing the costs and benefits of a situation.

The DPT proposes that rational thought is the default process and leads people to make utilitarian judgments (e.g., focused on maximizing the greater good). However, when faced with a personal moral dilemma, the DPT indicates that the emotional process overrides the rational process and leads people to make deontological judgments (e.g., focused on moral rules). In a typical moral dilemma, people have to decide whether intended harm toward one individual to save many other individuals is appropriate (Greene, et al., 2001, 2004). The utilitarian judgment would be to save the greatest number of lives because it promotes the greatest consequences, while the deontological judgment would be to save the one life because intentional harm is morally wrong. In sum, the DPT describes the scenarios that lead people to use either rational or emotional processing, explains the cause of the different processing types, and predicts the types of judgments that result (Greene et al., 2001, 2004).

Dual Process Theories

The dual process theory of moral judgment (DPT; Greene et al., 2001, 2004) is part of the continuing social psychological discussion regarding the interplay between emotion and cognition (e.g., elaboration likelihood model, ELM, Petty & Cacioppo, 1986; heuristic systematic model, HSM, Chaiken 1980; Zajonc, 1980). Dual process theories, in general, are based on the assumption that the emotional pathway is associated with quick, automatic, intuitive thinking, while the cognitive pathway is associated with slower and deliberative thinking. However, the names of the two pathways, the outcome of interest, and at some points, even the conceptualization of the two pathways, have changed across the various dual-process system theories (see Evans, 2008 for a review).

Zajonc's (1980) seminal article about hot affect and cold cognition was one of the first to suggest the existence of two separate information-processing systems that inform judgment. More recently, Kahneman (2011) summarizes the history of the dual-system approach in his cognitive adaptation model, where System 1 refers to automatic processing and System 2 refers to effortful processing. In discussing these two systems, Kahneman references the various irrational behaviors that can be expressed by the automatic processing in System 1 and the cognitive biases that occur in System 2. In specific theories, the dual pathway assumption has also been applied to attitude change and persuasion (ELM, Petty & Cacioppo, 1986; HSM, Chaiken & Trope, 1999), judgments under uncertainty (e.g., Tversky & Kahneman, 1983), and stereotyping (e.g., Devine, 1989; see Gawronski & Creighton, 2013 for a review). Like other theories that have assumed a two-process system, a fundamental assumption of the DPT is that both emotional and cognitive processing influence judgment — in this case a moral judgment (Greene, 2005; Greene et al., 2001). The DPT tested the dual-pathway framework by showing how specific contexts evoke different processing streams (i.e., the emotional and cognitive pathways) and activate corresponding areas of the brain (e.g., Greene et al., 2001).

Emotion. To return to the camera analogy, comparing the processing streams of moral judgment to the manual and automatic modes of a camera, the emotional pathway would be considered the automatic mode (Greene, 2013). A comprehensive review of emotion in social psychology is beyond the scope of this dissertation, but it is important to define moral emotions in contrast to basic emotions. In the DPT, moral emotions have two criteria that set them apart from other emotions. First, they are quick, automatic, and typically occur before cognitions (as proposed by Zajonc, 1980; also see Haidt, 2001). Emotions precede cognitions because emotions occur as a fast, intuitive response to contextual stimuli, while cognitions involve slower

processing (Zajonc, 1980). In the context of decision making, automatic emotions are referred to as *integral emotional responses* that are "experienced in relation to the object of judgment" (Pham, 2007, p.156). Greene (2007) refers to these emotions as *alarm bell emotions*, meaning they alert people to something in their context that will help them make a decision. The alarm bell response is observed when participants making a moral judgment are not able to explain their rationale and are only able to say they made a decision because the alternative felt wrong (Paxton & Greene, 2010).

The DPT's second criterion differentiating moral emotions from other emotions involves the distinction between basic and moral emotions. Moral emotions are different from basic emotions in that they are "linked to the interests or welfare either of society as a whole or at least of persons other than the judge or agent" (Haidt, 2003, p.852). In other words, moral emotions are targeted and involve other people. Haidt (2003) groups moral emotions into four categories: other-condemning (e.g., contempt, disgust), self-conscious (e.g., shame, guilt), suffering of others (e.g., compassion), and praising others (e.g., gratitude, elevation). While some research seeks to explain the cognitive and behavioral processing associated with the different types of moral emotions (e.g., Thomson & Siegel, 2013), the DPT does not focus on describing the discrete emotional responses associated with moral decision making. Instead, the DPT emphasizes the role that moral emotions play when responding to a moral dilemma.

The DPT includes moral emotions that are 1) automatic and 2) involved in the interest of others; therefore, the emotional pathway is defined as an affective response to stimuli in a moral dilemma, which is associated with a quick, intuitive response (Greene, 2013). For example, people may automatically feel moral emotions such as shame, disgust, and compassion if encountering a situation where a victim is hurt. Greene (2007) discusses the emotional pathway

in contrast to the cognitive pathway, in which "cognitive representations are inherently neutral representations, ones that do not automatically trigger particular behavioral responses or dispositions" (Greene, 2007, p. 40).

Cognition. As noted, prior to the DPT (Greene et al., 2001, 2004), the field of moral psychology focused solely on cognition, or rationality, as the explanatory mechanism of moral judgment (e.g., Kohlberg, 1984). Building on Kohlberg's research, the camera analogy represents the cognitive pathway as the manual mode of the camera, where an individual deliberately makes a decision based on the context (e.g., adjusting the flash, lens settings). In the broader social psychological literature, multiple definitions of cognitive reasoning exist, and many can be applied to the study of moral decision making (Greene, 2013; Paxton & Greene, 2010). When discussing the interplay between emotion and rationality, three different forms of rationality exist: material, logical, and ecological rationality (Pham, 2007). Material rationality is defined as the consistency between the choice a person makes and the person's objectives or self-interests (Sen, 1990). Logical rationality is defined as making judgments based on standards of logic, such as a cost/benefit analysis (e.g., economic theory; Kahneman, 1994). Ecological rationality, perhaps the most closely tied to moral psychology, is defined as making judgments based on broad societal goals or to meet higher moral standards (Pham, 2007). These forms of rationality align with Kohlberg's (1984) theory of moral development, with material rationality being the lowest stage of protecting one's self-interests (e.g., avoiding punishment) and ecological rationality being the highest stage of considering the best for society (e.g., universal principles).

The emotional and cognitive pathways are not mutually exclusive; they can intersect and work together to produce behavior (see Gubbins & Byrne, 2015). This intersection is especially

influential when making moral decisions—in other words, when a clear-cut judgment is not easy. For example, a moral emotion (e.g., compassion) can affect the ability to make a logical decision, just as a rational argument can be used to support or contradict an emotional decision. Greene (2013) captures this relationship between emotion and reason with the statement:

> Reasoning frees us from the tyranny of our immediate impulses by allowing us to serve values that are not automatically activated by what's in front of us. And yet, at the same time, reason cannot produce good decisions without some kind of emotional input, however indirect. (p. 137)

The DPT is founded on the assumption that the emotional and cognitive pathways both contribute to moral judgment, and almost two decades of work empirically support the proposition that the two pathways lead to different types of moral judgments.

The Trolley Dilemma

Differences in moral judgment are often captured by the trolley dilemma, developed (Foot, 1967) and expanded (Thomson, 1985) to create a philosophical moral dilemma in which individuals must choose to save one person or five people. The trolley dilemma includes two similar scenarios, the footbridge scenario and the switch scenario. In the footbridge scenario, a train is heading down the railway and there are five workers on the tracks. Participants are told to imagine standing next to a very large man on a bridge above the tracks (or a man with a large backpack). The five workers can be saved, but only if the participant pushes the man onto the tracks (the man is guaranteed to stop the train). The switch scenario is parallel, with one exception. Instead of pushing a man to save five people, the participant can choose to pull a switch that would divert the train to a sidetrack, where only one worker would be killed. The five people would be saved, but the one person on the sidetrack would die.

Research shows that in the simple scenarios, the majority of people would not push the man, but would pull the switch (Greene et al., 2001; Thomson, 1985). While both scenarios create the dilemma of saving one life versus five lives, people do not make consistent moral judgments. Early moral theorists (Kohlberg, 1984) assumed humans used reason alone to make moral decisions; however, reason alone cannot be used to explain the trolley paradox. The questions remained unanswered: "When, and why, do the rights of the individual take precedence over the greater good?" (Greene, 2013, p. 116). Greene and colleagues (2001) looked for neurological differences to answer this question and found that the divergent responses produced by the trolley dilemma capture differences between emotional (e.g., automatic) and cognitive (e.g., deliberate) processing. Greene then developed the DPT to explain how the activation of the two pathways could lead to different types of moral judgments (Greene et al., 2001, 2004).

Context of the Dilemma. Dual process theories of attitude change propose that features of the message, source, and context can influence whether people will process the message on the surface or at a deeper level (e.g., Petty & Cacioppo, 1986). In the setting of moral dilemmas, the often violent nature of the moral violation is such that people will likely not dismiss the stimulus. The norm violating nature of moral dilemmas implies that the person will notice and care about making a judgment. Another factor must be influencing responses to the trolley dilemma. As mentioned, both scenarios create the dilemma of choosing to save five lives or one, but people consistently choose discrepant answers. Greene and colleagues (2001) proposed that the context, and more specifically, the *personal* nature of a dilemma is the feature that leads people, outside of their awareness, to use an emotional or cognitive processing pathway, which eventually leads to a deontological or utilitarian judgment respectively.

These contextual effects (i.e., personal or impersonal dilemmas) are responsible for the discrepancy between the footbridge and switch dilemmas and why people tend to rely on different modes of processing for each. Specifically, the footbridge dilemma involves a highly personal action. To stop the train (i.e., make the utilitarian decision of saving five lives over one), an individual has to exert physical force on another, innocent person. Conversely, the switch dilemma is impersonal; the bystander does not need to exert force on another person. Greene proposed that personal situations spark a gut reaction, or an intuitive feeling, that pushing someone to his or her death is not morally appropriate.

The current dual-pathway theorizing presumes that the personal nature of the dilemma is caused by the presence of moral rules, which activates the emotional pathway in the footbridge dilemma (e.g., the moral emotion of compassion is considered) and the cognitive pathway in the switch dilemma (e.g., the logical form of rationality considering number of lives saved; Greene, 2013). These different processing pathways subsequently lead to different moral judgments.

Moral Judgments. Grounded in the dual process assumption, Greene (2013) hypothesized that two processing streams lead to different types of moral judgments. As Cushman, Young, and Greene (2010) summarized:

> A general principle favoring welfare-maximizing behaviors appears to be supported by controlled cognitive processes, while a principle prohibiting the use of harm as a means to a greater good appears to be part of the process that generates intuitive emotional responses (p. 12).

In other words, the cognitive pathway leads to behaviors that promote maximizing the greater good (i.e., utilitarian, or consequentialist judgments; Greene, 2007), but the emotional

pathway leads to behaviors that are driven by the use of moral rules, such as preventing the use of harm or favoring the right of the individual (i.e., deontological judgments; Greene, 2007).

Simply, the DPT classifies moral judgments as either utilitarian or deontological. To be sure, a philosopher might claim these two are not mutually exclusive (see Sauer, 2012), but for the purposes of comparing psychological judgments, they serve a useful purpose. Greene (2013) describes the interaction between utilitarian and deontological judgments as the Central Tension Principle. Utilitarianism refers to moral judgments that are based on serving the greater good (Mill & Bentham, 1987) and are supported by the cognitive pathway. Utilitarian thinking is similar to rational logic (e.g., minimizing the cost/benefit ratio), whereby it is moral to save five lives over one in a life or death scenario. Deontological judgments, in contrast, are based on moral rules formed by social or cultural norms (Kant, 1785/2002), and are supported by the emotional pathways. In this same scenario, a deontological judgment would be to avoid breaking a personal moral rule of deliberately harming one person, even if it means that five people will be killed as a byproduct.

Empirical Evidence Supporting the DPT

To test the existence of the dual-pathway model, and to specifically test the hypothesis that deontological responses to the footbridge dilemma are based on the emotional pathway, Greene turned to neuroscience. If utilitarian judgment is based on the cognitive pathway, emphasizing rationality, it should be linked to areas of the brain involved in rational thinking. Similarly, deontological judgments that focus on the violations of moral rules and are based on the emotional pathway should be linked to areas of the brain associated with emotion.

Early Support for the DPT

Greene and colleagues' (2001) seminal study tested the existence of the dual-pathway model by creating and measuring the effects of 60 dilemmas, which were amoral (e.g., decision to use one of two coupons at a store), moral-personal (e.g., throwing people off a sinking lifeboat), or moral-impersonal (e.g., keeping money found in a wallet). The amoral dilemmas served as the control, the moral-personal dilemmas measured emotional processing, and the moral-impersonal measured cognitive processing. In two experiments, participants read, in a randomized order, all 60 dilemmas while connected to a functional magnetic resonance imaging (fMRI) scanner. The second experiment also measured response times for making judgments for each dilemma. Greene and colleagues (2001) hypothesized that areas of the brain associated with emotional and cognitive functioning would be associated with the personal and impersonal moral scenarios respectively, and that providing an incongruent judgment (e.g., utilitarian response to a moral-personal dilemma) would be associated with a longer response time.

As predicted, across both experiments, the moral-personal (i.e., emotional) dilemmas were associated with significantly higher ($p < .0005$) activation levels in areas of the brain associated with emotion (e.g., medial frontal gyrus) than the amoral or moral-impersonal dilemmas. Further, the moral-impersonal (i.e., less emotional) dilemmas were associated with significantly higher ($p < .0005$) activation of areas of the brain associated with working memory (e.g., dorsolateral prefrontal area) than the moral-personal dilemmas (Raine & Yang, 2006). The response time data was also as predicted, with people taking longer to make a utilitarian judgment in the moral-personal condition (e.g., pushing the man in the footbridge dilemma), showing that people have to override their emotional, instinctual response to arrive at a utilitarian judgment (i.e., roughly 6800ms compared to roughly 5000ms). In other words, the increased response times supports the notion that people exert additional cognitive energy when making a

rational (i.e., utilitarian) decision in the moral-personal scenario. However, responding in either way to the impersonal moral dilemma did not affect reaction times because no additional cognitive energy was required (i.e., roughly 4600ms compared to roughly 5400ms). This study was the first to show that emotion can influence moral judgment, which had implications for others' work on morality (e.g., Greene & Haidt, 2002).

The reaction time data in Greene's seminal article (Greene et al., 2001) was compelling, but the researchers had not directly tested the idea that overriding the emotional response to a personal moral dilemma resulted in increased reaction times. Greene and colleagues (2004) later tested this hypothesis by comparing easy and difficult personal moral dilemmas, where difficult moral dilemmas are characterized by a competition between a socio-emotional response and a cognitive rationalization. An example of a difficult dilemma is killing a baby to save a village, with the relatively easier dilemma equivalent being a teenage mother deciding to abort her baby (Greene et al., 2004). Findings indicated that difficult personal moral dilemmas were significantly ($p < .0005$) associated with increased activity in brain regions associated with cognitive control (e.g., dorsolateral prefrontal cortex) and cognitive conflict (e.g., ACC; anterior cingulate cortex).

The study conducted by Greene and colleagues (2004) replicated previous findings (Greene et al., 2001) that social-emotional areas of the brain are activated when making deontological judgments and cognitive areas of the brain are activated when making utilitarian judgments. It also extended the DPT by proposing that cognitive and emotional processes are both involved in the two types of moral judgment, particularly when making a difficult moral personal judgment. The personal nature of the dilemma activates the emotional areas of the brain when making a difficult personal moral judgment, and the response conflict nature of the

dilemma activates the cognitive areas of the brain. This study supports the notion that the two different processes used when making a moral judgment are 1) an intuitive, emotional response and 2) a cognitive, deliberate process that can override the emotional process. These early brain studies, albeit correlational, provided preliminary evidence that moral judgment involves both cognition and emotion.

Experimental Support for the DPT

Manipulating Cognitive Resources. The early DPT research supported the model by showing how the emotional and cognitive areas of the brain were associated with personal moral dilemmas and deontological judgments, as well as impersonal moral dilemmas and utilitarian judgments. However, neurological evidence is predominantly correlational and many neurological studies fail to provide evidence that emotional processing *causes* deontological judgments and cognitive processing *causes* utilitarian judgments. To empirically test these assumptions, researchers used principles of cognitive psychology, specifically, methods of altering cognitive capacity (e.g., reflection time; Suter & Hertwig, 2011). If cognitive processing leads to utilitarian judgments, then limiting cognitive processing should lead to a lower likelihood of making a utilitarian judgment (Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008).

Greene and colleagues (2008) manipulated cognitive resources to test the DPT empirically (also see Conway & Garwonski, 2013 for a review). Participants read high-conflict (e.g., difficult personal moral) dilemmas and were randomly assigned to be in a high cognitive load task (i.e., digit-search task) or a control condition. Results showed that those in the high cognitive load condition were less likely to make a utilitarian moral judgment. Replicating reaction time data from neurological studies (Greene et al., 2004), the reaction times were greater

when making utilitarian, not deontological, judgments, presumably because people had to override their initial emotional reaction to the personal moral dilemma to arrive at a utilitarian decision.

In another application of cognitive principles, Suter and Hertwig (2011) used reflection time to provide support for the notion that cognitive processing leads to utilitarian judgments. In two experiments, participants were assigned to 1) make a moral judgment in a short or long amount of time and 2) encouraged to make an intuitive or deliberative moral judgment. Across both studies, participants with less time, either fixed (i.e., given a short time) or implied (i.e., asked to use intuition) were more likely to make deontological judgments. These data show that both utilitarian and deontological judgments are affected by fluctuations in cognitive resources.

In a complementary set of studies manipulating reflection time, Paxton and colleagues (2011) tested the hypothesis that increasing cognitive reflection would lead to increased utilitarian responding. In the first experiment, participants were randomly assigned to complete the cognitive reflection test (CRT) before or after responding to moral dilemmas. Those induced to reflect were more likely to judge utilitarian responses to a personal moral dilemma as appropriate. The second experiment expanded on the first by manipulating two features thought to further increase utilitarian responding: argument strength and reflection time. When people were presented with a strong argument to support the appropriateness of the moral dilemma and were given extra time to reflect before making a decision, they were more likely to respond in a utilitarian way (i.e., judging utilitarian actions to be appropriate), compared to a weak argument and less reflection time. Taken together, the two studies provide evidence that both reasoning and reflection lead to utilitarian judgments, supporting the claim that cognitive processing is involved in moral judgment.

Manipulating Emotions. Studies that manipulate cognitive resources provide strong support for the notion that cognitive processing leads to utilitarian judgments; however, manipulating cognitive resources alone tests the emotional pathway only indirectly. To test the other half of the dual process model (i.e., the link between the emotional pathway and deontological judgments), Valdesolo and DeSteno (2006) manipulated emotions, or what they referred to as the "contextual sensitivity of affect" (p. 476). The authors hypothesized that if personal moral violations cause negative emotions, and these negative emotions are what lead to a deontological judgment, then manipulating *positive* emotions felt during the decision should increase the likelihood of a utilitarian judgment. As predicted, participants induced to feel positive emotions (i.e., viewing a Saturday Night Live video clip) reported feeling increased positive emotions, and were more likely to rate a utilitarian judgment as appropriate compared to those in the control condition (i.e., viewed a documentary clip). When asked to rate impersonal moral dilemmas, the emotional induction did not have an effect, replicating evidence that affect is linked to personal moral violations (e.g., Greene et al., 2004). Similarly, Guzak (2015) showed that those feeling negative affect were more likely to make deontological judgments. Notably, these findings are in opposition of the logic proposed by Kahneman (2011), who suggests that System 1 (i.e., automatic) processing is tied to happy moods, while System 2 (i.e., effortful) processing is tied to sad moods. The differences from Kahneman's model support the notion that the cognitive and emotional processing pathways could operate differently when making *moral* judgments. One potential reason for the discrepancy between moral and non-moral judgments could be the norm violating nature of a moral dilemma, which implies that the person will notice and care about making a judgment, but more research is needed.

Amit and Greene (2012) used assumptions that visual imagery is associated with emotions and verbal language is associated with cognitive abstract processes (i.e., cognition) to study how the framing of moral dilemmas might change moral judgments. Across two studies, researchers found that seeing visual imagery compared to verbal language before and during reading a moral dilemma was associated with deontological responding. A third experiment (Amit, Gottlieb, & Greene, 2014) suggested that the relationship between visual cues and deontological judgments was due to the increased focus on the harm as the central effect (e.g., footbridge dilemma) rather than harm as a side effect (e.g., switch dilemma).

Other research has supported the association between the emotional pathway and deontological judgments. In moral scenarios, feeling lower feelings of unpleasantness when confronted with unpleasant stimuli, and greater arousal are associated with utilitarian judgments (Carmona-Perera, Marti-Garcia, Perez-Garcia, & Verdejo-Garcia, 2013). A set of studies examining emotional suppression found that people who regulated their emotions by suppression or reappraisal (e.g., altering thoughts to control emotions) were more likely to make utilitarian judgments (Lee & Gino, 2015). Similarly, inducing empathy in respondents lead to higher levels of deontological judgments, while utilitarian judgments were unaffected (Conway & Gawronksi, 2013).

Measuring Individual Differences. Researchers also have investigated individual differences to better understand the links between cognition, emotion, and moral judgments. People with higher levels of trait reflectiveness (Paxton et al., 2011) need for cognition (Conway & Gawronski, 2013), cognitive control of emotion, and low clarity of emotions (Koven, 2011) were more likely to make utilitarian judgments. Perspective-taking and religiosity have also been linked to deontological thinking (Conway & Gawronski, 2013), with religious individuals

showing resistance to utilitarian thinking due to acceptance of divine moral rules (e.g., moral duty not to murder; Piazza & Landy, 2013). Self-reported trait empathy has been linked to deontological responding (Conway & Gawronski, 2013) and decreased utilitarian responding (Sarlo, Lotto, Rumiati, & Palomba, 2014). Going beyond self-reported measures, physiological measurements of increased total peripheral resistance (TPR), which is linked with negative stress responses, is associated with unwillingness to endorse harm in a victim (i.e., the main predictor of an increased deontological response; Cushman, Gray, Gaffey, & Mendes, 2012; Miller, Hannikainen, & Cushman, 2014). While various studies link traits with moral judgment, other studies have found support for the notion that neither moral reasoning nor moral personality factors determine moral character (Cohen, Panter, Turan, Morse, & Kim, 2014).

Physiological Studies. Neurological studies using brain scans (e.g., fMRI), patients with lesions, and people with socio-emotional deficits continued to provide support for the dual-process theory. For instance, patients with damage to the ventromedial prefrontal cortex (VMPFC) are more likely to give utilitarian responses to the footbridge dilemma (e.g., would push the man to save five lives; Ciaramelli, Muccioli, Ladavas, & di Pellegrino, 2007; Greene, 2009; Koenigs, Kruepke, Zeier, & Newman, 2012; Mendez, Anderson, & Shapira, 2005). Further, people reporting high levels of psychopathy (i.e., higher than 7.4 on the Psychopathy Checklist; Glenn, Raine, & Schug, 2009) and deficits in emotional processing (Mendez et al., 2005) are associated with less activation in the amygdala and more utilitarian responses. In healthy individuals, reporting negative emotions when reading the footbridge dilemma was associated with higher activation of the amygdala and utilitarian judgments were associated with lower activation of the amygdala (Shenhnav & Greene, 2014).

To mimic the effects of a damaged VMPFC, Perkins and colleagues (2013) gave respondents lorazepam, an anti-anxiety drug that weakens the VMPFC, and found that compared to a placebo, those who took lorazepam made more utilitarian judgments. The opposite effect was found when administering a selective serotonin reuptake inhibitor (SSRI), which strengths activation of the amygdala and the VMPFC. People taking the SSRI (i.e., Citalopram) made fewer utilitarian judgments in response to personal moral dilemmas (Crockett, Clark, Hauser, & Robbins, 2010). The effect of the SSRI on utilitarian judgments was explained by the hypothesis that serotonin increases aversion to harming others, which subsequently lowers the likelihood of making utilitarian judgments.

A unique set of studies (Duke & Begue, 2015) used the physiological response to alcohol to clarify the debate as to whether utilitarian responding is due to increased reasoning (e.g., Paxton et al., 2011) or decreased aversion to harming others (i.e., less empathy, Crockett et al., 2010). Alcohol, a suppressant that limits one's capacity to reason, served as the predictor. Blood alcohol content (BAC) was measured in a field setting (i.e., a bar) while participants responded to moral dilemmas. Duke and Begue found that increased BAC was associated with utilitarian decision making, implying that utilitarian responding is associated with a decreased aversion to harming others.

Summary of Empirical Support. An assortment of measurement methods has provided strong support for the dual process theory of moral judgment (Greene et al., 2001, 2004). Neurological studies have distinguished between areas of the brain that are activated during cognitive and emotional processing (Greene et al., 2001). The theory also has been tested empirically using principles of cognition to manipulate cognitive resources (Greene et al., 2008) and theories of affect to manipulate emotions (Valdesolo & DeSteno, 2006). Using a diversity of

experimental manipulations, the effects of cognition on utilitarian judgments and emotion on deontological judgments were robust. Further, individual differences associated with utilitarian and deontological judgments indicated the construct validity of the theory, with empathetic people approving deontological judgments and people with a high need for cognition approving utilitarian judgments (Conway & Gawronski, 2013). Finally, physiological studies linked cognitive brain processing to utilitarian judgments (Shenhnav & Greene, 2014) and emotional brain processing to fewer utilitarian judgments (Crockett et al., 2010), using multiple measurements to provide support for the model.

Current Studies

Persuasion scholarship in the moral domain focuses on influencing prosocial behavior by manipulating emotions (e.g., Hibbert et al., 2007) or messaging (e.g., Feinberg & Willer, 2015), but the research typically takes a one-size-fits-all approach. Based on the success of matched messaging in other domains (e.g., Noar et al., 2007), it is proposed that tailoring prosocial messages to individuals' states can increase the effectiveness of messaging. The DPT (Greene et al., 2001), which outlines how people make moral decisions, provides the framework for determining how to tailor prosocial messaging for maximum persuasive impact. Specifically, DPT research supports the notion that priming emotion and cognition can modify moral judgment (e.g., Greene et al., 2008; Guzak, 2015; Paxton et al., 2011; Valdesolo & DeSteno, 2006); therefore, it is predicted that tailoring messaging to reflect moral judgments that match an individual's psychological state will be an effective way to increase prosocial behavior.

The current research tests a two-step approach to create effective messaging, in which people are first primed to feel negative emotion or increase cognitive reflection; they are then exposed to a donation appeal that uses messaging that matches their state. People primed to

increase cognitive reflection will be matched with a message emphasizing the positive consequences for donating and people primed to increase negative emotion will be matched with a message emphasizing the moral rules for donating. Three studies, comprised of six experiments, were conducted to test the notion that the matched messaging conditions are the most effective in increasing prosocial attitudes and behavior.

The first study tests the assumption of the DPT that priming negative emotion or cognition will effectively manipulate moral judgments to trolley dilemmas (Guzak, 2015; Paxton et al., 2011). Instead of lab-based manipulations that ask respondents to participate in a situation that is rarely encountered in daily life (e.g., digit search task; Greene et al., 2004), two experiments test short commercials that were created to prime negative emotion or cognition. The use of commercials is important, as it will demonstrate that a matched messaging approach can be used in media communication to influence moral judgment. In other words, this group of studies represents a first step in testing the matched message approach, as it will determine if commercials about an unrelated topic that prime psychological state will effectively influence people to think about either rules or consequences. Based on research showing that negative emotions led to deontological (i.e., rules-based) moral judgments (e.g., Guzak, 2015), it is predicted that negative emotions will lead to increased focus on moral rules.

> H1: People primed to feel negative emotions will be more likely than a control group to focus on the moral rules of a dilemma.

On the other hand, increased cognitive reflection, or an increase in cognitive resources has been shown to lead to utilitarian (i.e., consequence-based) moral judgments (e.g., Paxton et al., 2011). Therefore, it is predicted that cognitive reflection will lead to increased focus on moral consequences.

> H2: Priming cognitive reflection will enhance focus on the consequences of a dilemma.

If these two hypotheses are supported, Study 1 will replicate DPT research that priming cognition and negative emotion can change in predictable ways how people think about moral scenarios (e.g., Greene et al., 2004; Guzak, 2015; Paxton et al., 2011)

Study 2 tests the effect of the psychological state manipulation on a pre-existing prosocial advertisement that focuses on moral consequences. The goal of Study 2 is to determine whether people's psychological state influences the way in which an advertisement is interpreted, and subsequently affects people's attitudes toward and intentions to donate to a charity. It is predicted that the priming psychological state will lead people to process the same prosocial message according to their psychological state.

> H3: People primed to feel negative emotions will interpret a charity message as more emotional than people primed to cognitively reflect.

Since the pre-existing ad focuses on moral consequences, it is predicted that those in the cognitive condition will be more likely to behave prosocially than those in the emotion condition.

> H4: People primed to cognitively reflect will have more positive attitudes toward and greater intentions to donate to a charity that focuses on moral consequences than people primed to feel negative emotions.

If Hypotheses 3 and 4 are supported, Study 2 will lend support to the proposition that people process the same message in different ways depending on their psychological state, and that the same message will be more effective when it is tailored to match one's state.

The third study was designed to test the full matched-messaging approach. Study 3a pilots the message manipulation by determining if the different ads are effectively tailored to express either moral rules or moral consequences. Study 3b tests the effect of matching the message to the psychological state of the receiver. Study 3b first randomly assigns people to

view a commercial meant to prime either negative emotions or cognitive reflection. People are then randomly assigned to view a persuasive message that focuses on moral rules or moral consequences of donating. It is again predicted that matching the message to the state will lead to greater prosociality.

> H5: People primed to feel negative emotion will have more positive attitudes toward and greater intentions to donate to a charity that focuses on moral rules than a charity that focuses on moral consequences.

> H6: People primed to feel cognitive reflection will have more positive attitudes toward and greater intentions to donate to a charity that focuses on moral consequences than a charity that focuses on moral rules.

If these two hypotheses are supported, Study 3 will provide further support to the DPT framework by showing that priming people's psychological state influences the way they process moral information. Study 3 also will be one of the first to show that matching prosocial messaging to an individual's psychological state increases the effectiveness of a persuasive message.

If all hypotheses are supported, the three studies together would demonstrate that advertisers can increase the effectiveness of prosocial messages if they first prime the state of the individual recipient and then match the type of message to the state. The DPT is used as a framework to determine how to increase the effectiveness of a persuasive prosocial message by testing the assumptions that emotional processing leads to judgments that focus on moral rules and cognitive processing leads to judgments that focus on consequences of a moral scenario (e.g., Greene, 2013; Greene et al., 2004, 2008). Together, the set of studies suggests that a matched message approach effectively influences prosocial attitudes and intentions.

CHAPTER 3: Study 1

Study 1 represented an important first step in testing the matched message approach, as it determined if commercials priming psychological state effectively influenced people to think about either rules or consequences of a moral scenario. It was predicted that people primed to feel negative emotions would be more likely than a control group to focus on the moral rules (H1), while people primed to cognitively reflect would be more likely than a control group to focus on the consequences (H2).

Studies 1a and 1b used previous DPT literature to create and test commercials to induce negative emotions and cognitive reflection. Researchers testing the DPT have influenced negative emotion through the use of video primes (Guzak, 2015; Valdesolo & DeSteno, 2006), but no evidence was found for the induction of cognitive reflection through videos. Therefore, the current studies tested two different techniques for influencing cognitive functioning that corresponded to different manipulations used by other researchers. One manipulation directly asked respondents to reflect more (Suter & Hertwig, 2011). The second manipulation used a cognitive task to influence cognitive functioning (Paxton et al., 2011).

Study 1c replicated previous empirical studies (e.g., Greene et al., 2008, Paxton et al., 2011) and the commercials created in Study 1a and 1b were tested to determine if they differentially influenced moral judgment in response to trolley dilemmas. It was expected that watching a negative emotion video would lead to increased deontological judgments (i.e., focusing on moral rules) and watching a cognitive reflection video would lead to increased utilitarian judgments (i.e., focusing on moral consequences).

Study 1a

Study 1a used DPT literature to inform the creation of short commercials to prime negative emotion and cognitive reflection. The negative emotion video was based on previous DPT literature that demonstrated the effectiveness of a video prime (Guzak, 2015). The cognitive reflection video was also based on DPT research that primed cognitive reflection by directly asking respondents to deliberate more (Suter & Hertwig, 2011). Participants were randomly assigned to one of three conditions: negative emotion, cognitive reflection, or a control video. They then answered a manipulation check designed to assess levels of emotion and cognitive elaboration.

Participants

Participants were recruited using Mechanical Turk (MTurk), an online crowdsourcing website hosted by Amazon (Buhrmester, Kwang, & Gosling, 2011; Paolacci, Chandler, & Ipeirotis 2010). MTurk is used as a recruitment method for a sample that is generally more heterogeneous than a sample of typical college students (Buhrmester et al., 2011) and has been used to measure moral judgment in previous research (Paxton et al., 2011). Across all six studies in the current dissertation, the surveys were programmed in the same project, thus allowing each IP address to access the survey only once and limiting respondents' ability to participate in more than one study. Participants who chose to participate were compensated $0.20, consistent with typical payment for tasks that take less than 5 minutes to complete. Data were collected from 118 participants, and 11 participants were removed prior to analysis for describing the video quality as somewhat or extremely bad. No other attention checks were included in this study. The final sample had an average age of 36.89 years (*SD* = 11.64), that was 52% male (48% female). The

ethnic breakdown was as follows: 76% White/Caucasian, 8% Hispanic, 8% Asian, 8% African American, and 0% American Indian or Native American.

Method

Procedures. Participants were first informed that their participation in the study was voluntary and their answers were completely anonymous. If they chose to participate, they were asked to provide their informed consent. After ensuring they could view videos, participants were randomly assigned in equal proportions to one of three conditions: an emotion prime, a cognitive reflection prime, or a control condition. Following the manipulation, they completed a manipulation check measure designed to assess levels of emotion and thought. Finally, they were asked to respond to demographic questions concerning their gender, age, and children in household to assess possible covariates of the hypothesized relationship. Immediately after completion, participants were debriefed on the purpose of the research project.

Experimental Manipulation. The experimental primes were modified from studies using videos to induce emotions in the context of advertising and moral judgment research (e.g., Valdesolo & DeSteno, 2006; Westerman, Spies, Stahl, & Hesse, 1996) and were designed to prime negative emotion or cognitive reflection. A third, control video was included to provide a baseline measurement for both emotion and cognition. The manipulations were created for this specific research study and were intended to reflect a typical 30-second commercial an individual would see on television. The commercial was for a saving account product and involved the storyline of children leaving for college. All images and the presentation of text in the videos were identical in all three videos. Video clips from three different commercials showing parents interacting with children were merged to form the video, and only commercials

clips from outside the United States were used to ensure respondents had not seen the clips before.

As noted, all visuals for the commercials were identical. The video intended to prime negative emotion described the feeling parents experience when their children go away for college. An example line from the negative emotion video was, "You feel helpless and alone." The video intended to prime cognitive reflection described the payment decisions parents make when their children attend college. An example line from the cognitive reflection video was, "You think about making the most rational decision." Both videos were modeled after previous DPT research (i.e., negative emotion, Guzak, 2015; cognitive reflection, Suter & Hertwig, 2011). The control video focused on the product to avoid emotion or deliberation, and an example line was "We have the best service" (See scripts for all commercials in Appendix A).

Measures. Measures included two close-ended manipulation checks to assess negative affect and cognitive reflection, demographic questions, and a video quality measure (See Appendix B for full measures).

Manipulation Check: State. To assess the effectiveness of the manipulation, participants were asked to rate the commercial using a 4-item scale modified from research in advertising and persuasion (Kim, et al., 2012; Klein & Melynk, 2016). The scale was a 7-point Likert scale from *Strongly Disagree* to *Strongly Agree*. Two items measured affect: "The commercial made me feel sad" and "I had many feelings about the commercial" and two items measured cognitive reflection: "The commercial made me think" and "I had many thoughts about the commercial." Previous research investigating Southern US college students (Kim et al., 2012) showed similar items had adequate internal consistency for cognitive elaboration ($\alpha = .89$) and affective elaboration ($\alpha = .93$).

Demographics. Participants were asked about their gender, age, and children in their household to assess potential covariates. Age and gender were included because previous studies have shown men tend to respond to moral dilemmas in a more utilitarian way while adolescents respond in a more deontological way (e.g., Caravita, De Silva, Pagani, Colombo, & Antoniette, 2017; Friesdorf, Conway, & Gawronski, 2015). The number of children in household was included because the messaging in the commercials was directed specifically toward parents and saving money for their children's education. Even though randomization should reduce the need to control for certain demographic factors, the purpose of including the covariates was to remove the variance associated with these factors when measuring the effect of the manipulation on the dependent variables.

Video and Sound Test. Since the effect of the manipulation is dependent on the video quality, participants were given a video screen at the beginning of the survey. It showed a short video of a dog playing fetch and asked participants to respond to what they saw and heard in the video clip. If participants did not select "Dog," they were removed from the survey immediately. At the end of the survey, after demographic measures, participants were told they would not have negative consequences for answering honestly, and asked to rate the quality of the video and sound from 1 (*Extremely bad)* to 7 (*Extremely good).* The manipulation message was not dependent on sound so only video quality was assessed for the current study.

Results

Prior to conducting statistical analyses, scales were made into composite measures using averages and data were assessed for outliers and violations of normality (skewness and kurtosis between -1 and 1). The manipulation checks for negative state ($\alpha = .77$) and cognitive state ($\alpha = .86$) met the univariate assumptions of the analyses (between -1 and 1 on skewness and kurtosis).

To reduce the likelihood that the number of children would contain outliers that could overinflate the significance of the covariate, the measure was made into a dichotomous variable. This transformation allows for the distinction between parents and non-parents while avoiding the problem of outliers. There was a similar number of participants in each condition (Control n = 37; Negative emotion n = 37; Cognitive reflection n = 33).

For a two-tailed independent samples t-test using group sizes of n= 33, a sensitivity analysis conducted in G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) computed that a significant ($\alpha = .05$) difference would be detected 80% of the time (.80 power) if the population effect is at least d = .68. The goal of the current research was to identify an intervention that produces a large effect in the current controlled setting because commercials are typically presented in a more distracting setting where people are less likely to pay full attention, which would likely reduce the effect of the manipulation. Therefore, even if the intervention produced statistically significant differences with a small effect size in the current set of studies, the research would not be very useful in an applied setting where effects are expected to be even smaller. See Table 1 for intercorrelations and descriptive information of variables.

Table 1

Study 1a – Intercorrelations of Variables (n=107)

Scale	1	2
1. Negative State	(.77)	
2. Cognitive State	.71**	(.86)
Means	3.91	4.60
SD	1.72	1.50

Note. Pearson bivariate correlations. *p < .05 **p < .01 (two-tailed). Means and SDs are listed in last two rows. Cronbach's alpha presented on the diagonal.

MANCOVA. A multivariate analysis of covariance (MANCOVA) was conducted to examine whether the conditions lead to differences among manipulation checks. The

MANCOVA is useful as a prior procedure to multiple t-tests, because it helps control for Type I error (Howell, 2010). The factor of state (emotion, cognition, or control) was used as a fixed factor, the manipulation checks (negative state and positive state) were entered as the dependent variables, and age, gender, and parent status were entered as covariates. Age, $F(2, 100) = .28$, $p = .75$, gender $F(2, 100) = 1.48$, $p = .23$, and parent status $F(2, 100) = .88$, $p = .42$ were not significant covariates, but they were kept in the model (Keppel & Wickens, 2004). A main effect of condition was detected: $F(4, 100) = 5.26$, $p < .001$, Wilks' $\lambda = .82$. Additional analyses were then conducted to determine which conditions led to differences on each dependent variable.

Pairwise comparisons. ANOVAs with follow-up pairwise comparison tests were conducted between conditions on negative and cognitive state (see Table 2 for means by condition).

Table 2

Study 1a – Marginal Means and SDs

	Negative state	Cognitive state
Control ($n = 37$)	3.76 (1.44)	4.66 (1.22)
Emotional Ad ($n = 37$)	4.60 [a] (1.84)	4.58 (1.76)
Cognitive Ad ($n = 33$)	3.32 [a] (1.64)	4.54 (1.50)

Note. Estimated marginal means for the dependent variables are listed. Standard deviations are listed in parentheses.

[a] Means that share superscripts differ significantly ($p < .01$) by Tukey's HSD test.

There was a significant difference in levels of negative state between the conditions [$F(2, 101) = 4.60$, $p = .01$, *partial* $\eta^2 = .08$]. Post-hoc tests using Tukey's HSD correction show that on the negative state measure, the emotion condition was significantly higher than the cognitive condition ($M_{diff} = 1.28$, $p = .005$, *Cohen's d* = .74) and marginally higher than the control condition ($M_{diff} = .84$, $p = .08$, $d = .51$). These effect sizes are both considered to be large, though

the latter attained only marginal statistical significance because of the small samples. The cognitive condition was not significantly different from the control condition on negative state. This shows that the emotion condition led to higher levels of negative state than the cognition condition, while the cognition condition did not vary significantly from the control. No significant differences between conditions existed for the cognitive state measure. Together, these data indicate that the emotion video led to a significant increase in the negative emotion state measure, while the cognitive video did not differ significantly from the control group on the measure of cognitive state.

Discussion

Together, data in Study 1a indicate that the emotion video led to significant differences on the emotion state measure, while the cognitive video did not significantly increase cognitive state. Replicating previous DPT research (Valdesolo & DeSteno, 2006), the current study showed that negative emotion could be primed using a video describing a negative situation. However, the video that asked people to deliberate did not sufficiently influence cognitive reflection. More research is needed to find a way to prime cognitive reflection using a video manipulation.

Study 1b

Since the cognitive reflection video did not significantly differ from either the control or the emotion condition, Study 1b used a different method to prime cognitive reflection that was based on prior DPT literature; a computational task intended to increase cognitive functioning (Paxton et al., 2011). Once again, participants were randomly assigned to one of three conditions: negative emotion, cognitive reflection, or a control video. Participants then answered manipulation checks designed to assess levels of emotion and cognitive elaboration.

Method

Participants. As with Study 1a, participants were recruited from MTurk and were compensated $0.20. Data were collected from 178 participants, and eight participants were removed prior to analysis for describing the video quality as somewhat or extremely bad. No respondents were removed for failing the state manipulation check. The final sample consisted of 170 participants with an average age of 33.53 years (*SD* = 10.68); 53% of the sample was male (47% female). The ethnic breakdown was as follows: 76% White/Caucasian, 3% Hispanic, 7% Asian, 12% African American, 1% American Indian or Native American.

Procedures. Procedures were identical to Study 1a. The only difference between the two studies was the modification of the cognitive reflection experimental manipulation and the addition of two post-test manipulation checks.

Experimental Manipulation. The negative emotion video and control video were identical to Study 1a. Instead of asking respondents to deliberate in the cognitive reflection video, the current study followed Paxton and colleagues' (2011) procedures, which used the cognitive reflection test (CRT; Frederick, 2005) to induce a reflective mindset through math problems. The cognitive reflection video for the current study asked respondents to calculate the hours of studying it takes to get into college, with an example line being, "If the average student studies 1 hour every day, how many hours per week would it be?" The imagery was identical to Study 1a (See Appendix A).

Measures. Measures included the same manipulation checks in Study 1a, an additional emotional content manipulation check, one open-ended manipulation check, demographic questions, and a video quality measure (See Appendix B for full measures).

Manipulation Check: Emotional Content. A one-item manipulation check was included in Study 1b. It is similar to a bipolar semantic differential scale and forces respondents to choose one feeling over another. While feeling negative or cognitive are not on the same dimension, they are often treated as such in the moral psychology literature (e.g., Greene et al., 2008), so this measure captures if the manipulation was working as intended. The question stem was:

> Some ads are more thought-provoking, and some ads are more emotional. Some ads can do both. We're curious if this ad caused you to feel one more than the other. If you felt both the same amount, you would be in the middle.
>
> The two poles were on a sliding scale (0-100) from *Thoughts* to *Emotions.*

Manipulation Check: Open-End State. A single, open-ended question was also included to assess if the manipulation was effective: "What did you think or feel when watching the commercial?"

Results

Prior to conducting statistical analyses, scales were made into composite measures using averages and data were assessed for outliers and violations of normality (skeweness and kurtosis between -1 and 1). The manipulation checks for negative state ($\alpha = .65$) and cognitive state ($\alpha = .86$) met the univariate assumptions of the analyses. There were approximately equal subsamples in each condition (Control $n = 55$; Negative emotion $n = 56$; Cognitive reflection $n = 59$). Using the smallest group size ($n = 55$), a sensitivity analysis conducted in G*Power (Faul et al., 2007) computed that a significant ($\alpha = .05$) difference would be detected 80% of the time (.80 power) if the population effect is at least $d = .54$ for a two-tailed independent samples t-test. Further, the open-ended measure was examined to determine if people appropriately understood the manipulation. People would be excluded from the analyses if they answered with nonsense,

gibberish, or failed to describe any types of emotions or thoughts. No participants were removed for failing the manipulation check in the current study. See Table 3 for intercorrelations and descriptive information of variables.

Table 3

Study 1b – Intercorrelations of Variables (n=170)

Scale	1	2	3
1. Negative State	(.65)		
2. Cognitive State	.62**	(.86)	
3. Emotional Content	.49**	.02	-
Means	3.67	4.74	50.59
SD	1.41	1.44	25.87

Note. Pearson bivariate correlations. *$p < .05$, **$p < .01$ (two-tailed). Means and SDs are listed in last two rows. Cronbach's alpha presented on the diagonal.

MANCOVA. A multivariate analysis of covariance (MANCOVA) was conducted to examine whether the conditions lead to differences among manipulation checks. The factor of state (emotion, cognition, or control) was used as a fixed factor, the three manipulation checks (negative state, cognitive state, emotional content) were entered as the dependent variables, and age, gender, and parent status were used as covariates. Parent status was a significant covariate, $F(3, 162) = 9.52$, $p < .001$, *partial* $\eta^2 = .15$ but age, $F(3, 162) = .20$, $p = .90$ and gender $F(3, 162) = .45$, $p = .72$ were not significant covariates. Being a parent was significantly associated with higher levels of negative state [$t(168) = 3.69$, $p < .001$)], cognitive state [$t(168) = 4.10$, $p < .001$)] and emotional content [$t(168) = 3.71$, $p < .001$)]. All covariates were entered into the model to maintain consistency across studies. A main effect of condition was detected: $F(6, 162) = 11.15$, $p < .001$, Wilks' $\lambda = .68$. Additional analyses were needed to determine where the differences occurred.

Pairwise comparisons. ANCOVAs with follow-up pairwise comparisons were conducted, between condition on negative state, cognitive state, and emotional content (see

Table 4 for means by condition). There was a significant difference in levels of negative state between the conditions [$F(2, 164) = 18.03$, $p < .001$, *partial* $\eta^2 = .18$] when controlling for gender, age, and parent status. Post-hoc tests using Tukey's HSD show that on negative state, the emotion condition was significantly higher than the control condition ($M_{diff} = 1.33$, $p < .001$, $d = 1.04$) and significantly higher than the cognition condition ($M_{diff} = 1.11$, $p < .001$, $d = .82$). The cognitive condition was not significantly different from the control condition on negative state. This shows that the emotion condition led to higher levels of negative state than both the control and the cognition condition, while the cognition condition did not vary significantly from the control on negative state.

Table 4

Study 1b – Marginal Means and SDs

	Negative state	Cognitive state	Emotional content
Control ($n = 55$)	3.16 [a] (1.15)	4.25 [c] (1.42)	50.84 [df] (24.12)
Emotional Ad ($n = 56$)	4.49 [ab] (1.40)	4.83 (1.54)	63.09 [ef] (20.89)
Cognitive Ad ($n = 59$)	3.38 [b] (1.30)	5.01 [c] (1.27)	38.51 [de] (26.36)

Note. Estimated marginal means for the dependent variables are listed. Standard deviations are listed in parentheses.

[abcdef] Means that share superscripts differ significantly ($p < .05$) by Tukey's HSD test.

There was also a significant difference in cognitive state between the conditions [$F(2, 164) = 3.71$, $p = .03$, *partial* $\eta^2 = .04$] when controlling for parent. Post-hoc tests using Tukey's HSD correction show the cognitive condition was significantly higher than the control condition ($M_{diff} = .76$, $p = .004$, $d = .56$). The cognitive condition was not significantly different from the emotion condition and the emotion and control conditions were not significantly different on cognitive state. This shows that the cognitive condition led to significantly higher levels of

cognitive state than the control, though the cognitive condition was not significantly different from the emotion, and the emotion condition and control did not differ.

Finally, the emotional content measure was tested while controlling for parent status, and a significant difference was found between the conditions [$F(2, 164) = 18.26$, $p < .001$, *partial* $\eta^2 = .18$]. Post-hoc tests using Tukey's HSD correction show the cognitive condition was significantly lower than the control condition ($M_{diff} = -12.33$, $p = .02$, $d = .49$) and significantly lower than the emotion condition ($M_{diff} = -24.58$, $p < .001$, $d = 1.03$). Further, the emotion condition was significantly higher than the control condition ($M_{diff} = 12.25$, $p = .02$, $d = 54$). These data suggest that the cognitive condition led to more thoughts than the emotion condition or control, and the emotion condition led to more emotions than the cognitive condition or control.

Discussion

Results of Study 1b indicate the effectiveness of both psychological state primes. Mirroring the effect found in Study 1a, the emotion condition led to higher levels of negative state and emotional content than the control and cognitive condition. Further, the cognitive reflection prime with the computational task led to higher levels of cognitive state and lower levels of emotional content than the control. In sum, the psychological state primes created for the current studies effectively influenced people to feel negative emotion or cognitive reflection as intended.

Study 1c

Study 1c was designed to replicate prior DPT studies using the traditional measurement of moral judgment (i.e., trolley dilemmas; Greene et al., 2008, Paxton et al., 2011). Respondents were randomly assigned to the psychological state primes created in Studies 1a and 1b, followed

by a written moral dilemma where an action takes place. Acceptability ratings of the action in the dilemma were used to assess if the manipulations effectively influenced moral judgment. It was expected that watching the negative emotion video would lead to increased deontological judgments (i.e., focusing on moral rules) and watching the cognitive reflection video would lead to increased utilitarian judgments (i.e., focusing on moral consequences).

Method

Participants. Participants again were recruited using MTurk and paid $0.20. Since the sample size in Study 1b was adequate to detect differences between groups, data were collected from 169 participants. Prior to analysis, nine participants were removed for reporting extremely or somewhat bad video quality and four participants were removed for failure to pay attention to the outcome measure. The final sample included 156 participants with an average age of 37.59 years (*SD* = 12.58), and was 41% male (59% female). The ethnic breakdown was as follows: 80% White/Caucasian, 5% Hispanic, 8% Asian, 7% African American, 0% American Indian or Native American.

Procedures. Procedures were identical to Study 1b, with the exception of posttest measures. Participants completed a trolley dilemma to measure type of moral judgment (i.e., whether they focused on the rules or consequences of a moral scenario) and were then asked an open-ended question about why they made the moral judgment.

Experimental Manipulation. The experimental primes were identical to Study 1b.

Measures. Measures included a trolley dilemma to measure moral judgment, demographic questions, and a video quality measure.

Moral Judgment. Moral judgment is commonly measured using hypothetical scenarios (e.g., Carmona-Perera et al., 2013; Conway & Garwonski, 2013; see Christensen & Gomila,

2012 for a review), many of which were developed to empirically test the dual process theory (Greene et al., 2001). These dilemmas are generally referred to as "trolley dilemmas" because they are based on the trolley paradox, in which individuals must choose to save one person or five people (Thomson, 1985). All dilemmas share a common feature: the answer is morally ambiguous. Further, the respondent is presented with a choice to maximize the positive consequences but still harm some others (utilitarian judgment) or harm many others but avoid personally violating a moral rule (deontological judgment).

Compared to early correlational work investigating moral judgment that used up to 60 dilemmas (e.g., Greene et al., 2001), experimental work typically uses one (e.g., Guzak, 2015) or two (e.g., Valdesolo & DeSteno, 2006) dilemmas. Experimental work tends to use fewer dilemmas because measures that include descriptions of dilemmas are longer than typical post test measures, and the effect of the manipulation can be expected to diminish with a longer time between the manipulation and measures. The manipulation is not expected to have an enduring effect on moral judgment. Therefore, the current study used only one high-conflict, personal dilemma (Koenigs et al., 2007) to measure moral judgment, referred to as "Lifeboat." As with previous studies (Greene et al., 2008; Paxton et al., 2011), a high-conflict, personal dilemma is used because research has suggested that high-conflict dilemmas produce a larger discrepancy between utilitarian and deontological judgments due to the larger norm violation (Kahane, 2012). Although the original trolley dilemma is the most common measurement, the popularity of the dilemma could introduce bias associated with enlightenment effects so it is excluded from the current study. The Lifeboat dilemma is presented below:

> You are on a cruise ship when there is a fire on board, and the ship has to be abandoned. The lifeboats are carrying many more people than they were designed to carry. The

lifeboat you are in is sitting dangerously low in the water— a few inches lower and it will sink. The seas start to get rough, and the boat begins to fill with water. If nothing is done it will sink before the rescue boats arrive and everyone on board will die.

However, there is an injured person who will not survive in any case. If you throw that person overboard and kill him or her, the boat will stay afloat and the remaining passengers will be saved.

In previous empirical work, moral judgment is measured in two distinct ways (e.g., Amit & Greene, 2012, Greene et al., 2008) and the field has not reached a consensus on the preferred measurement (Christensen & Gomila, 2012). As such, respondents were first asked a dichotomous question, "Would you throw the injured person overboard the lifeboat and kill him or her to save the other passengers?" Response options were *No* or *Yes.* A second question was then asked: "How unacceptable or acceptable is it to throw the injured person overboard and kill him or her?" Responses were measured on a 7-point Likert scale from 1 (*Completely Unacceptable)* to 7 (*Completely Acceptable).* On both measures, affirmative responses on the scale indicate focusing on moral consequences (i.e., utilitarian thinking), whereas negative responses indicate focusing on moral rules (i.e., deontological thinking). In other words, agreeing to kill one to save many indicates focus on the moral consequences of maximizing benefits, rather than the moral rules of harming one is wrong.

Attention Check: Open-End Judgment. A single, open-ended question was included to assess if participants were paying attention: "Why do you say it is [response] to throw the person overboard?"

Demographics. Participants were asked about their gender, age, and the number of children in their household to assess potential covariates.

Results

Prior to conducting statistical analyses, data were assessed for outliers and violations of normality. No multivariate outliers were detected. There were equal subsamples in each condition (control $n = 52$; negative emotion $n = 52$; cognitive reflection $n = 52$). For the subgroup size ($n = 52$), a sensitivity analysis conducted in G*Power (Faul et al., 2007) computed that a significant ($\alpha = .05$) difference would be detected 80% of the time (.80 power) if the population effect is at least $d = .55$ for a two-tailed independent samples t-test. See Table 5 for intercorrelations and descriptive information about variables. The open-ended attention check was analyzed similarly to Study 1b. People would be excluded from the analyses if they answered with nonsense, gibberish, or failed to provide a response that corresponded to the question. Four participants were removed for failing the attention check in the current study.

Table 5

Study 1c – Intercorrelations of Variables (n=156)

Scale	1	2
1. Moral judgment dichotomous	-	
2. Moral judgment scale	.60**	-
Means	1.97	3.28
SD	1.00	1.91

Note. Pearson bivariate correlation. **$p < .01$ (two-tailed). Means and SDs are listed in last two rows.

Moral judgment dichotomous. A Pearson chi-square test of independence did not find a significant relationship between the State condition and the dichotomous measure of moral judgment, χ^2 (2, $N = 156$) = 1.59, $p = .45$.

Moral judgment scale. An ANCOVA was then conducted to examine whether the condition led to differences on the scaled moral judgment measure. Condition was entered as the fixed factor, the moral judgment measure was entered as the dependent variable, and gender, age,

and parent status were entered as covariates. Gender [$F(1, 150) = .08$, $p = .79$], age [$F(1, 150) = 1.21$, $p = .27$], and parent status [$F(1, 150) = 3.20$, $p = .08$] were all found to be non-significant covariates. They were still included in the model to maintain consistency. The overall ANOVA was significant, [$F(2, 150) = 3.20$, $p = .04$, $partial\ \eta^2 = .04$] showing that the State condition affected responses to the moral judgment scale (see Table 6 for means and standard deviations). Further analyses were conducted to assess where the conditions differed.

Table 6

Study 1c – Marginal Means and SDs

	Moral judgment scale
Control ($n = 52$)	2.90 [a] (1.77)
Emotional Ad ($n = 52$)	3.13 (1.87)
Cognitive Ad ($n = 52$)	3.81[a] (1.99)

Note. Estimated marginal means for the dependent variable are listed. Standard deviations are listed in parentheses.
[a] Means that share superscripts differ significantly ($p < .05$) by Tukey's HSD test.

Pairwise comparisons were conducted using Tukey's HSD to avoid inflated Type I error. The cognitive condition had significantly higher ratings of acceptability than the control ($M_{diff} = .91$, $p = .04$, $d = .48$), meaning that watching the cognitive video prime led people to focus more on moral consequences. The pairwise comparisons between the cognitive condition and the emotion condition and between the emotion condition and the control were non-significant.

Discussion

Results from Study 1c indicate that the moral judgment varied depending on measurement. Priming people's psychological state did not significantly affect moral judgment when using a binary question that asked about likelihood of performing the immoral action. On the other hand, people who viewed the cognitive video were more likely than the control group

to rate the action as acceptable (i.e., focusing on the moral consequences). Across both measures, the emotion prime did not significantly vary from the control on acceptability ratings.

Study 1 Discussion

The goal of Study 1 was to test whether commercials are effective in manipulating moral judgment, as measured by the trolley dilemma. In Studies 1a and 1b the DPT literature informed the creation of short videos intending to prime negative emotion and cognitive reflection (Valdesolo & DeSteno, 2006). The negative emotion manipulation was modified from previous DPT studies, which induced this state using short videos (e.g., Guzak, 2015). Since cognitive reflection was conceptualized in different ways in the DPT literature, two different methods of manipulating cognitive reflection were tested. In Study 1a, the cognitive reflection video prompted participants to deliberate about a scenario (e.g., Suter & Hertwig, 2011). Hypotheses were not supported using the deliberation manipulation; priming people to think more cognitively did not lead to significant differences in the cognitive state compared to the control video and the negative emotion video. In Study 1b, the cognitive reflection video was designed to be similar to a calculation test (e.g., CRT, Paxton et al., 2011) and data indicated that the cognitive reflection task video was significantly more likely than the control video to increase cognitive thinking. The emotion prime was used in both Studies 1a and 1b and showed that people viewing the negative emotion ad were more likely than control participants to feel emotions, measured by a negative state in advertising measure (Kim, et al., 2012; Klein & Melynk, 2016). The emotional content measure in Study 1b further supported the hypotheses that the emotion prime led to a more emotional state than the control while the cognitive prime led to a more cognitive state than the control (see Table 4).

The ads were then tested using a trolley dilemma in Study 1c, since the trolley scenarios are considered the traditional, ubiquitous measurement of moral judgment. Hypotheses 1 and 2 predicted that people primed to feel negative emotions would be more likely than control group participants to focus on the moral rules (H1), while people primed to feel cognitive reflection would be more likely than those in the control group to focus on the consequences (H2). Moral judgment was measured two ways to capture alternate definitions in the literature (Christensen & Gomila, 2012). The videos did not show significant differences in moral judgment when measured with a binary question asking about likelihood of performing the immoral action. However, when asked about acceptability of the immoral action, people who viewed the cognitive video were more likely than the control to rate the action as acceptable (i.e., focusing on the moral consequences; H1). The emotion prime did not significantly vary from the control on acceptability ratings, thus no support was found for H2.

Collectively, the results of Study 1 indicate that the cognitive reflection video with a computation task induced people to cognitively elaborate more and have higher acceptability for an immoral scenario (i.e., focusing more on moral consequences) compared to participants in a control group. Although the negative emotion video led to increased negative emotions, it did not significantly vary from the control group on moral judgment to the trolley dilemma. Further, differences between conditions were found when asking about acceptability of immoral action, but no differences were found when asking people their likelihood of committing the action. The impact of differences in measurement lends support to the contention that the moral judgment measurements of past research were flawed, since nuanced wording affected ratings of moral judgment (Christensen & Gomila, 2012). Hypothetical moral dilemmas have advantages including experimental control and the ability to present the entire context that precedes the

moral judgment (Christensen & Gomila, 2012). However, some researchers criticize the use of dilemmas to measure moral judgment because the majority of the dilemmas ask respondents to imagine an unusual situation that they would be unlikely to encounter in their daily life (e.g., wartime conflict, saving workers on a train track) (e.g., Christensen, Flexas, Calabrese, Gut, & Gomila, 2014; Kahane & Shackel, 2010; Patil Cogoni, Zangrando, Chittaro, & Silani, 2013; Teper, Zhong, & Inzlicht, 2015). Still, results from Study 1 support the hypothesis that people's psychological state can have an impact on moral judgments, and therefore Study 1 serves as the first step in supporting the use of a matched message approach in the moral domain. The next step in testing the matched message approach is to determine whether people's psychological state influences the way in which applied moral messages (i.e., charity advertising) are processed and whether attitudes and intentions to donate to the charity are influenced.

CHAPTER 4: Study 2

The goal of Study 2 was to determine if priming negative emotion or cognitive reflection would influence responses to a pre-existing prosocial advertisement. The current study builds on Study 1, which suggested that people's psychological state influences moral judgment to a trolley dilemma. A limitation of Study 1 was that the moral dilemmas used to measure moral judgment were only hypothetical (e.g., Christensen et al., 2014). In contrast, Study 2 tested whether psychological state influenced the ways people process a moral situation that they actually experience (i.e., exposure to a charity advertisement). Some researchers have attempted to increase the realism of the trolley dilemma paradox by applying it to financial loss (Gold, Pulford, & Colman, 2014), broken limbs or property damage (Gold, Pulford, & Colman, 2013; see Christensen & Gomila, 2012 for a review of moral dilemmas), and by using it in virtual reality contexts (Navarrete, McDonald, Mott, & Asher, 2012; Patil et al., 2013). Even though these scenarios could be considered more realistic than a scenario of a life-or-death situation, they are still hypothetical. Using a moral advertisement, one that was created specifically to persuade people to donate to the charity, will increase the external validity of the DPT's framework.

The first research hypothesis tested in Study 2 addresses whether people will process the charity message differently depending on their psychological state. Qualitative coding was used to test whether people primed to feel negative emotions would interpret a charity message as more emotional than people primed to cognitively reflect (H3). Further, matching literature informed the prediction that matching people's psychological state to the message will increase the persuasive impact of the ad (e.g., Choi et al., 2012). Therefore, it was predicted that people primed to cognitively reflect would have more positive attitudes toward and greater intentions to

donate to a charity that focuses on moral consequences than people primed to feel negative emotions (H4). If these two hypotheses are supported, Study 2 will show that psychological state affects the way in which people process the same message, and matching the message to the state increases the persuasive impact of an advertisement.

Method

Participants. Participants were recruited using MTurk and compensated $0.30. To obtain a final sample size that was large enough to have 80% power to detect an effect similar to that of Studies 1b and 1c (d = .55 using α = .05), data were collected from 204 participants, also allowing for additional data cleaning. A sound quality check was included in the current study because the message was narrated aloud as opposed to presented by text as in Study 1. Prior to analysis, five participants were removed for reporting extremely or somewhat bad video or sound quality and 12 participants were removed for failing to pay attention to the manipulation. The attention check excluded respondents who wrote content that was incoherent or unrelated to the ad. The final sample included 187 participants with an average age of 37.91 years (SD = 12.36), and was 48% male (52% female). The ethnic breakdown was as follows: 78% White/Caucasian, 6% Hispanic, 6% Asian, 10% African American, 0% American Indian or Native American.

Procedures. Similar to Study 1, participants first were informed that their participation in the study was voluntary and their answers were completely anonymous. After ensuring they could view videos, participants were randomly assigned in equal proportions to one of two psychological state conditions, priming either negative emotion or cognitive reflection. Following the psychological state manipulation, respondents completed an open-end measure asking about overall reactions to the first ad. This was included to split the two videos so respondents were aware that they were seeing two different messages for different products.

Although external validity is a limitation to this approach, the open-end measure was included to ensure the respondent was aware that the commercials were for different companies; in other words – the financial services ad was not tied to the charity ad. Then all participants viewed the second video, which was an advertisement created for a real charity that has already been used. Post-test measures included prosocial attitudes and intentions related to the charity described in the second video, and an open-ended question asking about the overall reaction to the charity message. This was followed by demographics (i.e., gender, age, ethnicity, children in household), a video and sound test, and debriefing.

Moral Advertisement. One 60-second video about Charity Water (www.charitywater.org) was used as the moral advertisement. This charity helps give clean water to communities in developing countries across the globe and was selected because it does not have political affiliations and currently uses communications that are focused on either moral consequences or moral rules. The ad was published on the charity's official YouTube channel in June 2016 with other videos that are used as marketing materials to increase individual donations. Because the advertisement was already produced by Charity Water, it was not designed to isolate moral consequences; however, the ad used many phrases that emphasized the behaviors that promote maximizing the greater good (i.e., consequentialist judgments; Greene, 2007). The advertisement focused on moral consequences with phrases such as, "we know how to bring clean drinking water right now to every single person on earth" and "we believe in a world where every single person has clean and safe water to drink and we will continue fighting until that happens" (See Appendix A for full video script).

Measures. Measures included two open-ended measures, attitudes and intentions related to the charity mentioned in the second ad (i.e., Charity Water), demographic questions, and a video quality measure (See Appendix B for full measures).

Open-End State. An open-ended question was included to split the two videos so respondents were aware that they were seeing two different messages for different products. It was also used as a manipulation check to ensure respondents were paying attention to the manipulation. The question asked: "What did you think and feel when watching the commercial. In other words, what was your overall reaction?"

Attitudes Toward Charity. Attitudes toward the charity were measured using six, 100-point semantic differential scales adapted from Bae (2008) and in line with typical measurements of attitudes (e.g., Ajzen, 1998; Crano, Brewer, & Lac, 2015). The question stem was, "Compared to other charities, I think Charity Water is…" with the following five scales: *bad/good, negative/positive, unimportant/important, unappealing/appealing,* and *worthless/valuable.* Previous measures using bipolar semantic differential scales have shown high internal consistency among culturally diverse samples (Korean adults: $\alpha = .96$, Bae, 2008; US adults on MTurk: $\alpha = .91$, Donaldson, Siegel, & Crano, 2016).

Donation Intentions. Researchers use both a single-item (e.g., Das, et al., 2008) and multiple items (e.g., Siegel et al., 2016) to assess donation intentions. Multiple items were used for the current study to allow for the possibility of both low and high effort behavior (Romani & Grappi, 2014). The question stem was "After viewing the Charity Water ad, how unlikely or likely are you to do the following" and responses were on a scale from 1 (*Very unlikely)* to 7 (*Very* likely). Five items were asked, two low effort and three high effort, with an example low

effort item being, “I would look up information about this charity” and an example high effort item being, “I would donate to this charity.”

Open-Ended Measure. A second open-ended question was included to measure reactions to the second commercial. It was asked after the post-test measures and was used to assess whether the manipulation led participants to process the charity ad in different ways. The question asked: “What did you think and feel when watching the commercial about Charity Water. In other words, what was your overall reaction?” The question was intended to be broad enough to capture any type of reaction, including both thoughts and emotions.

Results

First, the dependent variables were made into composite measures using the average and data were assessed for outliers and violations of normality. Low effort intentions ($\alpha = .82$), and high effort intentions ($\alpha = .86$), met the univariate assumptions of the analyses, though attitudes toward charity ($\alpha = .93$) had a leptokurtic kurtosis outside the range of normality (2.29). An exponential transformation was used and did not satisfy assumptions of normality. The range of responses on the attitudes scale was between 34 to 100 on a 100-point scale. A plot and descriptive statistics ($M = 88.69$, $SD = 13.52$, skew = -1.53, kurtosis = 2.29) indicated that outliers existed on the lower end of the range. Winsorizing was deemed an appropriate method because it reduces the influence of extreme outliers without removing respondents from the entire dataset (Salkind, 2010). Because of a ceiling effect at 100, a modified Winsorization was applied, whereby the lowest 5% of values were adjusted to the next lowest value (61.5) while values at the upper end were unchanged. The modified distribution was reasonably normal ($M = 89.30$, $SD = 11.79$, skew = -.99, kurtosis = -.09).

There were approximately equal subsamples in each condition (cognitive $n = 96$; emotion $n = 91$). A sensitivity analysis conducted in G*Power (Faul et al., 2007) computed that a significant ($\alpha = .05$) difference would be detected 80% of the time (.80 power) if the population effect is at least $d = .41$ for a two-tailed independent samples t-test. See Table 7 for intercorrelations and descriptive information of variables.

Table 7

Study 2 – Intercorrelations of Variables (n=187)

Scale	1	2	3
1. Attitudes toward charity	(.92)		
2. Low effort intentions	.53**	(.82)	
3. High effort intentions	.54**	.85**	(.93)
Means	89.30	5.26	4.90
SD	11.79	1.55	1.58

Note. Pearson bivariate correlations. **$p < .01$ (two-tailed). Means and SDs are listed in last two rows. Cronbach's alpha presented on the diagonal.

Qualitative Coding. To determine whether the state manipulation affected processing to the charity ad, qualitative coding was conducted on the open-end message question for whether people responded emotionally or non-emotionally. The second dimension of cognitive reflection was not coded because the answers were too subjective to accurately code for this style of processing. Responses were coded as emotional if they contained positive or negative sentiment, sympathy, or feelings of inspiration. Responses were not considered emotional if they only contained phrases such as, "I want to help," "It's a good cause," "I feel lucky," or "I feel optimistic" without any other mentions of emotion. Two coders independently coded the second open-ended question and the inter-rater reliability was found to be strong, Cohen's K = .80, $p < .001$ (see Landis & Koch, 1977 for benchmark interpretation). The coders discussed any discrepancies until an agreement was reached for each response.

In total, 87 of the 187 responses (47%) were determined to be emotional in nature. Many of the emotional responses included feelings of grief or pity with example phrases including, “I felt sad that anyone would have to live this way” and “I was frustrated and saddened by the lack of clean water for so many.” Others had a mix of positive and negative emotions such as, “I feel sadness for those in the commercial and a desire to help. The commercial also gave me feelings of hope.” Still others described general emotions such as, “I felt a flood of emotions while watching this video.” An example of a non-emotional response was, “I really never thought about how many people on this earth do not have access to clean drinking water.”

A Pearson chi-square test of independence was conducted to test whether the psychological state manipulation led to differences in qualitative coding measuring the processing of the charity ad. A significant relationship was found between the manipulation and the qualitative coding, χ^2 (1, N = 187) = 5.05, p = .03, Cramer's V = .16, such that those in the emotional condition were more likely to process the charity ad as emotional (n = 50 out of n = 91, 55%) compared to those in the cognitive condition (n = 37 out of n = 96, 39%).

MANCOVA. To determine the effect of the manipulations on the dependent variables, a multivariate analysis of covariance (MANCOVA) was conducted. The state manipulation was entered as a fixed factor, attitudes, low intentions, and high intentions were entered as dependent variables, and gender, age, and parent status were entered as covariates. Parent status [F(3, 180) = 2.52, p = .06] was not significant; gender [F(3, 180) = 3.05, p = .03] and age [F(3, 180) = 3.46, p = .02] were significant, and all covariates were included in the model. Being female was significantly (p < .001) associated with more favorable attitudes (r = .26), higher low effort intentions (r = .21) and higher high effort intentions (r = .21). Being older was significantly (r = .16, p = .03) associated with more favorable attitudes. There was no main effect for the state

manipulation [$F(3, 180) = .33$, $p = .80$], indicating that the state manipulation did not affect attitudes or intentions to the charity message (see Table 8 for means and standard deviations).

Table 8

Study 2 – Marginal Means and SDs

	Attitudes	Low Effort Intentions	High Effort Intentions
Emotional Ad ($n = 91$)	90.55 (11.45)	5.29 (1.61)	4.93 (1.56)
Cognitive Ad ($n = 96$)	88.11 (12.05)	5.22 (1.50)	4.87 (1.61)

Note. Estimated marginal means for the dependent variable are listed. Standard deviations are listed in parentheses.

To be sure, follow-up ANCOVAs were run on the individual dependent variables and no significant effect of state manipulation on any of the three dependent variables was found.

Discussion

With the exception of a few studies (e.g., Gold et al., 2014), the majority of the literature in the moral judgment domain measures moral judgment has used hypothetical trolley dilemmas (e.g., Greene, 2013; Greene et al., 2004; Teper et al., 2015). The current study sought to extend the DPT theorizing by testing the same principles using an existing charity advertisement. Study 2 was also designed to be a first step in testing the matched message approach, such that the moral consequences advertisement was expected to be more effective when it matched people's psychological state (i.e., cognitive reflection).

It was predicted that those who were primed to feel emotion would be more likely to interpret the charity ad in an emotional way (H3) compared to those primed to cognitively reflect. Qualitative coding supported this hypothesis and found that the emotional condition led to greater emotional responses when asked about the Charity Water ad. This finding supports previous research that showed people who were primed to communicate feelings, compared to

those primed to communicate thoughts, provided more emotive justifications for moral dilemmas (Gubbins & Byrne, 2015). A core conjecture of the DPT and other dual process theories (e.g., ELM, Petty & Cacioppo, 1986; Zajonc, 1980) is that people use either emotional or cognitive processing when forming attitudes or reacting to stimuli. Some DPT studies have found evidence of different types of processing using brain imaging to understand which areas of the brain respond when making different types of moral judgments (e.g., Ciaramelli, et al., 2007). The current study provides additional support for the assumption by showing that people who were primed to feel negative emotion were more likely than those primed to cognitively reflect to report emotions in response to the charity ad.

Hypotheses for Study 2 also predicted that due to the moral consequence focus of the charity ad, those in the cognitive condition would have more favorable attitudes, and be more likely to donate to the charity (H4). Support was not found for this hypothesis, potentially due to a limitation of the Charity Water ad as an intervention. Although the ad was selected because it expressed sentiment relating to moral consequences, it could be less effective than an ad that was specifically tailored to moral judgment (Choi, et al., 2012). In other words, it is possible that the tailoring effect was not strong enough to influence donation attitudes or intentions.

CHAPTER 5: Study 3

The goal of Study 3 was to determine whether a matched messaging approach influenced the effectiveness of an advertisement. In Study 3a, charity messages were created and tested to determine if they effectively portrayed a scenario involving either moral rules or moral consequences. Even though tailoring to individual characteristics is common in other domains (e.g., Choi et al., 2012; Noar et al., 2007), moral judgment literature has not been used to guide tailoring of messages. Similar to Study 2, the current set of studies used realistic prosocial messaging rather than hypothetical scenarios.

In Study 3b, the matched messaging approach was tested using a 2x2 factorial design: (psychological state: negative emotion or cognition reflection) X (message type: rules or consequences). Similar to Study 2, a qualitative variable was coded to assess if people primed to feel negative emotions interpreted a charity message as more emotional than people primed to cognitively reflect (H3). The factorial design tested the hypotheses that matching the message to the psychological state will lead to more favorable prosocial attitudes and higher donation intentions (H5, H6). The current study built on previous research that matched functional attitudes to prosocial behavior such as volunteering (Clary et al., 1994) and organ donation (Julka & Marsh, 2005). The current study also used the DPT as guidance to create messages that focus on specific types of moral judgments (e.g., moral consequences or moral rules). Prosocial messages were predicted to be most effective when people's psychological state is matched to the type of moral judgment.

Study 3a

Study 3a pilot tested charity messages that were created for the current research. The benefit of creating messages for the study includes controlling for video production, the type of

charity, and the complexity of the message, while manipulating the content. Participants were randomly assigned to view either a message focusing on moral consequences or a message focusing on moral rules. A message manipulation check was used to determine if the ads were effectively portraying the intended message.

Method

Participants. As with Studies 1 and 2, participants were recruited using MTurk and compensated $0.20. Since the sample size in the pilot study (Study 1b) was large enough to detect an effect, data were collected from 181 participants. Prior to analysis, six participants were removed for reporting extremely or somewhat bad video or sound quality. The final sample included 175 participants with an average age of 33.73 years (*SD* = 11.19), and was 56% male (44% female). The ethnic breakdown was as follows: 78% White/Caucasian, 10% Hispanic, 8% Asian, 4% African American, 0% American Indian or Native American.

Procedures. In accordance with the previous studies, participants first were informed that their participation in the study is voluntary and their answers are completely anonymous. After ensuring they could view videos, participants were randomly assigned in equal proportions to one of two message type conditions about a charity, either focusing on the rules or the consequences. Following the manipulation, they completed a close-ended and an open-ended manipulation check to assess the effectiveness of the message type. Immediately after completion, participants were debriefed on the purpose of the research project.

Experimental Manipulation: Message Type. Participants saw one of two videos, each focusing on a different message, either the moral rules or moral consequences of a scenario, with procedures following typical message tailoring research (e.g., Choi et al., 2012; Kim et al., 2012; Klein & Melnyk, 2016). The two 60-second videos were about Charity Water, which was the

same organization used in the Study 2 commercial. Similar to the commercials created for Study 1, the videos were comprised of clips from different foreign commercials to reduce the likelihood that respondents had seen the video clips in the past. The clips were combined to form a new video, and the imagery of the two videos were exactly the same with the only difference being the focus of the message to reflect different types of moral judgment.

The moral consequences video emphasized helping many people because the cognitive pathway leads to behaviors that promote maximizing the greater good (i.e., utilitarian, or consequentialist judgments; Greene, 2007). Examples of the text were, "Choose to change many lives" and "Every donation is for the greater good." Utilitarian thinking is similar to rational logic (e.g., cost/benefit ratio), whereby it is moral to save five lives over one in a life or death scenario (Greene, 2013; Mill & Bentham, 1987). Similarly, the video used phrases like, "Donating to clean water saves the most lives with the least money" and "Think about how a small cost can benefit so many people." Finally, the tagline reinforced these ideas with "Give a Little to Save Many Lives."

The moral rules video used phrases that emphasized moral rules because the emotional pathway leads to behaviors that are driven by the use of moral rules, such as preventing the use of harm or favoring the right of the individual (i.e., deontological judgments; Greene, 2007). Phrases found in the videos were, "What is the right thing to do?" and "It would be unethical to let these people die." A deontological judgment would be to save the one physically closer person over five strangers, and this decision would be made based on moral rules (e.g., deliberately harming people is bad), so the video text read, "We have a moral duty to help people survive by donating." Again, the tagline reinforced the idea with: "Do The Moral Thing." (See Appendix A for full manipulations).

Measures. Measures include one close-ended question and the same open-ended manipulation check as Study 2 to assess whether participants were paying attention, followed by demographic questions, and a video quality measure (See Appendix B for full measures).

Manipulation Check: Message. To understand whether a message was expressing what it was intended to, a message manipulation check was used, modified from prior tailoring manipulation checks (e.g., Roberto, Krieger, & Beam, 2009). The items were on a 7-point bipolar scale with the two poles representing moral rules and moral consequences. The question stem was: "This ad focused on how donating to Charity Water..." and items were: *Matches my values/Is a way my money can go far* and *Is my moral duty/Saves many people*.

Results

The close-ended scale first was made into a composite measure using the average and data were assessed for outliers and violations of normality. There were approximately equal subsamples in each condition (Consequences $n = 86$; Rules $n = 89$). A sensitivity analysis conducted in G*Power (Faul et al., 2007) computed that a significant ($\alpha = .05$) difference would be detected 80% of the time (.80 power) if the population effect is at least $d = .43$ for a two-tailed independent samples t-test. The manipulation check variable ($\alpha = .86$) met the univariate distribution assumptions (skew and kurtosis between -1 and 1) for the analyses ($M = 4.19$, $SD = 2.24$). Further, the open-ended measure was examined to determine if people appropriately understood the manipulation. People would be excluded from the analyses if they answered with nonsense, gibberish, or failed to describe provide a response that corresponded to the question; all respondents passed the manipulation check and were included in the analyses.

ANCOVA. An analysis of covariance (ANCOVA) was conducted to examine whether the conditions led to differences on the message type manipulation check. The factor of message

type (consequences or rules) was used as a fixed factor, the manipulation check variable was entered as the dependent variable, and age, gender, and parent status were entered as covariates. Neither age, $F(1, 170) = 2.34$, $p = .13$, gender $F(1, 170) = .02$, $p = .90$, nor parent status, $F(1, 170) = 1.75$, $p = .19$ were significant covariates, but they were still included in the analysis. A main effect of condition was detected: $F(1, 170) = 173.69$, $p < .001$, $d = 2.04$, such that people watching a message about moral consequences ($M = 5.82$, $SD = 1.44$) were more likely to rate the message type as expressing utilitarian thinking than people watching a message about moral rules ($M = 2.62$, $SD = 1.67$).

Discussion

Results from Study 3a indicated that the two messages effectively communicated different types of moral judgment. People watching the message about moral consequences were significantly and substantially more likely to rate the message as expressing utilitarian thinking (e.g., saving many lives) compared to a message focusing on moral rules, thus providing support for the use of the created prosocial messages.

Study 3b

The matched messaging approach was tested in Study 3b using a 2x2 factorial design: (psychological state: negative emotion or cognition reflection) X (message type: rules or consequences). It was predicted that people primed to feel negative emotions would interpret a charity message as more emotional than people primed to cognitively reflect, and that matching the message to the psychological state would lead to more favorable prosocial attitudes and higher donation intentions.

Method

Participants. Participants were again recruited on MTurk; they were compensated $0.30 to account for the additional length. A larger number of participants were recruited for the current study compared to the previous five studies because testing the full matched message approach requires a large enough sample to detect two main effects and an interaction. Data were collected from 332 participants and prior to analysis, 21 participants were removed for reporting extremely or somewhat bad video quality, 7 were removed for failing to understand the manipulation, and 3 multivariate outliers were removed. The final sample included 301 participants. A sensitivity analysis in G*Power (Faul et al., 2007) computed that a significant (α = .05) difference would be detected 80% of the time (.80 power) if the population effect is at least d = .48 for a two-tailed independent samples t-test with samples of size n = 70 each. The sample had an average age of 35.27 years (SD = 11.64), and was 52% male (48% female). The ethnic breakdown was as follows: 73% White/Caucasian, 15% Asian, 4% Hispanic, 7% African American, 1% American Indian or Native American.

Procedures. Procedures were similar to Study 3a. The difference was that after ensuring they could see videos, participants were randomly assigned in equal proportions to one of four conditions following a 2x2 factorial design: (psychological state: negative emotion or cognition reflection) X (message type: rules or consequences). The psychological state manipulation was first, followed by an open-end measure asking about overall reactions, and the message type video. Post-test measures were identical to Study 2 and were followed by debriefing.

Experimental Manipulation. The experiment was a between-subjects factorial design and consisted of two independent manipulations. The psychological state manipulation was identical to Studies 1 and 2 and the message type manipulation was identical to Study 3a.

Measures. Measures were exactly the same as Study 2, including two open-ended measures, attitudes and intentions related to the charity mentioned in the second ad (i.e., Charity Water), demographic questions, and a video quality measure (See Appendix B for a complete description of measures).

Results

First, the dependent variables were made into composite measures using the average and data were assessed for outliers and violations of normality. Attitudes toward charity ($\alpha = .92$), low effort intentions ($\alpha = .86$), and high effort intentions ($\alpha = .83$), met the univariate distribution assumptions of the analyses (skew and kurtosis between -1 and 1). There were approximately equal subsamples in each condition (cognitive - consequences $n = 81$; cognitive - rules $n = 70$; emotion - consequences $n = 77$; emotion - rules $n = 73$). The two open-ended measures were examined to determine if people appropriately understood the manipulation. Similar to the previous two studies, the open-ended manipulation check that followed the state manipulation was analyzed to exclude those who answered with nonsense, gibberish, or failed to describe provide a response that corresponded to the question. In the current study, seven participants were removed for failing the manipulation check. See Table 9 for intercorrelations and descriptive information for the variables.

Table 9

Study 3b – Intercorrelations of Variables (n=301)

Scale	1	2	3	4	5
1. State manipulation	-				
2. Message manipulation	.02	-			
3. Attitudes toward charity	-.03	.09	(.92)		
4. Low effort intentions	-.02	.01	.59**	(.86)	
5. High effort intentions	-.06	.01	.56**	.82**	(.83)
Means	1.50	1.52	85.55	5.17	4.87
SD	.50	.50	14.73	1.54	1.48

Note. Pearson bivariate correlations. **$p < .01$ (two-tailed). Means and SDs are listed in last two rows. Cronbach's alpha presented on the diagonal. State manipulation coded as 1 = emotion, 2 = cognition; Message manipulation coded as 1 = rules, 2 = consequences.

Qualitative Coding. As with Study 2, qualitative coding of open-ended responses was conducted to determine whether the state manipulation affected processing to the charity ads. Once again, responses were coded only for being emotional, using the same criteria as Study 2. Two coders independently coded the second open-ended question and the inter-rater reliability was found to be good, Cohen's K = .67, $p < .001$ (see Landis & Koch, 1977 for benchmark interpretation). The coders discussed any discrepancies until agreement was reached for each response.

In total, 135 of the 301 responses (45%) were coded as emotional. The themes were similar to Study 2, with many emotional responses including sadness or pity, for example, "it made me feel sad; everyone deserves to have clean water, and it's awful that there a lot of people and children in areas all over the world that go without." Non-emotional responses were focused on content or facts, for example, "The charity did not say what donations are going toward, how much actually gets spent on water, how much does it cost to provide water, what are the long-term solutions."

To test whether the psychological state manipulation led to differences in qualitative coding combining charity ads, a Pearson chi-square test of independence was conducted. No relationship was found between the manipulation and the qualitative coding, χ^2 (1, N = 301) = 3.17, p = .08, Cramer's V = .10. The lack of relationship could be explained by the procedural differences between the two studies; respondents were randomly assigned to view one of two different charity messages in Study 3a, but all respondents saw the same charity message in Study 2. Therefore, two separate chi-square tests were conducted to determine if emotional processing occurred more in one condition. A significant relationship was found in the rules ad, χ^2 (1, N = 144) = 6.37, p = .01, Cramer's V = .21, such that those in the emotional condition were more likely to process the charity ad as emotional (n = 41 of total n = 73, 56%) compared to those in the cognitive condition (n = 25 of total n = 70, 35%). No significant relationship was found between the emotional coding and state among those who viewed the consequences ad.

MANCOVA. To determine the effect of the manipulations on the dependent variables, a multivariate analysis of covariance (MANCOVA) was conducted. The state and message manipulations were entered as fixed factors, attitudes, low intentions, and high intentions were entered as dependent variables, and gender, age, and parent status were entered as covariates. Gender [F(3, 292) = 0.90, p =.44] and age [F(3, 292) = .89, p =.45] were not significant, but parent status [F(3, 292) = 2.75, p =.04] was a significant covariate. Being a parent was significantly (p < .05) associated with more favorable attitudes (r = .15), higher low effort intentions (r = .14) and higher high effort intentions (r = .13). All covariates were still included in the MANCOVA. There was no main effect for the state manipulation [F(3, 292) = .75, p = .53] and no main effect for the message manipulation [F(3, 292) = 1.00, p = .39]. The overall interaction was marginally significant [F(3, 292) = 2.29, p = .08, *partial* η^2 = .02], indicating that

at least one dependent variable could be affected by the interaction between state and message (see Table 10 for means and standard deviations). Further analyses were conducted to assess where the conditions differed and the simple effects between conditions. To isolate the effects of the manipulation on each individual dependent variable, ANCOVAs were conducted with age, gender, and parent status entered as a covariate in all analyses.

Table 10

Study 3b – Marginal Means and SDs

	Attitudes	Low effort intentions	High effort intentions
Cognitive – Consequences (n = 81)	88.02 [a] (12.84)	5.31 (1.47)	4.90 (1.38)
Cognitive – Rules (n = 70)	81.42 [a] (17.48)	4.94 (1.67)	4.65 (1.57)
Emotion – Consequences (n = 77)	85.48 (14.51)	5.07 (1.64)	4.90 (1.61)
Emotion – Rules (n = 73)	86.88 (13.35)	5.38 (1.35)	5.04 (1.34)

Note. Estimated marginal means for the dependent variable are listed. Standard deviations are listed in parentheses. [a] Means that share superscripts differ significantly ($p < .05$).

Attitudes. There were no main effects of the state manipulation or the message manipulation on attitudes toward charity. There was a significant interaction, $F(1, 294) = 5.67$, $p = .02$, $d = .28$, see Figure 1. Simple effects tests were conducted to determine the nature of the interaction. Among those in the emotion condition, there was not a significant main effect of message $F(1, 144) = .51$, $p = .48$, $M_{diff} = 1.40$, but among those in the cognitive condition, there was a significant effect of message on attitudes $F(1, 147) = 6.94$, $p = .01$, $d = .43$, $M_{diff} = 6.06$. The effect indicated that those who were primed to cognitively reflect and watched a message about moral consequences ($M = 88.02$, $SD = 12.84$) were more likely to have favorable attitudes

toward Charity Water than people who watched a message about moral rules (M = 81.42, SD = 17.48).

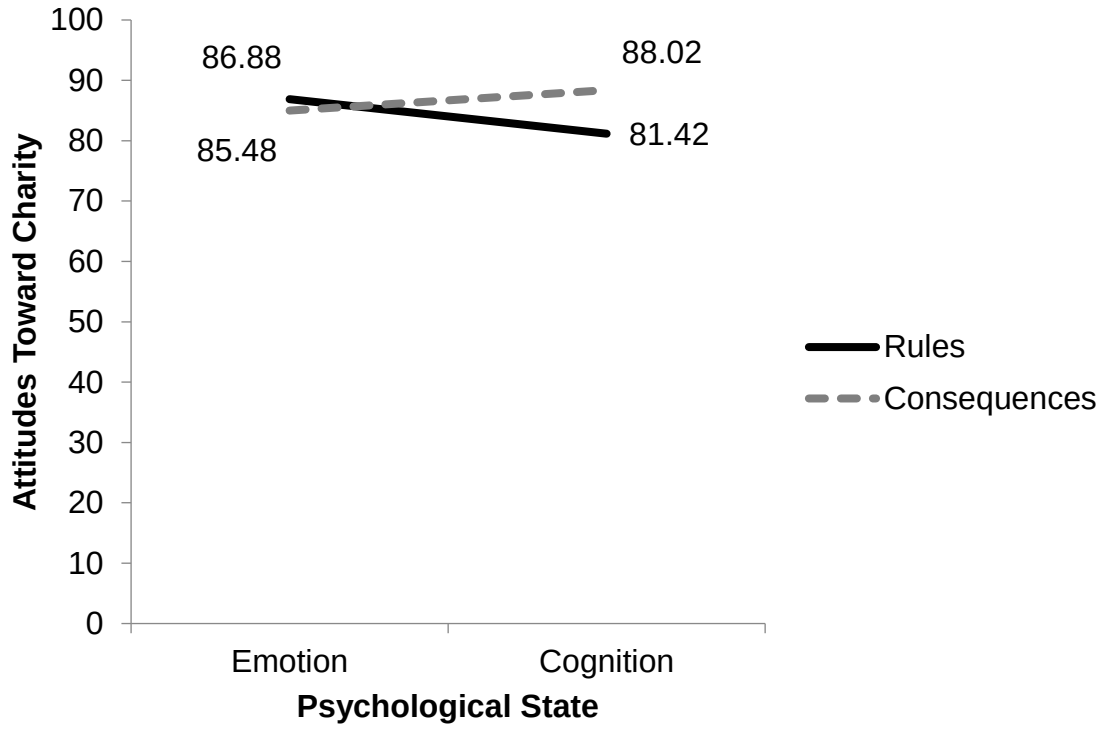

Figure 1. Interaction between psychological state and message type on attitudes toward charity (n = 301).

Low Effort Intentions. For the low effort intentions measure, there were no main effects of the state manipulation or the message manipulation. There was a marginally significant interaction, $F(1, 294) = 3.69$, $p = .06$, $d = .22$, see Figure 2. Simple effects were conducted to determine if the marginal interaction was driven by the differences between message types in the two states. Those in the emotion condition who watched the message about moral rules had directionally higher low effort donation intentions than those watching the message about moral consequences, $M_{diff} = .31$, $F(1, 144) = 3.83$, $p = .19$. Mirroring the pattern of responses toward attitudes, those primed to cognitively reflect who watched the message about moral

consequences had directionally more favorable attitudes than those watching the message about moral rules, M_{diff} = .37, $F(1, 147) = 3.83$, p = .20. Although the low effort donation intentions measure failed to obtain statistical significance, the pattern of results were in the predicted direction.

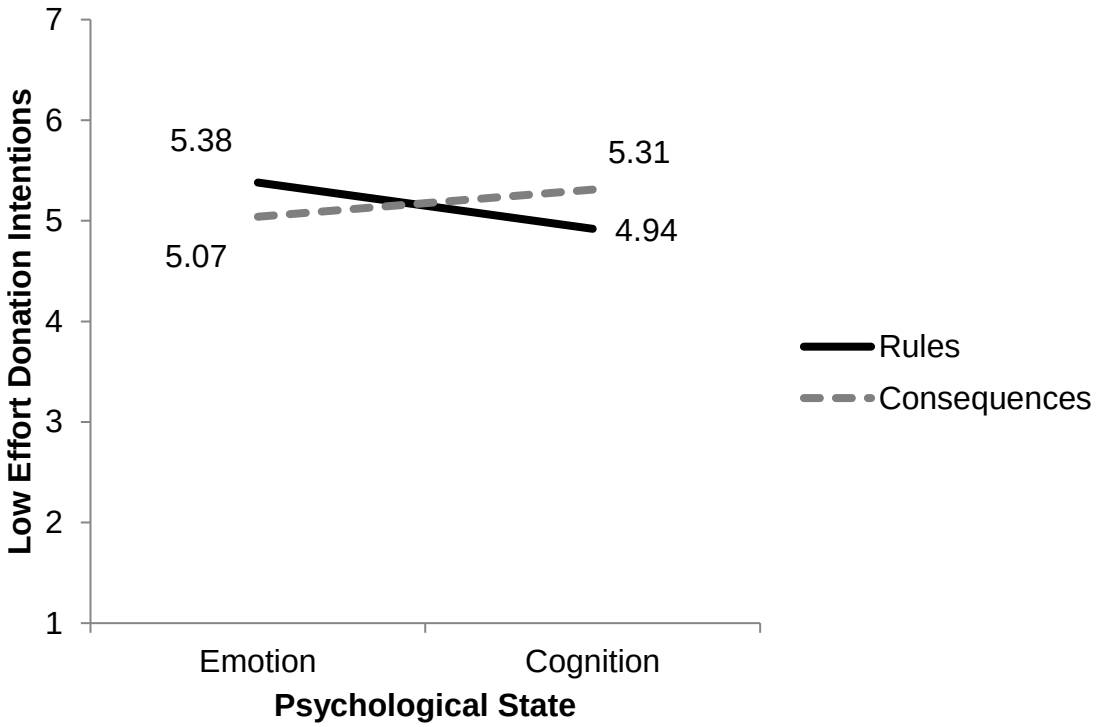

Figure 2. Marginal interaction between psychological state and message type on low effort donation intentions (n = 301).

High Effort Intentions. No main or interaction effects were present among high effort intentions.

Auxiliary Analysis. Since H5 and H6 were partially supported, an auxiliary mediated moderation analysis was conducted (see Figure 3). It was predicted that attitudes act as a mediator between the matched message interaction and low effort donation intentions based on previous research suggesting that attitudes lead to intentions (e.g., Ajzen & Fishbein, 1980;

Bassili, 2008; Crano & Prislin, 1995). The SPSS macro PROCESS (Hayes, 2013) uses bootstrap estimation of conditional indirect effects (see Hayes, 2013; Preacher, Rucker, & Hayes, 2007) to test whether the interaction between state and message predicts donation intentions through the mediator of attitudes using 10,000 bootstrap samples. Gender, age, and parent status were once again added as covariates to the model. Using this approach relies on the significant relationship between the a) independent variable and mediator and b) the mediator and the dependent variable, but does not require the c) significant direct effect.

Table 11

Study 3b: Hierarchical regression models for moderated mediation effect of attitudes on low effect intentions comparing state and message type (n=301)

Predictor	Model 1	Model 2
State (1 = emotion, 2 = cognition)	-.05	-.005
Message type (1 = rules, 2 = consequences)	.09	-.04
Interaction of State and Message type	.14*	.03
Parent status	.15*	.03
Gender	.07	.04
Age	-.04	-.01
Attitudes		.58***
Model R^2	.05*	.36***

Note. The dependent variable for Model 1 is attitudes and for Model 2 is low effort donation intentions. Standardized regression weights are presented. *$p < .05$, **$p < .01$, ***$p < .001$

The first hierarchical regression represented by Model 1 (see Table 11) indicated that there was a significant interaction between state and message type on attitudes, $\beta = .14$, $t(294) = 2.38$, $p = .02$ (see Figure 1). The second hierarchical regression tested the relationship between attitudes and low effort donation intentions, with the fixed factors of state and message type, the mediator of attitudes, the dependent variable of intentions, and the covariate of parent status entered into the model. A significant relationship was found between attitudes and intentions

such that more positive attitudes led to greater intentions to donate, $\beta = 0.58$, $t(293) = 12.14$, $p < .001$ (see Model 2 in Table 11).

Finally, the bootstrapped estimate of the indirect effect between psychological state and low effort donation intentions was tested and found to be significant (effect = 0.08, 95% CI: 0.01; 0.15), with the second model accounting for roughly 36% of the variance in low effort donation intentions ($R^2 = .36$). These indices suggest that the type of message interacted with the psychological state manipulation; the moral consequences ad increased the likelihood that the cognitive reflection manipulation would positively influence attitudes, and the moral rules ad increased the likelihood that the emotional manipulation would positively influence attitudes. The matched-messaging interaction on attitudes subsequently increased the likelihood of low effort intentions.

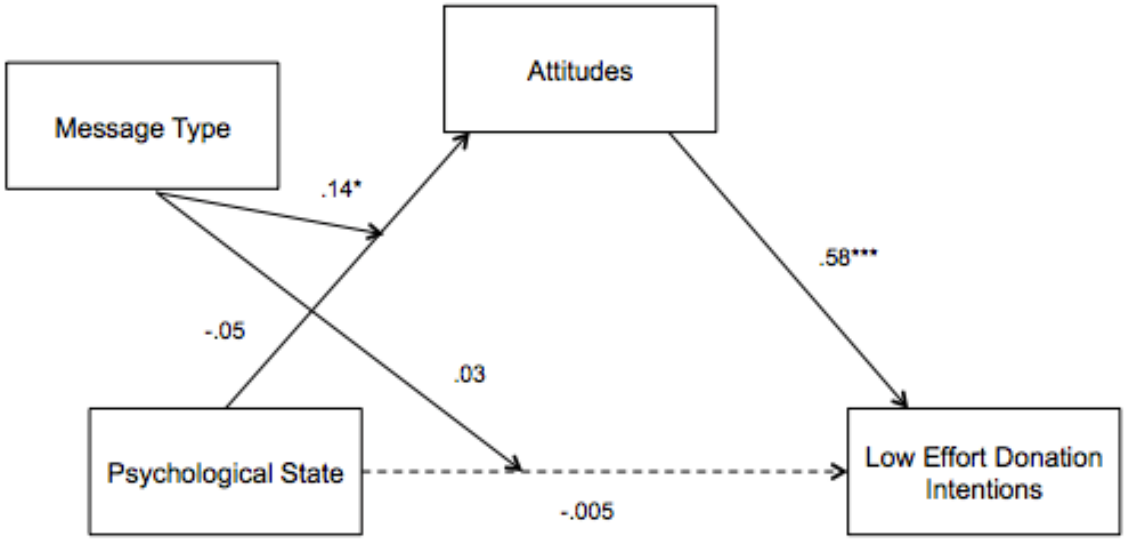

Figure 3. Moderated mediation model where the interaction between psychological state and message type on low effort donations is mediated by attitudes (n = 301). The dotted line represents the direct effect, which is not required for a significant mediation model. Standardized coefficients in Model 2 displayed. Covariates of gender, age, and parent status were entered but are not displayed. *p < .05, ***p < .001.

Discussion

Results of Study 3b indicated partial support for the hypotheses, which predicted that people primed to feel negative emotions will interpret a charity message as more emotional than people primed to cognitively reflect, and that matching the message to the psychological state will lead to more favorable prosocial attitudes and higher donation intentions.

When looking at the qualitative coding of the charity messages as a whole (i.e., not separated by rules and messaging focus), the psychological state manipulation did not significantly affect emotional sentiment. After separating the message types, data indicate that priming negative emotion led to significantly more negative reactions to the charity ad compared

to the cognitive reflection prime. Further, a significant interaction was found between psychological state and message type on attitudes. Those primed to cognitively reflect had more favorable attitudes toward a charity message focused on moral consequences, compared to a message focused on moral rules; but those primed to feel negative emotion did not differ on attitudes toward the two types of charity messages. When testing low effort donation intentions, a marginally significant interaction was found in the same pattern as the interaction on attitudes, although no simple effects were detected. No effects were found when measuring high effort donation intentions. A mediation model was a good fit for the data, indicating that the type of message interacted with the psychological state variable to positively influence attitudes, which subsequently increased the likelihood of low effort intentions.

Study 3 Discussion

The goal of Study 3 was to determine whether a matched messaging approach would influence people to act more prosocially than the same ads that are not matched to their psychological state. To accomplish this goal, Study 3a first tested charity messages that were created to focus on either moral rules or moral consequences. Data indicate that the moral consequences ad provoked more utilitarian thinking (i.e., focusing on the greater good) than the moral rules ad. To the author's knowledge, moral judgment literature, especially the DPT, has not been used as a tailoring variable to create more effective prosocial advertisements, even though tailoring is common in other domains (e.g., health, Noar et al., 2007). Advertising that controlled for the expression of both moral consequences and rules was not present in the media so the creation of ads in Study 3a was a necessary step for testing the matched messaging approach.

After the creation of charity messaging, Study 3b tested the hypotheses that people primed to feel negative emotions will interpret a charity message as more emotional than people primed to cognitively reflect (H3), and that matching the message to the state will lead to more favorable prosocial attitudes and increased intentions to donate (H5, H6). As with Study 2, qualitative coding was conducted to test H3 and results were mixed. When combining both charity messages, priming negative emotion did not influence qualitative reactions to the charity message. However, when looking at the moral rules messaging separately, priming negative emotion, compared to cognitive reflection, led to significantly more negative reactions to the charity ad.

Hypotheses 5 and 6 were partially supported, which predicted that matching the message to the state would lead to the highest prosociality. A significant interaction was found between psychological state and message type on attitudes such that people primed to cognitively reflect had more favorable attitudes toward a charity message focused on moral consequences, rather than a message focused on moral rules, but no difference was present among those primed to feel negative emotion (H6). A marginally significant interaction was found when looking at low effort donation intentions, but no simple effects were detected. An auxiliary moderated mediation analysis was conducted based on substantial literature indicating that attitudes lead to intentions (e.g., Ajzen & Fishbein, 1980). The pathway from attitudes to low effort intentions was statistically significant indicating that the interaction between state and message type influenced attitudes, which subsequently influenced low effort intentions. These findings build on tailoring and persuasion literature, which indicates that matching functional attitudes to prosocial behavior maximizes the effectiveness of the message (e.g., Clary et al., 1994; Julka & Marsh, 2005). In totality, Study 3 demonstrated that the type of moral judgment (i.e.,

consequences vs. rules) is an important consideration when creating persuasive messages in the moral domain and that prosocial behavior can be maximized by priming the state of the respondent prior to the persuasive appeal.

CHAPTER 6: General Discussion

Attempts to persuade people to behave prosocially typically take a one-size-fits-all approach; researchers manipulate emotions (e.g., Hibbert et al., 2007) or messaging (e.g., Feinberg & Willer, 2015), but fail to tailor the message to the individual. Some domains (e.g., health, Noar et al., 2007) have shown that tailored messages can have increased persuasive impact; accordingly, the current research was conducted to assess whether matching prosocial messages to individual's psychological states can effectively influence prosocial attitudes and intentions. The DPT (Greene et al., 2001) is a theoretical framework that outlines the ways in which people make moral decisions, and provides guidance on determining the variables to use to tailor prosocial messaging. Previous DPT research indicates that priming emotion and cognition can influence moral judgment (e.g., Greene et al., 2008; Guzak, 2015; Paxton et al., 2011; Valdesolo & DeSteno, 2006), namely, by causing people to focus either on moral rules or moral consequences.

Rooted in the DPT literature (e.g., Greene, 2013), the current research tested the propositions of the DPT that people primed to feel negative emotion will be more likely to make a judgment focusing on moral rules, whereas people primed to cognitively reflect will be more likely to make a judgment focusing on moral consequences (e.g., Greene et al., 2008, Paxton et al., 2011). The current research also proposed a two-step approach to create effective messaging, in which people are first primed to feel negative emotion or increase cognitive reflection; they are then exposed to a donation appeal that that matches their state. Three studies, consisting of six experiments, were conducted to test the notion that when psychological state is matched to the corresponding type of moral message, the message will be more effective in increasing prosocial attitudes and intentions than in unmatched conditions.

The first study laid the foundation of the research by replicating effects found in previous DPT literature and testing the assumption that priming negative emotion or cognitive reflection will change moral judgment (e.g., Guzak, 2015; Paxton et al., 2011). Three experiments were conducted to test the prediction that people primed to feel negative emotions will be more likely than a control group to focus on the moral rules (H1), while people primed to feel cognitive reflection will be more likely than a control group to focus on the consequences (H2). Studies 1a and 1b created and tested ways to prime negative emotion and cognitive reflection through video stimuli. Compared to a control group, support was not found for a cognitive reflection prime asking people to deliberate about a scenario (Suter & Hertwig, 2011); however, a cognitive reflection prime with a computation task (CRT; Paxton et al., 2011) did significantly influence people to cognitively elaborate more. The emotional video was based on DPT research (Guzak, 2015) and differed from the control in both Studies 1a and 1b.

The results of Studies 1a and 1b expand on the DPT literature attempting to prime emotion or cognitive reflection by showing the boundary conditions of priming these states through videos. Previous studies used multiple ways to influence psychological state, including cognitive deliberation (e.g., Suter & Hertwig, 2011), a random digit task (e.g., Greene et al., 2008), computation (e.g., Paxton et al., 2011), positive videos (e.g., Valdesolo & Desteno, 2006), and negative videos (e.g., Guzak, 2015). Study 1 was designed to determine which of these techniques most effectively induce the desired psychological states, and by using actual 30-second advertisements the study had greater external validity than previous studies that relied on lab-based tasks.

In Study 1c, results indicated that the cognitive reflection video with a computation task (e.g., Paxton et al., 2011) induced people to cognitively elaborate more and have higher

acceptability for an immoral scenario (i.e., focusing more on moral consequences) compared to a control (H2). Even though the negative emotion video led to increased negative emotions, it did not significantly vary from the control on moral judgment as measured by the trolley dilemma (H1). People's psychological state influenced acceptability of immoral action, but no differences were found when asking people's likelihood of committing the action. This inconsistency provides further evidence that more research is needed to understand the disparities between different measures of moral judgment (e.g., Teper et al., 2015). For instance, people's acceptability of others could align more closely with people's own intentions in a more realistic environment where someone would be held accountable for their actions. Collectively, findings from Study 1 provide partial support for the conceptual replication of DPT studies by showing that commercials about unrelated topics can prime people's psychological state, which in turn influences the type of moral judgment that is formed in the same moral scenario.

The goal of Study 2 was to bring the measurement of moral judgment away from the hypothetical trolley dilemmas and into a more realistic setting using charity advertising. Specifically, Study 2 was designed to understand whether people's psychological state influences the way in which people interpret moral communications, and whether this processing difference affects attitudes and intentions toward the charity. It was predicted that those who were primed to feel emotion would be more likely to interpret the charity in an emotional way compared to those primed to cognitively reflect (H3). An advertisement created for a charity's marketing materials that focused on moral consequences (e.g., focusing on the greater good) was used and it was predicted that people primed to cognitively reflect (i.e., the matched condition) would be more likely to have favorable attitudes and higher intentions to donate compared to those primed to feel emotion (H4). Qualitative coding supported H3, as those in the emotional condition were

more likely to interpret the charity ad in an emotional way compared to those in the cognitive reflection condition. The themes of those in the emotional condition included grief, sadness, and general emotions (e.g., feeling moved), while those in the cognitive condition listed thoughts about the ad content. This finding supports previous research in the DPT literature showing that those who were primed to communicate feelings provided more emotive justifications for moral dilemmas compared to those primed to communicate thoughts (Gubbins & Byrne, 2015). It also extends previous findings by showing that people's psychological state leads them to differentially process moral communications besides the trolley dilemma (e.g., Greene et al., 2008; Paxton et al., 2011; Suter & Hertwig, 2011; Valdesolo & Desteno, 2006).

Support was not found for H4, which held that those in the cognitive condition would express more prosocial attitudes and intentions compared to the emotional condition. A potential reason for the lack of differences between conditions could be that the ad was not created for the current studies, but was instead taken from existing marketing materials. Even though the ad was selected for its focus on moral consequences, its content was not controlled, raising the possibility that the manipulation was not strong enough to impact prosociality. In other words, an ad could be more effective if it was explicitly tailored to a type of moral judgment (e.g., Choi et al., 2012). H4 was not supported, but the results found in Study 2 offered support for the notion that people's psychological state has an impact on the processing of persuasive moral communications. These findings add to dual-process theories, including the DPT, indicating that people process messaging in both emotional and cognitive ways (e.g., Zajonc, 1980).

The final set of studies in the current research was designed to directly incorporate potential tailoring variables based on the principles of the DPT. It was predicted that a matched messaging approach would influence people to act more prosocially compared to ads that are not

matched to psychological state. Study 3a created charity messages that controlled for the production value and content of the ad, while boosting the strength of the type of moral messaging using language directly from DPT theorizing (e.g., Greene, 2013; Greene et al., 2004). Results showed that the moral consequences ad led to greater utilitarian thinking (i.e., focusing on the greater good) compared to the moral rules ad. Although some previous research has used tailoring to increase prosocial behavior (e.g., Clary et al., 1994; Julka & Marsh, 2005), those studies focused primarily on functional attitude matching (Katz, 1960), instead of moral judgment. Study 3a represented one of the first attempts to use the theoretical variables of utilitarian and deontological moral judgments found in DPT literature (e.g., Greene et al., 2013; Paxton et al., 2011) to match prosocial messages to individuals.

After showing that the moral messages were effectively communicating either moral consequences or moral rules, Study 3b matched the psychological state to the type of message. Similar to Study 2, it was again predicted that people primed to feel negative emotions would interpret a charity message as more emotional compared to people primed to cognitively reflect (H3). When combining both charity messages, negative emotion did not influence qualitative reactions to the charity message. When the moral rules and consequences messaging was separated, data indicated that those primed to feel negative emotion were significantly more likely to have an emotional reaction to the moral rules charity ad, compared to those in the cognitive reflection condition. No differences were found in the moral consequences condition, suggesting that negative emotion did not influence reactions to a moral consequences ad. These findings suggest a potential reason for the null effects in Study 2—namely, that the charity ad was communicating both moral consequences and moral rules, thus decreasing the likelihood of finding matched message effects.

Study 3b also tested the hypotheses that matching the message to the state of the participant will lead to more favorable prosocial attitudes and increased intentions to donate to the charity (H5, H6). These hypotheses were partially supported and a significant interaction was found between psychological state and message type on attitudes. Participants primed to cognitively reflect had more favorable attitudes toward a charity focused on moral consequences, but a simple effect was not found for negative emotion and moral rules. A marginally significant interaction was also found for low effort donation intentions. No interaction effect was found for high effort intentions. Since a vast body of literature has suggested that attitudes lead to intentions (e.g., Ajzen & Fishbein, 1980; Bassili, 2008; Crano & Prislin, 1995), an auxiliary moderated mediation model was conducted with attitudes proposed to mediate the relationship between the matched message interaction and low effort intentions. The interaction between state and message type was signficantly ($\beta = .14$, $p < .05$) associated with attitudes. When low effort donation intentions was entered as a dependent variable, more favorable attitudes were significantly ($\beta = .58$, $p < .001$) associated with higher donation intentions and the model accounted for 36% of the variance in low effort donation intentions.

The findings from Study 3 expanded on previous research in the tailoring domain (e.g., Choi et al., 2012; Noar et al., 2007). The set of studies also extended previous DPT research by measuring moral judgment without using a trolley dilemma. Even though some researchers have made the trolley dilemma more realistic by using hypothetical financial moral situations (Gold et al., 2014) and virtual reality (Navarrete et al., 2012), the current studies have used a realistic situation, seen in daily life (i.e., advertising), to measure the change in moral judgment. Thus, Study 3 addressed one of the most robust critiques in moral psychology that the use of

hypothetical dilemmas is the only measurement of moral judgment (e.g., Christensen et al., 2014; Kahane & Shackel, 2010; Patil et al., 2013; Teper et al., 2015).

Limitations

A few limitations were present in the current research. First, all six studies were conducted using the crowdsourcing platform MTurk hosted by Amazon. Scholarship has shown that MTurk can be a valid recruitment method (e.g., Buhrmester et al., 2011); indeed, prior DPT research has used it (e.g., Paxton et al., 2011). Although MTurk samples are generally more heterogeneous than a sample of college students (Buhrmester et al., 2011), other research has suggested that MTurk samples may not be representative of the general population (Paolacci et al., 2010). Future research should replicate the current studies using different community sample sources or through a nationally representative panel.

Another limitation to the current research concerns what researchers call the "behavioral gap" in moral psychology (Teper et al., 2015). Specifically, Teper considers self-report hypothetical dilemmas, such as the trolley dilemma, prone to error since they do not generate emotion. Although the current studies moved away from trolley dilemmas by investigating prosocial attitudes and intentions related to a charity advertisement, the prosocial outcomes of attitudes and intentions were still hypothetical. Additionally, Study 3b found support for low effort donation intentions but not for high effort intentions (e.g., donating to the charity). A potential alternative hypothesis is that respondents could be providing the best estimate of how they think they would behave in the hypothetical scenario, but a difference still exists between their intentions and behaviors (Gold et al., 2014). To resolve an intention-behavior discrepancy, a behavioral measurement of donation should be investigated in future research.

Implications

The findings from the current set of studies contribute to the theoretical strength of the DPT (Greene, 2013; Greene et al., 2001, 2004). One critique to the DPT is that it is limited in scope because moral psychologists have yet to replicate the dual process theory "in the wild," making it difficult to build claims regarding moral judgments (Mallon & Nichols, 2011, p. 284). In other words, the DPT helps uncover the basis of morality and the processes by which people make moral judgments, but it fails to apply these processes. Some researchers sought to counter this critique by creating dilemmas that are realistic in scope; for example, Gold and colleagues (2014) replicated the difference between the footbridge and switch scenarios applied to financial loss (Gold et al., 2014), broken limbs, and property damage (Gold et al., 2013; see Christensen & Gomila, 2012 for a review of moral dilemmas). Others have used virtual reality in attempts to replicate components of the DPT and have found mixed results (Navarrete et al., 2012; Patil et al., 2013). In one case, virtual reality mimicked textual trolley dilemmas (Navarrete et al., 2012), and in another, virtual reality led people to make more utilitarian judgments when people read the text scenario and then experienced the virtual reality scenario (Patil et al., 2013). The current studies expand on this initial research by demonstrating that types of moral judgment (i.e., utilitarian vs. deontological judgments) can be used as tailoring variables to create more effective prosocial advertisements.

Another implication of the current work addresses the expansion of work in the prosocial tailoring domain. Some research has used functional attitude matching as a type of tailoring to increase volunteer behavior (Clary et al., 1994) and organ donation (Julka & Marsh, 2005). Although these studies show initial support for the use of matching in the moral domain, the work is limited in that it matches based only on functional attitudes (Katz, 1960). The current studies expand on these initial findings by using a theory of moral judgment to create persuasive

messaging that focuses on either moral rules or moral consequences. This body of research also lends support for the notion that in addition to the DPT, other theories of moral judgment can potentially be used to find tailoring variables for prosocial communication (e.g., Social influence theory, Haidt, 2007).

The current dissertation also provides a practical implication for marketers in the nonprofit domain. Polls have addressed the upward trend in charitable donation in the past few decades (Giving USA, 2017)—specifically, the increase in individual donations (Giving USA). The findings from the current research can be used as a roadmap for nonprofit organizations to provide direction to marketing efforts. The findings that priming emotion or priming cognitive reflection can lead to different types of moral judgments, and that the most effective strategy is matching the target's psychological state to the moral judgment, can hopefully lead to more effective nonprofit campaigns. For example, the matched technique can be used as a two-phase advertisement campaign, where someone is first primed to feel emotion or cognitive reflection, and is then exposed to the persuasive message. Further, tailoring via computer technology (Dijkstra, 2008) unlocks information that can predict people's propensity of being in a certain psychological state. For instance, previous research used virtual reality to show that ads were more effective when they were congruent with their location (e.g., chocolate ad in a grocery store; Ketelaar et al., 2017). In the moral judgment realm, location data can be used to promote advertising that matches people's presumed psychological state such as sending a message about moral consequences when people are in an office, assuming people are primed to think more rationally at work. In a time where people are donating to more than three organizations per year (Yu & Adkins, 2016), nonprofits can use the current research to tailor campaigns to the

psychological state of their donors, with the goal of increasing the likelihood that individuals will choose their charity over others.

Future Directions

The current set of studies offers various directions for future research that have both practical and theoretical implications. First, the current project used only one type of charity to test the effects of a matched message on donation attitudes, but the findings could be extended to other types of charities. Charity Water was selected for its political neutrality and to avoid mentions of polarizing social values, with the goal of eliminating either a ceiling or floor effect. Future research can extend these findings by investigating the effects of tailoring on charities relating to domestic wellbeing (e.g., American Red Cross, National Coalition for the Homeless) or those associated with a political affiliation (e.g., Planned Parenthood, Human Rights Campaign). Given that previous prosocial work that included tailoring focused broadly on behaviors (e.g., volunteering; Clary et al., 1994) rather than specific nonprofits, this area is fertile and future work has the potential to make a large impact for these organizations.

Another avenue for future research concerns tailoring on individual personality traits. Previous research has shown that matching on individual difference variables (e.g., need for cognition; Latimer et al., 2005) and demographic variables (e.g., gender; Lustria et al., 2016) can influence positive responses to persuasive messaging. Further, DPT research has found that certain individual differences can influence moral judgment, including trait reflectiveness (Paxton et al., 2011) need for cognition, religiosity, and trait empathy (Conway & Gawronski, 2013), cognitive control of emotion, and low clarity of emotions (Koven, 2011). Taken together, a direction for future research emerges, where messaging can be tailored to individual traits using targeting advertising. A full personality index of consumers would be unlikely; however,

future research can focus on behavioral cues that can predict the likelihood of having a certain personality trait (e.g., church attendance as a proxy for religiosity, greeting card purchases as a proxy for empathy). If purchase behavior or other relevant indicators are available, nonprofits can then tailor communications to match people's personality traits.

Conclusion

Three studies, consisting of six experiments, were conducted to test the prediction that matching people's psychological state to moral judgment messaging will be an effective way to increase prosocial behavior. Study 1 showed that those primed to cognitive reflect using a computational task were more likely to focus on moral consequences of a trolley dilemma compared to a control. Study 2 found that people process the same prosocial communication differently, with people primed to feel negative emotion reporting more emotional responses compared to people primed to cognitively reflect. Study 3 indicated that people primed to cognitively reflect had more favorable attitudes, and marginally more low effort intentions, toward a charity focused on moral consequences. Further, a moderated mediation model indicated that the interaction between state and message type influences attitudes, which subsequently influences people's low effort intentions. Results from the three studies together provide partial support for the hypotheses and indicate that matching people's psychological state (i.e., emotional or cognitive) to the message type (i.e., focused on rules or consequences of a moral scenario) can increase the effectiveness of the persuasive message. Future research should determine the boundary conditions for the matched messaging approach, specifically by investigating charities focusing on different issues and by tailoring on different individual variables thought to modify moral judgment. Theoretical implications for this research concern

the expansion of DPT and moral judgment work, while practical implications include a model that nonprofit organizations can use to increase donations to charity.

References

Ajzen, I. (1998). *Attitudes, personality and behavior.* Milton-Keynes, England: Open University Press & Chicago, IL: Dorsey Press.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.

Amit, E., & Greene, J. D. (2012). You see, the ends don't justify the means: Visual imagery and moral judgment. *Psychological Science, 23,* 861-868, 861-868. doi: 10.1177/0956797611434965

Amit, E., Gottlieb, S., & Greene, J. D. (2014). Visual versus verbal thinking and dual-process moral cognition. In J. W. Sherman, B. Gawronski, & Y. Trope (Eds.), *Dual-Process Theories of the Social Mind.* New York: The Guilford Press. (pp. 340-354).

Bae, H. (2008). Entertainment-education and recruitment of cornea donors: The role of emotion and issue involvement. *Journal of Health Communication, 13,* 20-36. doi: 10.1080/10810730701806953

Bassili, J.N. (2008) Attitude Strength. In: Crano, W.D. and Prislin, R., Eds., *Attitudes and Attitude Change*, Psychology Press, New York, 237-234.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science, 6*, 3-5. doi: 10.1177/17456916103939

Caravita, S. C. S., De Silva, L. N., Pagani, V., Colombo, B., & Antoniette, A. (2017). Age-related differences in contribution of rule-based thinking toward moral evaluations. *Frontiers in Psychology, 8,* 597. doi: 10.3389/fpsyg.2017.00597

Carmona-Perera, M., Marti-Garcia, C., Perez-Garcia, M., & Verdejo-Garcia, A. (2013). Valence of emotions and moral decision-making: Increased pleasantness to pleasant images and

decreased unpleasantness to unpleasant images are associated with utilitarian choices in healthy adults. *Frontiers in Human Neuroscience, 7,* 1-7. doi: 10.1037/pas0000049

Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology, 39,* 752-766.

Chaiken, S. & Trope, Y. (1999). *Dual-process theories in social psychology*. New York: Guildford Press.

Choi, H., Yoon, H. J., Paek, H., Reid, L. N. (2012). 'Thinking and feeling' products and 'utilitarian and value-expressive' appeals in contemporary TV advertising: A content analytic test of functional matching and the FCB model. *Journal of Marketing Communications, 18,* 91-11. doi: 10.1080/13527266.2010.484581

Christensen, J. F., Flexas, A., Calabrese, M., Gut, N. K., & Gomila, A. (2014). Moral judgment reloaded: A moral dilemma validation study. *Frontiers in Psychology, 5,* 1-18. doi: 10.3389/fpsyg.2014.00607

Christensen, J. F., & Gomila, A. (2012). Moral dilemmas in cognitive neuroscience of moral decision-making: A principled review. *Neuroscience and Biobehavioral Reviews, 36,* 1249-1264. doi: 10.1016/j.neubiorev.2012.02.008

Ciaramelli, E., Muccioli, M., Ladavas, E., & di Pellegrino, G. (2007). Selective deficit in personal moral judgment following damage to ventromedial prefrontal cortex. *Social Cognitive and Affective Neuroscience, 2,* 84-92. doi: 10.1093/scan/nsm001.

Clary, E. G., Snyder, M., Ridge, R. D., Miene, P. K., & Haugen, J. A. (1994). Matching messages to motives in persuasion: A functional approach to promoting volunteerism.

Journal of Applies Social Psychology, 24, 1129-1149. doi: 10.1111/j.1559-1816.1994.tb01548.x

Cohen, T. R., Panter, A. T., Turan, N., Morse, L., & Kim, Y. (2014). Moral character in the workplace. *Journal of Personality and Social Psychology, 107,* 943-963. doi: 10.1037/a0037245

Conway, P., & Gawronski, B. (2013). Deontological and utilitarian inclinations in moral decision making: A process dissociation approach. *Journal of Personality and Social Psychology, 104,* 216-235. doi: 10.1037/a0031021

Crano, W.D., Brewer, M.B., & Lac, A. (2015). *Principles and methods of social research*. New York, NY: Routledge.

Crano, W., & Prislin, R. (1995). *Attitudes and attitude change*. New York: Psychology Press.

Crockett, M. J., Clark, L., Hauser, M. D., & Robbins, T. W. (2010). Serotonin selectively influences moral judgment and behavior through effects on harm aversion. *PNAS, 107,* 17433-17438. doi: 10.1073/pnas.1009396107

Cushman, F., Gray, K., Gaffey, A., & Mendes, W. B. (2012). Simulating murder: The aversion to harmful action. *Emotion, 12,* 2-7. doi: 10.1037/a0025071

Cushman, F., Young, L., & Greene, J. (2010). *The Oxford Handbook of Moral Psychology*. J. Doris, G. Harman, S. Nichols, J. Prinz, W. Sinnott-Armstrong, & S. Stich (Eds.), Oxford: Oxford University Press.

Damasio, A. R. (1994). *Descartes' error: Emotion, reason, and the human brain.* New York, NY: G.P. Putnam.

Das, E., Kerkhof, P., & Kuiper, J. (2008). Improving the effectiveness of fundraising messages: The impact of charity goal attainment, message framing, and evidence on persuasion.

Journal of Applied Communication Research, 36, 161-175. doi: 10.1080/00909880801922854

DeBono, K. G., & Packer, M. (1991). The effects of advertising appeal on perceptions of product quality. *Personality and Social Psychology Bulletin, 17,* 194-200.

Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology, 56,* 5-18.

Dijkstra, A. (2008). The psychology of tailoring-ingredients in computer-tailored persuasion. *Social and Personality Psychology Compass, 2,* 765-784. doi: 10.1111/j.1751-9004.2008.00081.x

Donaldson, C. D., Siegel, J. T., & Crano, W. D. (2016). Nonmedical use of prescription stimulants in college students: Attitudes, intentions, and vested interest. *Addictive Behavior, 53,* 101-107. doi: 10.1016/j.addbeh.2015.10.007

Duke, A. A., & Begue, L. (2015). The drunk utilitarian: Blood alcohol concentration predicts utilitarian responses in moral dilemmas. *Cognition, 134,* 121-127. doi: 10.1016/j.cognition.2014.09.006

Evans, J. B. T. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. *Annual Review of Psychology, 59,* 255-278. doi: 10.1146/annurev.psych.59.103006.093629

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavioral Research Methods, 39,* 175-191. doi: 10.3758/BF03193146

Feiler, D. C., Tost, L. P., & Grant, A. M. (2012). Mixed reasons, missed givings: The costs of blending egoistic and altruistic reasons in donation requests. *Journal of Experimental Social Psychology, 48,* 1322-1328. doi: 10.1016/j.jesp.2012.05.014

Feinberg, M., & Willer, R. (2015). From gulf to bridge: When do moral arguments facilitate political influence? *Personality and Social Psychology Bulletin, 41,* 1665-1681. doi: 10.1177/0146167215607842

Ferrari, J. R., & Leippe, M. R. (1992). Noncompliance with persuasive appeals for prosocial, altruistic act: Blood donating. *Journal of Applied Social Psychology, 22,* 83-101.

Foot, P. (1967). The problem of abortion and the doctrine of the double effect. In *Virtues and vices*. Oxford: Blackwell.

Ford, L. A., & Smith, W. (1991). Memorability and persuasiveness of organ donation message strategies. *American Behavioral Scientist, 34,* 695-711.

Frederick, S. (2005). Cognitive reflection and decision making. *The Journal of Economic Perspectives, 19,* 25-42. doi: 10.1257/089533005775196732

Friesdorf, R., Conway, P., & Gawronski, B. (2015). Gender differences in responses to moral dilemmas: A process dissociation analysis. *Psychology Bulletin, 4,* 696-713. doi: 10.1177/0146167215575731

Gawronski, B., & Creighton, L. A. (2013). Dual process theories. In D. E. Carlston (Ed.), *The Oxford handbook of social cognition.* New York: Oxford University Press.

Giving USA 2017: The Annual Report on Philanthropy for the Year 2016 (2017). [Infograph from the 2017 Review]. Retrieved from https://givingusa.org/

Glenn, A. L., Raine, A., & Schug, R. A. (2009). The neural correlates of moral decision-making in psychopathy. *Molecular Psychiatry, 14,* 5-9. doi: 10.1038/mp.2008.104

Gold, N., Pulford, B. D., & Colman, A. M. (2013). Your money or your life: Comparing judgments in trolley problems involving economic and emotional harms, injury and death. *Economics and Philosophy, 29,* 213-233. doi: 10.1017/S0266267113000205

Gold, N., Pulford, B. D., & Colman, A. M. (2014). The outlandish, the realistic, and the real: Contextual manipulation and agent role effects in trolley problems. *Frontiers in Psychology, 5,* 1-10. doi: 10.3389/fpsyg.2014.00035

Greene, J. D. (2005). Emotion and cognition in moral judgment: Evidence from neuroimaging. In J.P. Changeux, A. R. Damasio, W. Singer, & Y. Christen (Eds.), *Neurobiology of Human Values*. New York, NY: Springer.

Greene, J.D. (2007). M*oral Psychology, Vol. 3: The Neuroscience of Morality: Emotion, Disease, and Development.* W. Sinnott-Armstrong (Ed.), Cambridge: MIT Press.

Greene, J. D., (2009). Dual-process morality and the personal/impersonal distinction: A reply to McGuire, Langdon, Coltheart, and Mackenzie. *Journal of Experimental Social Psychology, 45,* 581-584. doi: 10.1016/j.cognition.2009.02.001

Greene, J. D. (2013). *Moral Tribes: Emotion, reason, and the gap between us and them.* New York, NY: Penguin Books.

Greene, J. D., & Haidt, J. (2002). How (and where) does moral judgment work? *Trends in Cognitive Science, 6,* 517-523. doi: 10.1.1.174.5086

Greene, J. D., Morelli, S. A., Lowenberg, K., Nystrom, L. E., & Cohen, J. D. (2008). Cognitive load selectively interferes with utilitarian moral judgment. *Cognition, 107,* 1144-1154. doi: 10.1016/j.cognition.2007.11.004

Greene, J. D., Nystrom, L. E., Engeil, A. D., Darley, J. M., & Cohen, J. D. (2004). The neural bases of cognitive conflict and control in moral judgment. *Neuron, 44,* 389-400. doi: 10.1016/j.neuron.2004.09.027

Greene, J. D., Sommerville, R. B., Nystrom, L. E., Darley, J. M., & Cohen, J. D. (2001). An fMRI investigation of emotional engagement in moral judgment. *Science, 293,* 2105-2108. doi: 10.1126/science.1062872

Gubbins, E., & Byrne, R. M. J. (2015). Dual processes of emotion and reason in judgments about moral dilemmas. *Thinking & Reasoning, 20,* 245-268. doi: 10.1080/13546783.2013.877400

Guy, B. S., & Patton, W. E. (1989). The marketing or altruistic causes: Understanding why people help. *The Journal of Consumer Marketing, 6,* 19-30.

Guzak, J. R. (2015). Affect in ethical decision making: Mood matters. *Ethics & Behavior, 25,* 386-399. doi: 10.1080/10508422.2014.941980

Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review, 108*, 814-834. 10.1037//0033-295X. 108.4.814

Haidt, J. (2003). The moral emotions. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences.* Oxford: Oxford University Press. (pp. 852-870).

Haidt, J. (2007). The new synthesis in moral psychology. *Science, 316*, 998-1002. doi: 10.1126/science.1137651

Haidt, J. (2013). Moral psychology for the twenty-first century. *Journal of Moral Education, 42,* 281-297. doi: 10.1080/03057240.2013.817327

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York: The Guilford Press.

Hibbert, S., Smith, A., Davies, A., & Ireland, F. (2007). Guilt appeals: Persuasion knowledge and charitable giving. *Psychology & Marketing, 24,* 723-742. doi: 10.1002/mar.20181

Horberg, E. J., Oveis, C., & Keltner, D. (2011). Emotions as moral amplifiers: An appraisal tendency approach to the influences of distinct emotions upon moral judgment. *Emotion Review, 3,* 237-244. doi: 10.1177/1754073911402384

Howell, D.C. (2010). *Statistical Methods for Psychology*. Belmont: Wadsworth Cengage Learning.

Hume, D. (2010). *An enquiry concerning the principles of morality*. London: A Millar. (Original work published 1751)

Irwin, T. (1995). *Plato's Ethics*. Oxford: Oxford University Press.

Janssen, M., De Wit, J., Hospers, H., Stroebe, W., & Kok, G. (2004). Tailoring safer sex messages to lower-educated young gay men: The impact on cognitions and intention. *Psychology, Health, & Medicine, 9,* 115-131. doi: 10.1080/13548500310001637797

Julka, D. L. & Marsh, K. L. (2005). An attitude functions approach to increasing organ-donation participation. *Journal of Applied Social Psychology, 35,* 821-849. doi: 10.1111/j.1559-1816.2005.tb02148.x

Kahane, G. (2012). On the wrong track: Process and content in moral psychology. *Mind & Language, 27,* 519-545. doi: 10.1111/mila.12001

Kahane, G., & Shackel, N. (2010). Methodological issues in the neuroscience of moral judgment. *Mind & Language, 25*, 561-582. doi: 10.1111/j.1468-0017.2010.01401.x

Kahneman, D. (1994). New challenges to the rationality assumption. *Journal of Institutional and Theoretical Economics, 150,* 18-36.

Kahneman, D. (2011). *Thinking Fast and Slow.* New York, NY: Farrar, Staus, and Giroux.

Kant, I. (2002). *Groundwork for the metaphysics of morals.* New Haven, CT: Yale University Press. (Original work published 1785)

Kareklas, I., Carlson, J. R., & Muehling, D. D. (2014). "I eat organic for my benefit and yours": Egoistic and altruistic considerations for purchasing organic food and their implications for advertising strategists. *Journal of Advertising, 43,* 18-32. doi: 10.1080/00913367.2013.799450

Katz, D. (1960). The functional approach to the study of attitudes. *Public Opinion Quarterly, 24,* 163-204.

Keppel, G., & Wickens, T. D. (2004). *Design and analysis: A researcher's handbook.* Upper Saddle Ridge, NJ: Prentice Hall.

Kessels, L. T. E., Ruiter, R. A. C., Brug, J., & Jansma, B. M. (2011). The effects of tailored and threatening nutrition information on message attention. Evidence from an event-related potential study. *Appetite, 56,* 32-38. http://dx.doi.org/10.1016/j.appet.2010.11.139

Ketelaar, P. E., Bernritter, S. F., van't Reit, J., Huhn, A. E., van Woudenberg, T. J., Muller, B. C. N., & Janssen, L. (2017). Disentangling location-based advertising: The effects of location congruency and medium type on consumers' ad attention and brand choice. *International Journal of Advertising, 36,* 356-367. doi: 10.1080/02650487.2015.1093810

Kim. J., Baek, Y., & Choi, Y. H. (2012). The structural effects of metaphor-elicited cognitive and affective elaboration levels on attitude toward the ad. *Journal of Advertising, 41,* 77-96. doi: 10.2753/JOA0091-3367410206

Kim, J., & Johnson, K. K. P. (2013). The impact of moral emotions on cause-related marketing campaigns: A cross-cultural examination. *Journal of Business Ethics, 112,* 79-90. doi: 10.1007/s10551-012-1233-6

Klein, K., & Melnyk, V. (2016). Speaking to the mind or the heart: Effects of matching hedonic versus utilitarian arguments and products. *Marketing Letters, 27,* 131-142. 10.1007/s11002-014-9320-3

Koenigs, M., Kruepke, M., Zeier, J., & Newman, J. P. (2012). Utilitarian moral judgment in psychopathy. *Social Cognitive and Affective Neuroscience, 7,* 708-714. doi: doi.org/10.1093/scan/nsr048

Koenigs, M., Young, L., Adolphs, R., Tranel, D., Cushman, F., Hauser, M., & Damasio, A. (2007). Damage to the prefrontal cortex increases utilitarian moral judgments. *Nature, 446,* 908-911. doi: 10.1093/scan/nsr048

Kohlberg, L. (1984). *The psychology of moral development: The nature and validity of moral stages.* San Francisco, CA: Harper & Row.

Koven, N. S. (2011). Specificity of meta-emotion effects on moral decision-making. *Emotion, 11,* 1255-1261. doi: 10.1037/a0025616

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics,* 159-174.

Latimer, A. E., Katulak, N. A., Mowad, L., & Salovey, P. (2005). Motivating cancer prevention and early detection behaviors using psychologically tailored messages. *Journal of Health Communication, 10,* 137-155. doi: 10,1080/10810730500263364

Lee, J. J., & Gino, F. (2015). Poker-faced morality: Concealing emotions leads to utilitarian decision making. *Organizational Behavior and Human Decision Processes, 126,* 49-64. doi: 10.1016/j.obhdp.2014.10.006

Lustria, M. L. A., Cortese, J., Gerend, M. A., Schmitt, K., Kung, Y. M., & McLaughlin, C. (2016). A model of tailoring effects: A randomized controlled trial examining the

mechanisms of tailoring in a web-based STD screening intervention. *Health Psychology, 35,* 1214-1224. doi: 10.1037/hea0000399

Lustria, M. L. A., Cortese, J., Noar, S. M., & Glueckauf, R. L. (2009). Computer-tailored health interventions delivered over the web: Review and analysis of key components. *Patient Education and Counseling, 74,* 156-173. doi: 10.1016/j.pec.2008.08.023

Mallon, R., & Nichols, S. (2011). Dual processes and moral rules. *Emotion Review, 3,* 284-285. doi: 10.1177/1754073911402376

Mendez, M. F., Anderson, E., Shapira, J. S. (2005). An investigation of moral judgment in Frontotemporal Dementia. *Cognitive and Behavioural Neurology, 18,* 193-197.

Mill, J. S., & Bentham, J. (1987). *Utilitarianism and other essays*. Harmondsworth, UK: Penguin.

Miller, R. M., Hannikainen, I. A., & Cushman, F. A. (2014). Bad actions or bad outcomes? Differentiating affective contributions to the moral condemnation of harm. *Emotion, 14,* 573-587. doi: 10.1037/a0035361

Navarrete, C. D., McDonald, M., Mott, M., & Asher, B. (2012). Virtual morality: Emotion and action in a simulated 3-D "trolley problem". *Emotion, 12,* 364–370. doi: 10.1037/a0025561

Noar, S. M., Benac, C. N., & Harris, M. S. (2007). Does tailoring matter? Meta-analytic review of tailored print health behavior charge intervention. *Psychological Bulletin, 133,* 673-693. doi: 10.1037/0033-2909.133.4.673

Olatunji, B. O., & Puncochar, B. D. (2014). Delineating the influence of emotion and reason on morality and punishment. *Review of General Psychology, 18,* 186-207. doi: 10.1037/gpr0000010

Paolacci, G., Chandler, J., & Ipeirotis, P. G. (2010). Running experiments on Amazon Mechanical Turk. *Judgment and Decision Making, 5,* 411-419.

Patil, I., Cogoni, C., Zangrando, N., Chittaro, L., & Silani, G. (2013). Affective basis of judgment-behavior discrepancy in virtual experiences of moral dilemmas. *Social Neuroscience, 9,* 94-107. doi: 10.1080/17470919.2013.870091

Paxton, J. M., & Greene, J. D. (2010). Moral reasoning: Hints and allegations. *Topics in Cognitive Science, 2,* 511-527. doi: 10.1111/j.1756-8765.2010.01096.x

Paxton, J. M., Ungar, L., & Greene, J. D. (2011). Reflection and reasoning in moral judgment. *Cognitive Science, 36,* 1-15. doi: 0.1111/j.1551-6709.2011.01210.x

Perkins, A. M., Leonard, A. M., Weaver, K., Dalton, J. A., Mehta, M. A., Kumari, V.,…Ettinger, U. (2013). A dose of ruthlessness: Interpersonal moral judgment is hardened by the anti-anxiety drug lorazepam. *Journal of Experimental Psychology: General, 142,* 612-620. doi: 10.1037/a0030256

Petty, R., & Cacioppo, J. (1986). The elaboration likelihood model of persuasion. *Advances in Experimental Social Psychology, 19,* 123-162.

Petty. R. E., & Wegener, D. T. (1998). Attitude change: Multiple roles for persuasion variables. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed., pp. 323-390). New York: McGraw-Hill.

Petty, R. E., Wheeler, S. C., & Bizer, G. Y. (2000). Attitude functions and persuasion: An elaboration likelihood approach to matched versus mismatched messages. In G. R. Maio, & J. M. Olson (Eds.), *Why We Evaluate.* Mahwah, NJ: Lawrence Erlbaum Associates.

Pham, M. T. (2007). Emotion and rationality: A critical review and interpretation of empirical evidence. *Review of General Psychology, 11,* 155-178. doi: 10.1037/1089-2680.11.2.155

Piaget, J. (1932). *The moral judgment of the child.* London: Routledge & Kegan Paul.

Piazza, J., & Landy, J. F. (2013). "Lean not on your own understanding": Belief that morality is founded on divine authority and non-utilitarian moral judgment. *Judgment and Decision Making, 8,* 639-661.

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42,* 185-227. http://dx.doi.org.ccl.idm.oclc.org/10.1080/00273170701341316.

Raine, A., & Yang, Y. (2006). Neural foundations to moral reasoning and antisocial behavior. *Social Cognitive and Affective Neuroscience, 1,* 203-213. doi: 10.1093/scan/nsl033

Roberto, A. J., Krieger, J. L., & Beam, M. A. (2009). Enhancing web-based kidney disease prevention messages for Hispanics using targeting and tailoring. *Journal of Health Communication, 14,* 525-540. doi: 10.1080/10810730903089606

Romani, S., & Grappi, S. (2014). How companies' good deeds encourage consumers to adopt pro-social behavior. *European Journal of Marketing, 48,* 943-963. doi: 10.1108/EJM-06-2012-0364

Salkind, N. J. (2010). Winsorize. In *Encyclopedia of Research Design.* (pp. 1637-1638). Sage Publications. doi: 10.4135/9781412961288

Sarlo, M., Lotto, L., Rumiati, R., & Palomba, D. (2014). If it makes you feel bad, don't do it! Egoistic rather than altruistic empathy modulates neural and behavioral responses in moral dilemmas. *Physiology & Behavior, 130,* 127-1634. doi: 10.1016/j.physbeh.2014.04.002

Sauer, H. (2012). Morally irrelevant factors: What's left of the dual process-model of moral cognition. *Philosophical Psychology, 25,* 783-811. doi: 10.1080/09515089.2011.631997

Sen, A. K. (1990). Rational behaviour. In J. Eatwell, M. M. & N. P (Eds.), *The New Palgrave: Utility and probability* (pp. 198 –216). New York- London: Norton.

Shenhav, A., & Greene, J. D. (2014). Integrative moral judgment: Dissociating the roles of the amygdala and ventromedial prefrontal cortex. *Journal of Neuroscience, 34,* 4741-4749. doi: 10.1523/JNEUROSCI.3390-13.2014

Siegel, J. T., Tan, C. N., Rosenberg, B. D., Navarro, M. A., Thomson, A. L., Lyrintzis, E. A.,….Jones, N. D. (2016). Anger, frustration, boredom, and the Department of Motor Vehicles: Can negative emotions impede organ donor registration? *Social Science & Medicine, 153,* 174-181. doi: 10.1016/j.socscimed.2016.02.013

Siegel, J. T., Thomson, A. L., & Navarro, M. N. (2014). Experimentally distinguishing elevation from gratitude: Oh, the morality. *Journal of Positive Psychology, 9,* 414-427. doi: 10.1080/17439760.2014.910825

Suter, R. S., & Hertwig, R. (2011). Time and moral judgment. *Cognition, 119,* 454-458. doi: 10.1016/j.cognition.2011.01.018

Teper, R., Zhong, C., & Inzlicht, M. (2015). How emotions shape moral behavior: Some answers (and questions) for the field of moral psychology. *Social and Personality Psychology Compass, 9,* 1-14. doi: 10.1111/spc3.12154

Thompson, D. V., & Hamilton, R. W. (2006). The effects of information processing mode on consumers' responses to comparative advertising. *Journal of Consumer Research, 32,* 530-540. doi: 10.1086/500483

Thomson, J. (1985). The trolley problem. *Yale Law Journal, 94,* 1395–1415.

Thomson, A. L, & Siegel, J. T. (2013). A moral act, elevation, and prosocial behavior: Moderators of morality. *Journal of Positive Psychology, 8,* 50-64. doi: 10.1080/17439760.2012.754926

Toumbourou, J. W. (2016). Beneficial action within altruistic and prosocial behavior. *Review of General Psychology, 20,* 245-258. doi: 10.1037/gpr0000081

Tversky, A., & Kahneman, D. (1983). Extensional versus intuitive reasoning: The conjunction fallacy in probability judgment. *Psychological Review, 90,* 293-315.

Valdesolo, P., & DeSteno, D. (2006). Manipulations of emotional context shape moral judgment. *Psychological Science, 17,* 476-477. doi: 10.1111/j.1467-9280.2006.01731.x

Westermann, R., Spies, K., Stahl, G., & Hesse, F. W. (1996). Relative effectiveness and validity of mood induction procedures: A meta-analysis. *European Journal of Social Psychology, 26,* 557-580. doi: 10.1002/(SICI)1099-0992(199607)26:4<557::AID-EJSP769>3.0.CO;2-4

York, V. K., Brannon, L. A., & Miller, M. M. (2012). Increasing the effectiveness of messages promoting responsible undergraduate drinking: Tailoring to personality and matching to context. *Health Communication, 27,* 302-309. doi: 10.1080/10410236.2011.585450

Yu, D., & Adkins, A. (2016, June 14). Charitable Giving: Donors Focus on One or Two Organizations. Retrieved from http://www.gallup.com/businessjournal/192689/charitable-giving-donors-focus-one-two-organizations.aspx

Zajonc, R. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist, 35,* 151-175.

Appendix A: Experimental Prime Transcripts

Study 1a

Cognitive Deliberation
They used to be young once
And now they're leaving for college
You think: Am I planning enough?
Are they making the right decision?
You can't help but weigh the pros and cons of each school
You think about making the most rational decision
Your mind is planning and strategizing
No one can prepare you for this day
But you can prepare financially
ELG Bank
Savings Account

Study 1a, 1b, 1c, 2, 3b

Negative Emotion
They used to be young once
And now they're leaving for college
You think: Am I ready?
Are they ready?
You can't help but feel sad and worried
You feel alone and helpless
Your heart breaks with the thought of them leaving
No one can prepare you for this day
But you can prepare financially
ELG Bank
Savings Account

Control Transcript
At ELG Bank
We want to help you save
We offer a variety of services
Including a savings account
To help you and your child prepare for college
We offer great service
Better than our competitors
With incredible rates
So you can prepare financially
ELG Bank
Savings Account

Study 1b, 1c, 2, 3b

Cognitive Computation
Think about all the work it takes to get into college
Try to add it up
If the average student studies 1 hour every day
How many hours would it be per week?
How many hours would it be per month?
That's almost 350 hours of studying per year
Think about how quickly it adds up
They are doing the work for college
And we're working to help you save
ELG Bank
Savings Account

Study 2

Existing Charity Ad
No one, no man, no woman, no child should ever have to drink green water with bugs with algae with disease in it.
Bad water to a lack of toilets kills more people than all the wars in the world combined.
We know how to bring clean drinking water right now to every single person on earth and when you can bring water into communities that truly transforms them and changes everything and you could know that you've made a difference.
You could know that you truly impacted the life of a family, of a community, of a region.
There was either clean water or there wasn't.
We believe in a world where every single person has clean and safe water to drink and we will continue fighting until that happens.
Charity Water

Study 3a, 3b

Rules Message
We need water to survive
1.1 billion people have dirty water
And they are at risk of getting diseases
Diseases that can lead to death
We have a moral duty to help
And Charity Water helps people survive
Think about your values
What is the right thing to do?
Think about your morals

It would be unethical to let these people die
Charity Water donates clean water to save people
Make the decision to follow your values
Charity Water
Do the Moral Thing

Consequences Message
We need water to survive
1.1 billion people have dirty water
And they are at risk of getting diseases
Diseases that can lead to death
Charity Water brings clean water to many
You can save the most lives with the least money
Think about how a small cost
Can benefit so many people
Every donation to Charity Water is for the greater good
For such a small self-sacrifice
You can save the lives of so many
Choose to change the most lives
Charity Water
Give a Little to Save Many Lives

Appendix B: Measures

Manipulation Check: State
Please respond to how much you disagree or agree with the following questions about the commercial you just watched.
Affect:
The commercial made me feel sad
I had many feelings about the commercial
Cognitive reflection:
The commercial made me think
I had many thoughts about the commercial

7-point Likert Scale from *Strongly Disagree* to *Strongly Agree*

Manipulation Check: Emotional Content
Some ads are more thought-provoking, and some ads are more emotional. Some ads can do both. We're curious if this ad caused you to feel one more than the other. If you felt both the same amount, you would be in the middle.

Thoughts (0) / Emotions (100)

Moral Judgment
You are on a cruise ship when there is a fire on board, and the ship has to be abandoned. The lifeboats are carrying many more people than they were designed to carry. The lifeboat you are in is sitting dangerously low in the water— a few inches lower and it will sink. The seas start to get rough, and the boat begins to fill with water. If nothing is done it will sink before the rescue boats arrive and everyone on board will die.
However, there is an injured person who will not survive in any case. If you throw that person overboard and kill him or her, the boat will stay afloat and the remaining passengers will be saved.

Moral Judgment Dichotomous
Would you throw the injured person overboard the lifeboat and kill him or her to save the other passengers?
Yes/No

Moral Judgment Acceptability
How unacceptable or acceptable is it to throw the injured overboard and kill him or her?

7-point Likert Scale from *Completely Unacceptable* to *Completely Acceptable*

Attitudes Toward Charity
Compared to other charities, I think Charity Water is…

Bad/Good
Negative/Positive
Unimportant/Important
Unappealing/Appealing
Worthless/Valuable

Donation Intentions
After viewing the Charity Water ad, how unlikely or likely are you to do the following?

<u>High effort</u>
I would donate to this charity
I would sign a petition in support of this charity
I would sign up to be on this charity's mailing list

<u>Low effort</u>
I would look up information about this charity
I would tell people about this charity

7-point Likert Scale from *Very Unlikely* to *Very Likely*

Open-End Message
What did you think and feel when watching the commercial about Charity Water. In other words, what was your overall reaction?

Manipulation Check: Message
This ad focused on how donating to Charity Water...

Matches my values/Is a way my money can go far
Is my moral duty/Saves many people

Data Quality Measures

Manipulation Check: Open-End State
What did you think or feel when watching the commercial?

Attention Check: Open-End Judgment
Why do you say it is [response] to throw the person overboard?

Video and Sound Quality
Earlier on in the survey you watched a short commercial. Please let us know how the sound and video quality were.

Rows:
The video quality was…
The sound quality was…

Columns:
Extremely bad
Somewhat bad
Average
Somewhat good
Extremely good

Sound Test
What did you hear in the video clip?
*Music**
Animal noises
A man talking
I did not recognize what I heard
I could not hear the video

*Removed from the survey unless selected answer

Video Test
What did you see in the video clip?
*Dog**
Sunset
Baseball game
I did not recognize what I saw
I could not see the video

*Removed from the survey unless selected answer

Demographic Measures

Gender
I am:
Male
Female

Age
What is your age? __

Ethnicity
Do you consider yourself to be:
American Indian or Alaska Native
Asian
Black or African American
Native Hawaiian or Other Pacific Islander
Hispanic or Latino
Caucasian – White

Parent Status
How many children (if any) do you have? __