AN INTROSPECTION INTERVENTION FOR PERCEIVED INEFFICACY IN CHARITABLE GIVING

by

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DISSERTATION ABSTRACT

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Observed biases in how people value human life have sparked an area of research investigating the mental processes leading to the devaluing of mass suffering. Parallel lines of research in psychology, economics, marketing, and environmental sciences are seeking to understand why people act to help others at all. The emotional and deliberative process in contexts of giving behaviors are complex and evolving. This dissertation focuses on one such bias: pseudoinefficacy, or the dampening of anticipated positive affect from giving, driven by the sense that we cannot help everyone at risk in given context.

First a literature review of the relevant studies and previous work on the concept of "warm glow" is presented. Next, two studies are described that were conducted in an effort to replicate previous findings and test a possible de-biasing intervention: structured introspection. A structured introspection task that asked participants to think deeply about the factors influencing their prosocial decisions was tested against instructions to deliberate and against a no-instruction control. Results were mixed. The pseudoinefficacy manipulation failed to replicate previous findings of dampened positive affect by being reminded of individual outside of reach for help. The introspection condition showed no obvious benefit in a one-shot donation paradigm. However, a study on blood donation found a significant increase in self-efficacy from the introspective task, leading to greater

intentions to donate, and indirectly increasing actual donation behavior compared to the other conditions. An exploration of the data and future directions are discussed.

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CHAPTER I

INTRODUCTION AND PROBLEM STATEMENT

Biases and heuristics in decision making are well documented (Kahneman, Slovic, & Tversky, 1982). Many biases are hypothesized to manifest as a result of overreliance on quick, emotional thinking, in contrast to our more recently evolved pre-frontal cognitive systems (Gilovich, Griffin, & Kahneman, 2002). Research in decision making provides a bedrock for the study of cognition and influence of emotional systems in different areas of social psychology. Decisions to help others, either by donating money, resources, or time have been found to be similarly influenced by inherent cognitive and emotional factors, both conscious and unconscious (Fetherstonhaugh, Slovic, Johnson, & Friedrich, 1997; Kogut & Ritov, 2005; Small & Verrochi, 2009). Psychology research also documents that individual differences in personality and emotion processing traits can greatly affect the perception and interpretation of information and subsequently alter motivations and prosocial behavior (Eisenberg & Miller, 1987; Furnham, 2003; Kahan, 2012; McFarland, Webb, & Brown, 2012).

It is important to first establish what is meant by the term "prosocial behavior". Brief and Motowidlo (1986) provide a useful definition for prosocial behaviors, "They are positive social acts carried out to produce and maintain the well-being and integrity of others" (p.710). It would also be useful to add a clause to this definition that prosocial behavior also requires some cost to the agent, whether it is money, time, or other resource. For example, the director of a charity may allocate funds to help others, and produce or maintain well-being of others; but, the money to do so has come from the donors. Thus the action of allocating the funds does not imply a prosocial behavior on the

part of the director. Prosocial behaviors can manifest in a variety of behaviors, not just donating money. Volunteering, donating blood or organs, simple acts of kindness and environmental conservation work all fall under the altruistic umbrella of prosocial behaviors.

Several unanswered questions remain in this area of research. In contexts where prosocial action is possible, how do emotions and affect generally motivate action? The known research on the effect of emotions on prosocial action suggests that emotions are linked with several psychological factors. For example, biases in evaluating the value of life are differentially predicted by emotional states and perceived efficacy (Erlandsson, Björklund, & Bäckström, 2014). How these factors interact in complex scenarios with multiple victims is difficult to parse out. The stimuli presented are often as important as the context in influencing choice (Small & Verrochi, 2009). By studying the interplay of the decision frame and individual differences in traits, this thesis aims to explore the different ways people can process a request for prosocial action.

Beyond understanding more about emotional system's role in charitable decisions, this thesis aims to de-bias responses to prosocial requests that are driven by emotional processing. Previous work has found that anticipated positive affect from a prosocial behavior is diminished when we are made reminded of individuals we cannot help (Västfjäll, Slovic, & Mayorga, 2015). Two studies will explore a intervention designed to bolster self-efficacy and positive affect, using the novel method of a structured introspection, compared to deliberative thought and control. For Study 1, I hypothesize that structured introspection instruction will draw attention to the sources of affective biases, and will negate the predicted affective hit from seeing children at risk

who are unable to be helped. Study 2 makes a similar prediction for blood donation: introspecting on the factors that should influence decisions to give blood will lead to greater warm glow and intentions to engage in a blood donation (compared to control). This effect will be amplified when facts regarding the scope of the need are also provided. Several exploratory analyses are planned to investigate the interaction of individual differences with motivations for prosocial behavior.

CHAPTER II

LITERATURE REVIEW

Prosocial motivations

In the simplest terms, why do we help others? What drives people to help other people, animals, or ecosystems for seemingly no personal benefit and often significant personal cost? One controversial explanation is that people are pure altruists (see reviews: Krebs, 1970; Piliavin & Charng, 2016). People give because they are motivated purely by the sake of giving. Skeptics of pure altruism argue that while people appear to be pure altruists, their motives for helping may also concealed by egotistical goals, thus becoming "impure" altruism. It may be that giving *in and of itself* is motivator psychological reward (similar to a moral duty; Kant, 1999) but giving behaviors are also inherently linked with activation in reward centers and a variety of other social influences. A contemporary standpoint of altruism suggests that pure altruism may exist (Harbaugh, Mayr, & Burghart, 2007) but there is mounting evidence that people help others for self-centered reasons. The evolutionary development of social behavior can help elucidate how giving can be rooted in egoism.

In general, helping others tends decrease our fitness or ability to survive or decreases chance of genetic propagation. For example, sharing food or water with others means less is available for the helper. From an evolutionary perspective, altruism is maladaptive and should be rare or effectively eliminated via natural selection. Evolutionary psychologists have explained the existence of helping behaviors through "kin altruism" or the theory that people help others because it benefits their genetic relatives (Silk & House, 2011). Kin altruism offers a straightforward explanation for why

we help our families and (to a lesser extent) our friends and community members. The underlying premise of kin altruism is that actions that help others will ultimately help us. By giving to family we are insuring the survival of our genetic material. By giving to community members we help motivate these members to return aid. This explanation paints a picture of human helping behavior as inherently egotistical and, while we may *seem* to be helping others for their benefit, we are merely acting to help ourselves (or our genetic offspring).

Another explanation for altruistic behavior, reciprocal altruism, characterizes prosocial behavior as inherently selfish but in a more direct way: people help others because it ultimately helps the self if others benefit. In other words, we help because we will get something in return. This explanation has numerous examples in the animal kingdom through symbiotic relationships among cohabitating species, such as a study of monkey grooming that found that monkeys paid more attention to group members that reciprocated grooming than to monkeys of their own kin (Seyfarth & Cheyney, 1984).

No one theory will be able to explain the plethora of possible prosocial behaviors and their determinants. It is likely that each of these perspectives on giving are more or less explanatory in different circumstances. However, the circumstances in which we make decisions to help others have changed dramatically. Technological advances have revolutionized the way that people can exhibit prosocial behavior. Online giving has risen steadily over the last decade, now accounting for 7.6% of all NGO fundraising (Blackbaud, 2017). Within the online market, giving money to others can now be done from virtually any location, with mobile donations accounting for 21% of the online donations. One can now donate money to a foreign charity or loan to a startup business in

a developing country with a pocket size device from anywhere with an internet connection. As a side-effect of this technology, giving to others now requires no personal interaction with another person. You can interact entirely with a virtual representation of the need (e.g. appeals with video, pictures, narrative of the needy), the NGO (e.g. charity websites) and the act of giving (e.g. automatic deposit of electronic funds).

Another important side-effect of this technological shift is that these virtual representations are readily available to our perception (sometimes obtrusively, e.g. pop up advertisements). We are immersed in an interconnected world and are suddenly more aware of worldwide events. Disasters and catastrophes can now be experienced in real-time through live-streams or reviewed and discussed ad infinitum through online videos with accompanying forums. The human mind, evolved for communal living and kin preference is now situated in an ever-present stream of information. As a result, our primal psychological systems produce predictable and observable biases in attitude and choice. These biases can sometimes lead humans to be more altruistic in certain situations while less altruistic in others (e.g. psychic numbing, more on this later).

Situations that provide opportunities for prosocial behavior are often complex, and influential psychological forces can range from basic perceptions and attention to nuanced social pressures from particular individuals, or an attempt at self-identity maintenance. Thus, how one decides whether one is going are to engage in a prosocial behavior or not (and to what degree) can be influenced by subtle cues in the environment, emotional anchors (i.e. the affect heuristic; Finucane, Alhakami, Slovic, & Johnson, 2000), and rational or deliberative thought patterns. Research in psychology, marketing, economics, and environmental science have experienced a boom in studies attempting to

understand this busy psychological landscape of giving (e.g. Brekke, Kipperberg, & Nyborg, 2010; Andreoni, 2007; Donegani, McKay, & Moro, 2012). Ongoing investigations are seeking to understand how our more primitive psychological systems interact with and inform our more deliberative and calculated functions. This dissertation will explore how affect—or general positive or negative feelings—toward needy individuals is influenced by contextual cues in a giving environment and how this affective response is weighted in prosocial decisions. Three such biases documented in charitable decision making literature provide a framework with which to understand how experienced emotions are related to and influence prosocial behavior: psychic numbing, compassion fade, and pseudoinefficacy.

Psychic Numbing

The underlying principle of psychic numbing is straightforward: the degree to which we value the saving of lives tends to be positively related to the number of lives at risk with a diminishing rate. In other words, people demonstrate high value for individual and small numbers of lives; as the number increases the value goes up as well, but at a decreasing rate, not linearly scaled to the number at risk. Psychophysical limits of human perception are theorized to be basis of this phenomenon. Perceivable differences, whether they are increments of light or sound, are related to a fixed percentage, known as "Weber's law" (Weber, 1834). Thus, perceived differences are relative. For example, imagine yourself in a dark room. If a single light bulb suddenly illuminated this room, you would immediately notice the difference. Adding a second light bulb would be noticeable as well but less so than the first, and the third bulb even less so. If additional

bulbs were added, one by one, up to 9,999, you would likely not notice the addition of the 10,000th bulb.

Our perceptive processes have evolved to notice incremental changes in our surroundings, a process best at determining the existence or non-existence of a stimulus rather than a gradient increase to large numbers. The keen perceptive ability in noticing singular differences, which keeps humans alive in physically threatening environments, can be maladaptive for society, in a modern world where we are increasingly aware of mass genocide, natural disasters, disease, and famine. The concept of a suffering individual becomes difficult at this scale and attempting to apply the same feelings to millions becomes a dizzying mental exercise. The human perceptual systems are unable to scale emotions to a level that is relative to the need of such large scale tragedies. Psychic numbing is explained as a fault of the emotional system to process the scale of need in a way that necessitates action (Slovic, 2007). As a result, humans often exhibit behavior that implies psychological insensitivity to the suffering of masses.

Decision-making and related fields in psychology support a two system process of thinking, commonly referred to as System 1 and System 2 (Stanovich & West, 2000). System 1 is known as our "Experiential System" or our affective reactions. This mode of thinking is quick and responsive to our environment. It uses past experiences and association to draw "gut feelings." System 2, or the "Analytic System", is logic based. It is associated with the use of reason, conscious appraisal, and the use of abstract symbols, words, and numbers in a purposeful manner. Consequentially, system 2 is much slower, requiring time to process information (Epstein, 1994). These two systems are not exclusive and they are often used in tandem to evaluate decision contexts.

The interplay of system 1 and 2 has important implications for the issue of psychic numbing. In a rational world, our responses to tragedies would linearly match the scale of the issue. For example, 2,000 lives saved from malaria would feel twice as good and be valued twice as much as 1,000 lives saved. Recent research has shown that our behavioral reactions to humanitarian issues are far from linear, depending on the properties of the population at risk. Fetherstonhaugh, Slovic, Johnson, and Friedrich (1997) found that proportion of lives saved is more heavily weighted than absolute values in motivating helping behavior. Participants preferred to help groups that were a larger proportion of the greater need, even when the number of those helped was equal.

Relying on emotions and intuitions can cause humans to fall short of humanitarian ideals. Colloquial golden rules of equality, genocide prevention, and human rights are threatened by the limits of human psychology. NGO's and charitable organizations are challenged to raise funds in this environment, a decision space flooded with affective stimuli, all competing for our attention and appreciation of "dire need". Charitable organizations that help in developing nations and war torn areas often use pictures or videos of children at risk, capitalizing on the affective system's tendency to pay attention to emotional content.

Current research suggests that displaying mere pictures of needy individuals are often sufficient and even powerful forces in invoking affective reactions (Västfjäll, Slovic, Mayorga, & Peters, 2014). Burt and Strongman (2005) found that images of children elicit particularly powerful emotional reactions. Dickert and Slovic (2009) found that the picture of single child in need elicited more intense affect than a picture of several children. Our connection to other humans is strong, and when viewing the faces

of other humans we can connect with their experience. Small and Verrochi (2009) found that faces in ads soliciting charitable donations generated reports of strong emotion in the viewers. One possible mechanism driving emotion reactions to pictures is emotional contagion, or the concept that we mimic the emotional states of people within our span of attention. When we perceive suffering our eyebrows furrow; when we perceive happiness, we smile. Vignettes containing personal information (but not statistical facts) of needy individuals may increase the effect of the emotional contagion. Emotional contagion has even been found between humans and virtual agents, suggesting that our emotional connection with other beings is a very deep-seated and reflexive psychological phenomenon, with the possibility of extending to non-human subjects (Tsai, Bowring, Marsella, Wood & Tambe, 2012).

How emotional content is processed and aggregated between multiple sources and targets is still unclear. As charitable decisions are inherently complex, it is not well understood how people integrate multiple sources of affective information. For example, pictures of success stories and prospering individuals may be mixed with stimuli of current dire need or greater context of struggle. To what degree are the emotions invoked from these positive or negative stimuli integrated or discriminated? How does attention modulate the weight given to and the intensity of the feeling experienced? How do regulation tendencies and specific strategies alter this process? These questions will require further investigation to understand the nature of psychic numbing in charitable decisions.

The current study uses images and videos of children in short vignettes, explaining their need to receive aid, and offering the participant a chance to engage in

prosocial behavior. However, the current study also includes pictures and information about children for whom aid may not be available, to explore possible motivating or demotivating effects of seeing individual beyond our reach.

Compassion Fade

Although research on psychic numbing is sounding an alarm, evidence of compassion fade is an even darker omen. The idea of compassion fade is that not only does our valuation of life-saving fail to scale to the need but, as the need increases to an incomprehensible scale, the demonstrated value may actually begin to decrease, rather than just plateau. As we become increasingly aware of the millions of children at risk of death, collapsing ecosystems, and widespread injustices, we simply cannot maintain our concern for such monumental challenges and we do not act to address them. An individual's actions can be perceived as only a "drop in bucket" for dealing with the problem as whole. This effect has been shown to be present in groups as small as 2, where preference is given to helping 1 child in need over helping 2 together (Slovic et al., 2011).

The fade of compassion can be understood as an adaptive response for the survival of the individual inundated with emotional stressors: lowering concern for massive problems to which most individuals have relatively little control can decrease stress responses and protect sensitive people from obtrusive negative thoughts. On a global scale, however, compassion fade becomes a dangerous thought pattern, leading to apathetic tolerance of atrocities and catastrophe. The affective underpinnings of compassion fade are thus crucial to the perception of self-efficacy in prosocial opportunities. Our perception that we can "make a difference" is likely constructed from

environmental cues, as well as individual differences in self-efficacy and emotion processing and regulation. In theory, affective cues can influence perceived efficacy by depressing mood and corrupting the anticipation of positive emotions associated with prosocial behavior, a phenomenon known as pseudoinefficacy.

Butts, Lunts, Freling, and Gabriel (2019) published a large meta-analysis of the effect of compassion fade in the literature. Studies were coded for manipulated content and in the outcome variables to study a process model across the varying designs. Modeling results across studies support the notion that as victim size increases, it depresses feelings of empathic concern, perceived impact, and anticipated positive affect (warm glow). These psychological factors then interdependently motivate the agent to engage in a helping behavior. This research adds support for a multi-factor model of prosocial motivations, although the meta-analysis found the effect sizes of these mechanisms to be relatively small (β coefficients ranging .14 to .35).

Pseudoinefficacy

In many prosocial situations, not all individuals or targets who need help are able to receive it. While humanitarian efforts may be able to provide aid to one area of the world, other areas are simply inaccessible due to natural or human-made obstructions (e.g. political barriers). The conscious or unconscious awareness of this fact can have significant effects on how humans react to tragic situations. As discussed by Featherstonhaugh et al. (1997), humans are sensitive to the proportion of people they are choosing to help. When we are faced with an overwhelming need or daunting statistics, our efforts to provide help start to appear dwarfed or as simply a “drop in the bucket”. While it may be tragic that others cannot be helped, it is illogical to be demotivated from

helping because of this. Of course, some logical reasons to abstain from helping exist, such as monetary constraints or political controversy involving the persons in need. The notion of interest here is on the mere existence of perceiving individuals that we can't help may impede our ability to aid those we can help. In these situations we can experience illogical feelings of inefficacy, or believe that we cannot make a difference in the face of an overwhelming need, a *pseudo-inefficacy*. Demotivation may subsequently increase behavior patterns that are indicative of experienced psychic numbing compassion fade.

Unpublished research by Mayorga (2012) suggests that not everyone responds to proportional information (i.e. unaided individuals) in the context of prosocial aid in the same way, some becoming demotivated by the greater need while others are *motivated more*. For some individuals, the information about the children beyond their reach appears to be a source of motivation to help those within reach. This study inquired about motivational differences in response to unaided individuals by asking two questions, "When thinking about the child in need that I could not help, I felt demotivated from helping the child I could help" and, "Seeing the child that I could not help motivated me to help the other child more*."* In splitting the sample by levels of agreement to these questions, three major types of motivational reactions emerged: pseudoinefficacy (demotivated), anti-pseudoinefficacy (motivated more), and neither motivated nor demotivated. First are the subjects who agreed to statement 1 (demotivation) and disagreed with statement 2 (motivation). This response supports the notion that a portion of individuals are demotivated by seeing the needy individuals outside their range of help and (illogically) turn away from or lessen their helping behavior and associated positive

feelings. When presented with opportunities to help (in the face of individuals who are out of reach), demotivated individuals demonstrated lower average (hypothetical) donations to help a needy individual than the other two groups and depressed anticipated affect from helping.

The second category included subjects who disagreed with feeling demotivated and agreed to feeling motivated more. These individuals seemed to effectively cope with seeing those they cannot help and concluded to help those within reach by increasing their helping behavior. This subgroup gave more donations on average and report greater anticipated positive emotion from helping than the other two groups. The third emerging group reports to be neither motivated nor demotivated and is thus suspected to be using some other information or normative rule to make their decision, such as a moral code or monetary concerns. This group reported mean donations that tend to fall in-between the other two groups. This research shows clear differences in how people process the information of the greater need and suggests that some individual difference is moderating the perception of this information. The study further found that the personality trait neuroticism may play an important role in shaping motivation to help in charitable context with negative emotion stimuli, particularly in its association with emotion processing. Neurotic individuals in this study were more likely to report feeling demotivated by the children out of reach.

Higher order traits such as personality measures can be effective at understanding behavior trends and the root causes of complex behaviors. By drawing upon previous research in personality and charitable behavior, we can make informed inferences about how differences personality shape motivational forces in prosocial behavior. If a

particular personality trait shows a strong relationship with experienced pseudoinefficacy, further investigation may be able to shed light on any specific individual differences in affective or deliberative processes that guide motivation in charitable decision making.

Individual Differences and Prosocial Behavior

Recent research has examined the Five-Factor model of personality in charitable giving and more broadly in decision-making with prosocial contexts (e.g. dictator games, environmental conservation). Much of current literature has focused the role of Extraversion in prosocial behavior, with a general consensus that more extraverted individuals tend to also be more prosocial (Carlo, Okun, Knight, & de Guzman 2005; Garcia-Banda et al., 2011; John, Naumann, & Soto, 2008;; Landis et al., 2009). Agreeableness has also been found to be associated with prosocial behavior. Agreeableness, by definition, is closely related to altruism. The common items measuring agreeableness ask people, for example, to rate themselves as someone who, "is helpful and unselfish with others" or "has a forgiving nature" (John et al., 2008). A person high in agreeableness is sympathetic to others and is interested in helping behaviors. Conversely, persons who score low in agreeableness tend to be egocentric and untrusting of others' intentions (Rothman & Coetzer, 2002). Egocentric behaviors of persons who score low in agreeableness surface in altruistic-themed tasks, such as dictator game experiments (Ashton, Paunonen, Helms, & Douglas, 1998). Individuals high in agreeableness have been found to be more generous to kin, collaborators, and even competitors (Ben-Ner & Kramer, 2011).

The relationship of agreeableness and altruism/egocentrism could be driven by an underlying mechanism of emotional responsiveness and control. Persons high in

Agreeableness report greater emotional responsiveness in social situations and also take more active efforts to control emotion (Tobin, Vanman, & Tassinary, 2000; Tobin & Graziano, 2011). This supports the notion that Agreeableness reflects the desire to please or get along with others and that social adaptability and emotional regulation are essential behaviors for maintaining strong social bonds. Additionally, Graziano, Habashi, Sheese, and Tobin (2007) showed that high Agreeableness can moderate or effectively suppress the dominant self-centered emotions so that other-oriented (empathic concern) can be expressed. In the context of a charitable or prosocial scenario, the level of agreeableness that agents possess could influence the degree to which they focus on victims or needy individuals. Agreeableness has also been linked to effortful control, thus highly agreeable individuals may also effectively regulate negative emotions in context with needy victims (Graziano et al., 2007).

There is also evidence for Neuroticism affecting how emotions are controlled. Neuroticism can also be understood as the reciprocal term for emotional stability. Individual items measuring neuroticism ask people, for example, to rate themselves as someone who, "worries a lot" or "gets nervous easily" (John et al., 2008). People who score high on neuroticism experience greater negative emotion and have increased chance of psychological distress. Ode and Robinson (2007) found significant a main effect of Neuroticism on somatic symptoms, suggesting that more neurotic people also experience more physiological arousal from emotional stimuli. Individuals who score high on neuroticism have been linked to higher levels of fear, guilt, shame, and sadness (Kokkonen, 2001; Watson, David, & Suls, 1999). Additionally, neuroticism is related to a plethora of maladaptive behavior such as self-blame, poor emotion regulation, less

positive reinterpretations of life events, and less active planning and coping (Boland & Cappeliez, 1997; Ciarrochi, Chain, & Caputi, 2000; Gunthert, Cogen, & Stephen, 1999; McCrae & Costa, 1986; Elliot & Harackiewicz, 1994; Scheir, Carver, & Bridges, 1994). These tendencies toward negative emotional experiences suggest that neurotic individuals may be more negatively influenced affect-rich stimuli, such as a pictures and videos of suffering individuals.

Personality research provides a footprint to which to track the psychological process that moderates prosocial motivation. Agreeableness appears to be related to approach-related behaviors toward helping. Neuroticism, on the other hand, predicts an avoidance or reactive response to negative stimuli. The research on agreeableness and neuroticism offers a trail, alluding that the tendency to engage with emotional stimuli, as well as the tendency to use that stimuli as information in a decision, may moderate the influence of affective cues that lead to prosocial action in the face of large scale need. Two specific processes are explored in the current study, rational/experiential tendencies and emotional intelligence.

The dual process model of cognition provides a bimodal method of measuring and studying individual differences in thinking style. People vary in respect to how much they engage with intuitive thought and deliberative thought. For example, some people put more weight into their initial feeling toward a choice or "go with their guts" in making important decisions. Conversely, others downplay intuitive reactions and tend to use critical thought when evaluating choices.

People also exhibit differences in the ability to express their thinking preferences, such that some people may have a preference to engage in rational thought over intuitive

processing but have poor reasoning skills, or have stronger emotional reactions that impede rational thought. The interplay of the ability and thinking preference among these two systems could dramatically affect how emotional stimuli in life-saving scenarios are processed. If a person has a strong emotional reaction to a charity appeal, and heavily weights that affective response in the decision, it would likely produce a different behavior pattern than someone who experiences little emotion and prefers to put weight factual information of scenario for their choice.

A large body of recent research has found conflicting information about when thinking styles are important in decision making. The Rational Experiential Inventory (Pacini & Epstein, 1999) measures four components of thinking style (Rational ability, Rational engagement, Experiential ability, Experiential engagement). A large meta-analysis including over 17,000 participants found that tendencies for rational ability and engagement predicted small increases in performance in objective tasks, while experiential preferences were associated with a small decrease in performance, Phillips, Fletcher, Marks, & Hine, 2015). However, rational thinkers also tend to experience *more* decision regret and less satisfaction and confidence in their decision compared to intuitive thinkers. One important conclusion from this meta-analysis was that the context of the task matters such that tasks that support certain thinking styles (e.g. a complex trade-off task vs a quick-response emotional identification task) will moderate the effect size of thinking style. In addition, the REI (and other individual difference measures) rely on self-report of thinking style, requiring a somewhat sophisticated level of reflection to represent global thinking patterns in various contexts on a likert scale. The cognitive reflection task (CRT) was designed to provide an objective measure of how thinking style

relates to performance (Frederick, 2005). This measure tests subjects on quiz questions that have an incorrect, intuitive answers and an obscure, correct answer that is designed to be revealed after a small amount of deliberative thought. Studies have found that this type of task can predict performance on other decisions that are susceptible to a range of heuristics and biases (Toplak, West, & Stanovich, 2011) and even moral judgment (Baron, Scott, Fincher, & Metz, 2015). Thus, the innate tendencies we have when evaluating a decision task can shape how the contextual information is processed. However, the thinking style that one employs does not capture the sequence of processing that occurs once a style is employed. Because scenarios of life-saving and charitable giving are wrought with emotional content, how the emotion is processed (not only that it is processed) is important to understanding how it relates to action.

Research on emotion and decision making suggests that emotional evaluations are generally quick and largely unconscious (Finucane, Alhakami, Slovic, & Johnson, 2000; Slovic, Peters, Finucane, & Macgregor, 2005). The processing of emotion can lead to conscious emotion regulation but regulation processes can occur without conscious awareness (i.e. anticipatory avoidance of emotion). Complicating things further, significant individual differences exist in emotion regulation ability (Gross, 2008). Similar to other modeled behaviors, it is believed that humans learn emotion regulation abilities and strategies early in development, although we begin to take a more active role in regulating our emotions as we age (Denham, 1998; Thompson & Meyer, 2007). Adults use many different types of emotion regulation strategies, such as avoidance, reappraisal, suppression, or problem-focused coping. Other facets of emotion processing are equally as important as regulation, such as the ability to recognize emotional content, the

physiological sensations generated with emotion, and the ability to discriminate among one's experienced emotions (Joseph & Newman, 2010). However, more research is needed to determine which of these factors (emotional sensations, regulation, discrimination of emotion) are most critical in prosocial motivations.

Gratz and Roemer (2004) developed a multidimensional assessment of emotion regulation and dysregulation, called the Difficulty in Emotion Regulation Scale (DERS). This 40-item scale measures both a global ability in regulating emotions and specific subscales: Impulse Control, Emotional Awareness, Emotion Clarity, Non-acceptance of Emotional Responses, Limited Access to Emotion Regulation Strategies, and Difficulty Engaging in Goal Directed Behavior. Higher scores on the scale or subscale indicate greater difficulty in regulating or coping with emotions. In the context of charitable giving, neglecting to regulate negative emotions induced by the decision context can cause one to feel overwhelmed or depressed, leading to a diminished sense of efficacy, fewer anticipated positive feelings from giving, and (possibly) less giving behavior. Conversely, people who are skilled at recognizing emotional content and employ a successful emotion regulation strategy should be less likely to exhibit biases (e.g. compassion fade) when presented with affect-rich stimuli in the context of charitable giving.

A reliance on self-report measures means that some variance in unconscious emotion processing remains unaccounted for, but is likely to have a significant influence on explicit feelings and behavior. Focusing on the use of affect instead of explicit emotions could provide insight into how the unconscious mind determines which emotion stimuli are to be "let in", or processed as relevant to the decision context. One

way to measure an individual's use of affect in decisions is through the affect heuristic. Slovic, Finucane, Peters, and MacGregor (2000) found that people tended to evaluate risks and benefits as negatively correlated among various hazards, while in reality risk and benefit are usually positively correlated. They posit that the reliance on affect as information causes riskier actions to be perceived as having low benefit. Skagerlund, Forsbad, Slovic, and Västfjäll (2019) developed an individual difference measure of an individuals' tendency to use affect as information. The Emotional Reactivity Task (ERT) is measured by having people evaluate various hazards on risk and benefit and then calculating the within-person correlation between risk and benefit. This correlation, ranging from -1 to +1, could then be used to predict behavior in a prosocial context. One would predict that the more negative the correlation (greater use of affect as information) would predict a stronger reaction to emotion stimuli.

Intervention design

One of the goals of this thesis is to test an intervention for the biases affecting charitable giving that involve the perception of the need (psychic numbing, compassion fade, and pseudoinefficacy). Decisions for prosocial behavior can occur in a single instance (e.g. donating to charity) or can involve a commitment of behavior (e.g. volunteering). Thus the intervention needs to be adaptable to different behavioral contexts. Empirical research in decision making aids has found that formally structuring a decision problem can increase performance and decision satisfaction (Gregory, et al. 2012). This way of shaping a decision problem can be adapted to many situations without requiring expertise, such as extensive background knowledge or training. On the other hand, structured decision making requires careful and deliberative thought. In an

ideal world, where people had infinite cognitive resources, a structured decision making task could be used for donation decisions in which all outcomes are evaluated, choices are rated on various dimensions and then weighted choice options are evaluated before selection. However, in order for an intervention to be useful for prosocial behavior, it must also be succinct; a lengthy and taxing process before a solicitation of prosocial action would likely produce reactance and be poorly received in practice.

How much deliberation is required to improve decisions? Wilson and Schooler (1991) found that thinking too much (and specifically verbalizing) about choice options caused suboptimal decisions. This study found that participants who used "a rate-all" approach (rating many relevant decision attributes) required too many mental trade-offs which lead to suboptimal decisions. Thinking too little, on the other hand, caused people to default to heuristics and intuitive impressions. A balance of effort and flow would allow participants to engage in more calculative thinking without feeling overwhelmed.

An intervention for prosocial behavior must also be appropriately normed, such that the desired outcome is an improved decision in relation to a rational norm, rather one biased only toward helping behavior. Given the clear examples of scope neglect in various real-world prosocial actions, appropriately scaled prosocial action can be considered an optimal decision (Olsen, Donaldson, & Pereira, 2004; Slovic, 2007; Slovic, Västfjäll, Erlandsson, & Gregory, 2017; Veisten, Hoen, Navrud, & Strand. 2004). For pseudoinefficacy, the rational behavior depends upon the context of the scenario. For example, when some of the children at risk of death are presented as "unable to be helped", there is not a clear connection between this fact and the "correct" donation amount. However, the inability to save everyone (or to completely rectify an issue)—this

fact alone—should not deter prosocial action or depress positive feelings toward providing aid to those we can help.

Metrics of decision satisfaction provide feedback on the decision experience. Decision satisfaction is especially important for prosocial behaviors because most charitable, humanitarian, and environmental conservation efforts depend on repeat altruistic behaviors. Souring a donation experience or annoying potential volunteers could exacerbate existing biases that undervalue prosocial behavior compared to stated values. Experimenter demand effects are also a concern when the authority that disperses subject payments is simultaneously asking for donations to charity within the experiment. An ideal intervention can improve decision outcomes while also raising decision satisfaction and avoiding demand effects.

Introspection

Previous research has explored improving decisions using mindfulness. Unfortunately, it is not as simple as instructing people to cogitate to improve performance. Many studies of mindfulness require several sessions of training to significantly alter thinking patterns (Alfonso, Caracuel, Delgado-Pastor, & Verdejo-Garcia, 2011; Chambers, Lo, & Allen, 2008; Shapiro, Jazaieri, & Goldin, 2012; de Vibe, et al., 2013). Other studies that attempt to induce thinking patterns in the short term have found that attempting to induce a deliberative thought process can have no effect on performance or even backfire (Dijksterhuis, Bos, Nordgren, & Van Baaren, 2006). Wilson and Schooler (1991) found that asking subjects to introspect about the reasons for a consumer preference caused decreased decision satisfaction, as accessible elements of the choices become the focal aspect of the decision, rather than attitudes that were more

difficult for participants to articulate. A study of voters found that forcing adults into deliberative thought during decision making made no difference in their perceived political self-efficacy (Morrell, 2005). Horstmann, Ahlgrimm, and Glöckner (2009) found that instructions to deliberate do not necessarily increase processing but instead cause a more thorough information search and repeat investigations of the decision factors. Instructions to deliberate may also alter the way emotions are processed. Dickert, Slovic, and Sagara (2011) found that empathic and other-focused emotions are disrupted during a deliberative mindset, which suppresses empathy-motivated action. The intervention tested in the current study combines facets of structured decision making with mindfulness, using a structured introspective (SI) task. It is important to compare this new experimental condition with a deliberative condition akin to the above studies, to test the effect of SI above and beyond instructions for deliberation.

Because introspection is rooted in the mental process of the individual, reactions to the task may vary. Introspection in the context of life-saving scenarios may cause people to become more aware of the relevant factors in the scenario that should influence their decision, and adjust their responses accordingly. Addressing a life-saving scenario where attention is drawn to people in need will involve some level of negative affect. An introspective process can divert attention from emotional reactions and thus redirect those who struggle with emotional content. An introspective task may be received differently by people with varying thinking tendencies. Participants who possess tendencies and ability for more analytic thought could benefit greatly by restructuring an emotional scenario into a calculative task.

Warm Glow

Four main outcome variables are explored in this thesis: monetary donations, blood donations, decision satisfaction, and warm glow. This section will provide a primer on the concept of warm glow and why it is important for understanding prosocial behavior.

First, what is warm glow? Altruism is an ongoing debate in academic discourse, and there is blooming interest regarding the *motivations* that drive helping behaviors. One such motivation for helping others has been documented as a positive feeling, a "warm glow," which arises in conjunction with a prosocial act. This section explores theories of warm glow as an experienced phenomenon, the methods used to measure it, and how warm glow relates to prosocial behavior.

When humans help one another, many report a positive feeling that is associated with the act. It has been described as a "warm glow," a "joy of giving," or a personal hedonic benefit that arises as a result of completed prosocial behaviors. Scientific inquiry surrounding the warm glow phenomenon has steadily increased. Economic research targeting warm glow giving has increased since the early 1990's, modeling and documenting the nature of utility derived from giving (Andreoni, Harbaugh, & Vesterlund, 2007; Crumpler & Grossman, 2008; Holländer, 1990; Prisbey, 2013; Romano & Yildirim, 2001; Simon, 1993; Stahl & Haruvy, 2006; Yildirim, 2014). Applied researchers, such as those designing similar interventions that increase the rate of prosocial behavior, have demonstrated particular interest in warm glow as a motivator for prosocial action (Ma & Burton, 2016; Giebelhausen, 2017). The psychological literature

mentioning "warm glow" offers a wide array of theoretical and operational definitions, methods for measurement, and conclusions for behavior.

Warm glow is a good feeling; it is affective state with a positive nature, such that people experiencing warm glow derive some sort of hedonic pleasure. Simply put, giving or helping others produces a noticeably good feeling. We understand this phenomenon as *experienced* warm glow (EWG). It is important to distinguish EWG from a related phenomenon that is thought to drive prosocial behaviors, *anticipated* warm glow (AWG), or the expectation of experienced warm glow. In other words, sometimes we help others *because* we anticipate and desire to obtain the resulting positive affective state or the anticipation of EWG.

Much of the economic literature on warm glow giving is vague as to what they believe warm glow to be and does not refer specifically to positive affect but instead uses the words "benefit," or "joy-of-giving" (Andreioni 1989; Andreioni, 1990; Harbaugh, 1998; Ribar, 2000). However, all of these articles consider warm glow to be a "utility" for the public that drives action. In other words, warm glow has a hedonic value that influences choices of giving. There is some divergence within this body of research if warm glow solely results from a cognitive process following a behavior, and/or is an unconscious affective response. For example, Dawes and Thaler (1988) refer to warm glow (i.e. impure altruism) as a "satisfaction of conscience" (p. 192) that arises from meeting one's own moral standards. Under this definition, conscious reflection that one's action is congruent with a held moral standard is required to experience warm glow. Importantly, economic studies of warm glow focus on *behavioral warm glow*, or a behavior that demonstrates giving was motivated by a personal utility, and does not focus

on the psychological experience of the individual (see Konow, 2007). This becomes an issue for comparability between disciplines, discussed in the methods review section below.

Psychological studies are quick to define warm glow as an emotional response to a behavior, but also include unconscious reactions such as positive empathy via emotional contagion (e.g. feeling good about giving because of mimicking the recipient's joy). However, even in the psychological and applied literature (environmental, marketing, blood donation), where authors more explicitly define warm glow as a feeling, there is disagreement about its boundaries as a positive emotional experience. Some researchers argue that seeking warm glow and avoiding guilt in helping situations are two sides of the same "mood management" coin (see Basil, Ridgway, & Basil, 2008; Cialdini et al., 1997; Dickert, Sagara, & Slovic, 2011), while other evidence suggests that these are purely separate constructions (Erlandsson, Jungstrang, & Västfjäll, 2016).

The wide-spread evidence of warm glow giving has led some researchers to argue that it may be a psychological universal, similar to other emotions like happiness and sadness. Akin et al. (2013) found that prosocial spending (i.e. making donations) was reliably related to subjective well-being. Through a series of correlational and experimental findings in 136 countries, they conclude that giving produces a predictable, emotional benefit among humans worldwide and that this fleeting benefit was related to overall subjective well-being. Meier and Stutzer (2008) go as far as to argue that overall life-satisfaction may be dependent on giving or volunteering behaviors. They found that—among a German sample of volunteers—intrinsic motivators for prosocial action produced the most enduring personal reward, frequent volunteers report significantly

higher life-satisfaction, and stopping volunteering resulted in a significant drop in reported life-satisfaction. However, more research is needed this in area exploring warm glow as an enduring well-being rather than a fleeting emotion and how this emotional experience might be additive to well-being over time.

While definitions of EWG in the literature differ on several other factors discussed below, we can accept a common principle: *under the conditions in which warm glow occurs, the resulting experience or anticipation of the experience is affective and a subjectively positive experience for the individual*. This basic assumption may be the only shared quality amid the literature on warm glow. However, two related phenomena—empathy and self-image—are important to understand how warm glow related to prosocial behavior.

One common driver of prosocial behavior is an empathic reaction to another's suffering. First, it is important to unpack the concept of empathy if we are to understand how it is related to warm glow and giving. At its most basic level, empathy involves an inference of mind-state among individuals. Empathy is a socially cognitive process and requires the cognitive ability to infer another's mind-state (i.e., having a theory of mind). de Waal (2008) theorized that the emotional contagion at the heart of all empathic responses. He goes on to argue that a person's ability to "feel for others" to generate an empathic emotion has evolved due to our skilled emotional communication abilities. Further, he finds evidence that other species demonstrate empathy when they can discriminate the self vs. the other.

Substantial evidence exists for the empathy-altruism hypothesis: generosity is affectively motivated by selfless empathy for people in need (Batson, 1981; Batson &

Shaw, 1991). However, the process by which the experience of empathy translates into a prosocial behavior is less understood. Basil et al. (2008) argue that empathy allows an individual to assess a situation as if it were affecting them. However, different models of empathy can lead to different paths so which an assessment can be made. Under a model of empathy as a product of the emotional contagion, we can draw on Stueber's (2017) four steps for empathy to occur:

1) Some other person manifests a behavior, such as grimacing
2) In my own experience this behavior is caused by a mental state of pain
3) I implicitly assume that others share similar psychological causes to mine
4) Therefore: their grimacing is caused by a mental state of pain

Empathy acts to create a mental environment for us to assess a threat and determine a sense of need for the other. By imagining another's suffering, the cause of that suffering gains a level of realism and evaluability that may not otherwise be considered. This generated sense of need then guides our responding behavior.

How empathy interacts with warm glow will depend on one's definition of EWG but the evidence for the empathy-altruism hypothesis gives us an indication that experiencing feelings for others is a critical piece in feeling good about helping them. In other words, empathy may be a necessary component for warm glow to occur in that it allows the possibility of connecting with another's suffering (and the ending of that suffering). Pictures of emaciated children are powerful stimuli for producing empathy and, when paired with a charitable solicitation, they provide a clear signal that our actions can lessen another's suffering. If we receive information about the efficacy of our actions, warm glow can be affected (e.g. pseudoinefficacy), indicating that empathic

responses to the lessening of another's suffering can also guide the degree to which we can experience positive affect from the helping behavior.

An alternative view in opposition to the empathy-altruism hypothesis argues that prosocial behavior is more cognitively motivated through identification with others (Cialdini et al., 1997). More specifically, what we call empathy and personal distress are mediated through a "oneness" experienced between the self and the other. This perspective paints a more egocentric perspective of prosocial action such that our motivation to help others is really driven by a sense of threat to similar others, or others who we experience as closer to ourselves. Recent research has explored oneness as an individual difference measure that has been predictive of prosocial behavior is several experiments (McFarland, Webb, & Brown, 2012; Penner et al., 2005).

Hoffman (1981) similarly argued that empathic arousal motivates helping behavior primarily by relieving a negative emotional state. In other words, empathy makes us feel others' suffering and helping can reduce our personal suffering. Taking this perspective, warm glow may be closer to relief than to pleasure, by reducing another's suffering. More research is needed to distinguish which perspective of altruism and empathy can explain EWG. This question has particular relevance for understanding warm glow in contexts other than helping humans. For example, if empathy is a necessary condition for warm glow to occur, can we experience it for non-human or inanimate objects such as the environment?

When considering whether to help others, people often reflect inwardly before acting. For example, when considering whether or not to give money to the needy, we might decide to give because not giving would tarnish the image of ourselves as a "good

person". We might also consider that giving would improve or maintain a positive self-image. In this case, warm glow can be understood as maintaining a positive self-image. Costa-Font, Jofre-Bonet, and Yen (2012) define warm glow as a "moral satisfaction." They assert that,in the context of blood donation—"blood donated enters an individual's utility function...positively through (warm glow) the effect that it has on her self-image or identity" (p. 8). While this definition doesn't explicitly include a positive emotion associated with warm glow, it implies that the personal benefit received from giving is inherently linked with the perception of the self.

Other economists stress the social aspect of giving. Abbott, Nandeibam, and O'Shea (2013) argue that warm glow is critically dependent on social norms (defined as "ideal forms of behavior to which individuals try to conform"; p.11). In this model, experienced warm glow arises from self-reference to a moral ideal. The degree to which a person experiences warm glow depends upon the gap between the prosocial action and the perception of social norm about the action (Brekke, Kipperberg, & Nyborg, 2007; Brekke, Kipperberg, & Nyborg, 2010; Glazer & Konrad, 1996; Lacetera & Macis, 2010; Sachdeva, Iliev, & Medin, 2009; Winterich & Barone, 2011). For example when considering whether to give money to a homeless person, we first consider what the social norm is for giving to the homeless. This norm might depend upon and differ by culture, societal structure, and homelessness presence. If we decide to give to the homeless person, we consider whether our action matches the implied social norm. The closer our action is to that norm, the greater the warm glow experienced.

De Young (1986) argues that when this gap is bridged (i.e. when we act in a way in accordance with our moral ideal), a specific type of satisfaction is experienced. While

De Young did not go as far as to label this satisfaction as “warm glow,” a factor analytic study found that people readily recognize this satisfactory feeling in relation to giving.. An empirical study of this model found that when social norms are accounted for, warm glow did not predict recycling behavior, indicating that warm-glow-motivated-giving can be entirely explained or mediated by the social norms that an individual attends to (Abbot et al., 2013). However, warm glow was not directly measured in this study and was deduced to be present due to the increase in time spent recycling not accounted for by efficiency. Schwartz (1973) similarly found that when norms are made more less salient (from subtle to explicit) people’s helping behavior (organ donation sign-ups)—scaled to the degree to which the norm is salient, although warm glow was again not measured as a competing motivator. Through this lens, warm glow is generated from a cognitively reflective process, in contrast with the psychological literature that portrays warm glow as affective, rising purely out of the act of (or in anticipation of) giving

Tracey, Robins, and Tangney (2012) describe warm glow as falling under a general cognitive function of self-esteem management that draws upon moral consequences to determine value. In their framework, warm glow falls under the umbrella of “authentic pride” or an emotion that is self-directed and achievement oriented, but not leading to egotistical ends. This is in contrast to “hubristic pride” which refers to a self-promoting feeling that is purposed to assert dominance and establish power. The authors hypothesize (with some preliminary findings) that an empathic response mediates whether one experiences authentic versus hubristic pride. In other words, in order to feel warm glow, the self- directed emotion must coincide with an

empathic experience; the absence of empathy would support hubristic pride, or a giving solely for the good feeling of increased self-status.

Given the wide variety in defining the concept of warm glow, it is no surprise that the methodologies used to operationally define and measure warm glow also vary widely. Amid the literature on warm glow, there was a stark distinction between the way it is operationalized in psychology journals and in economic journals. More specifically, virtually none of the papers in economics directly measured warm glow (save for collaborative projects with psychologists; e.g. Harbaugh, Mayr, & Burghart, 2007). Instead, the experience of warm glow is *implied* from behavior of giving. The standard practice among these studies is that of a "rule out diagnosis." In other words, these articles typically present a model, then essentially account for every other possible motivation for giving (e.g., pure altruism or status); the behavior that remains must be motivated by warm glow (personal utility).

Most studies directly measuring warm glow rely on self-report. However, the questions used in self-report varied systematically with the definitions provided by the authors. Papers that defined warm glow as simply an affective response tended to use self-report items related to affective states, such as using the PANAS (Watson, Clark, & Tellegen, 1998), feeling good about one's self, feeling emotionally positive, or "warm inside"(Aknin Hamlin, & Dunn, 2012; Ferguson et al., 2012; Rosenhan, Salovey, & Hargis, 1981; Sonnetag & Grant, 2012). Studies that linked warm glow to perceptions of the self tended to use ratings of satisfaction or esteem enhancement, such as "I would feel satisfied if I helped" or a rating of job satisfaction (Donegani, McKay, & Moro, 2012; Erlandsson, Björklund, & Bäckström, 2014, Erlandsson, Jungstrand, & Västfjäll, 2016;).

Other research using self-report used some combination or some other operationalization that did not match their definition. For example, Giebelhausen and Chun (2017) defined warm glow as a "positively affective state" but then measured warm glow using four 9-point semantic differential that asked the degree to which the participant felt ethical/unethical, in the right/in the wrong, wicked/virtuous, and ashamed/proud.

Of the few studies that did not use self-report, psychophysiological measures were employed. Functional Magnetic Resonance Imaging (fMRI) has been used to study warm glow and two studies found that forced giving (i.e. induced warm glow) activated the same reward center—the nucleus accumbens—to the same degree as free choice giving (Genevsky, Västfjäll, Slovic, & Knutson., 2013; Harbaugh, Mayr, & Burghart, 2007). Other research in environmental action found a *literal* warm glow effect in the form of temperature perception: people who acted in an environmentally-friendly manner perceived a higher temperature in the room in which the experiment was conducted (Taufik, Bolderdijk, & Steg, 2014). These studies are promising hints that prosocial behavior may produce measureable physiological markers that can help researchers supplement or enhance self-report ratings of warm glow. Further research is needed to determine the replicability and extent that warm glow produces a universally detectable physiological response.

How does warm glow develop as a correlate of prosocial behavior? Developmental researchers can help elucidate how warm glow arises in children as a motivator for prosocial action and if this translates to adulthood. Is warm glow closer to a learned behavior such that we see positive effects from giving or helping others as children and the drive to adhere to social norms propagates the continuation of the

behavior? Alternatively, warm glow could be an intrinsic result from helping others; we are simply "programmed" to feel positive feelings after helping others, perhaps as a result of the emotional contagion (de Waal, 2008). At what developmental stages do either of these explanations apply? The limited evidence suggests that warm glow can be affectively innate but also has the propensity to be learned. Aknin et al. (2012) found evidence for warm glow in children under the age of two by observing and coding their demonstrated happiness from helping a puppet monkey, irrespective of the puppet's reaction to receiving the help. The children gave treats to the puppet and demonstrated nearly identical happiness as to receiving treats themselves.

Early studies of child prosocial behavior found that children are cognizant of EWG as a result of giving and there was evidence that children showed increased motivation to help others after watching a confederate express positive emotion after giving (Harris, 1968; Midlarsky & Bryan, 1967). Schnall, Roper, & Fessler (2010) found that warm glow is contagious in adults: seeing others experience positive emotion from giving increased one's own propensity to give. Further research is needed to parse how and at what age warm glow giving can be learned and at how young of an age warm glow can be experienced. The ages and stages at which warm glow giving occurs can help elucidate the interplay of warm glow with other developmental milestones (e.g. theory of mind or language acquisition).

The influence of warm glow on prosocial action may change across the lifespan. Ferguson et al. (2012a & 2012b) found across two studies that only long-term blood donors exhibited warm glow as a significant motivation to donate. It is not clear if warm glow was learned by these experienced donors (i.e. it increased over time, creating a

feedback loop of donation behavior) or the experienced donors were simply more sensitive to the affective rewards of giving from the start. Sonnetag and Grant (2012) found that the positive boost in affect from giving may not (only) be immediate. In a repeated-measures design they found that prosocial behavior during the day predicted a positive affect boost at bedtime which boosted feelings of self-efficacy.

The environmental psychology literature is ripe with empirical evidence of warm glow as a prosocial motivator, particularly because environmental efforts usually have little personal reward and there is not a clear recipient of the helping behavior. Individual sensitivity to warm glow cues can predict warm glow-giving in environmental decisions. Nunes and Schokkaert (2003) found that respondents who demonstrated more sensitivity to warm glow (i.e. self-reported that they experienced or were motivated by a positive emotional reward) were willing to pay more for a costly, but effective environmental program. A field study by Menges, Schroeder, and Traub (2005) found that warm glow drove willingness to pay (WTP) for green energy in Germany and the WTP scaled linearly with warm glow, a finding also documented in economic lab studies (Chilton & Hutchinson, 2000). In a hotel field study, Giebelhausen and Chun (2017) found that voluntary green programs (i.e. towel reuse) increased guest satisfaction, especially when combined with incentives of virtue (i.e. an appeal to virtuous environmental behavior) and vice (i.e. an unhealthy treat) and that this satisfaction rating was moderated by experienced warm glow. This research offers practical insights in to the effects of different types of incentives offered when green options are available.

While anticipated warm glow is clearly a strong driving factor toward prosocial action, it is surprisingly sensitive to cues within the environmental and mental contexts.

Abbott, Nandeibam and O'Shea (2013) found that warm glow is a driving factor in recycling programs, but only when monetary rewards are absent. They also find that warm glow is enhanced by non-monetary rewards, when autonomy and competence are high. These findings complement findings in literature pertaining to prosocial behaviors directed at humans: Västfjäll, Slovic, and Mayorga (2015) found that warm glow giving is sensitive to contextual factors, such as the presence of larger problem that we might not be able to help. In a series of studies, a robust difference was discovered: people experience less warm glow for giving to an individual when they are made aware of people that cannot be helped.

Thus, warm glow is closely tied to our concept of self-efficacy. A longitudinal study of prosocial behavior found that self-efficacy can be the crux of cyclical trends in prosocial behavior (Capara, Alessandri, & Eisenberg, 2012). The results suggest that people are less likely to engage in prosocial behavior when they feel they are incapable of dealing with strong-emotional content (e.g. "it's just too hard to look at) and are unable to establish appropriate actions for meeting those needs. The authors assert that self-transcendental values (such as universalism and benevolence) can improve self-efficacy beliefs and thus promote warm glow giving. McFarland et al. (2012) have developed an individual difference measure (the "All humanity is my in-group" scale) for measuring self-transcendental values that may moderate warm glow giving and drive prosocial action. More research is needed to establish a causal link between self-transcendental values and prosocial behavior through warm glow, as the direction of the relationship between values and warm glow is still unclear.

When we feel we can be effective in helping, the warm glow benefit is greater than when we feel less efficacious, even when the helping behavior is held constant. Cognitive and economic research has found a moderating effect of attention on prosocial self-efficacy and warm glow-giving. Rosenhan, Salovey, and Hargis (1981) found that when attention is directed to the self, self-efficacy becomes predictive of prosocial action, although their study was limited by a small sample size.

Monetary or extrinsic rewards can "contaminate" the affective rewards from giving by drawing attention away from others and prosocial action: Costa-Font, Jofre-Bonet and Yen (2013) found that cash payment for blood donations reduced warm glow, especially among women and older donors (demographic characteristics that also predicted the greatest amount of prosocial action). Cash incentives cause people to misattribute intrinsic benefits from giving (like warm glow), perhaps by drawing the focus away from the recipient, and redirecting affect toward a tangible object.

The specific information and framing we receive about the recipients of prosocial behavior can influence anticipated warm glow, and thus prosocial action. Andreoni and Rao (2011) found that when potential recipients of giving provided a social cue of need (i.e. literally asked for aid), altruistic behavior increased in a dictator game. In a study of microlending investments in impoverished areas, Allison, McKenny, and Short (2013) found that specific political rhetoric cues prime the anticipation of warm glow and affect funding rates: rhetoric that downplayed neediness reduced funding rates while rhetoric associated with blame for the individual's misfortune and pressing concerns increased the rate of microloan funding. These results suggest that understanding the reasons for another's misfortune may be an important factor that donors consider in determining the

responsibility that the needy individual has for their situation. Ferguson and Flynn (2016) found that experienced warm glow can be influenced by manipulating the frame of possible actions, or the "moral relativism" of the actions. Using a dictator game, they varied the possible actions to either donate/not or donate/take, implying that if you don't donate the money, it will go to your pocket. Results indicated that subjects experienced significantly more warm glow with the inclusion of the take option over just donate or not but interestingly this frame also resulted in less actual giving.

Not all types of giving are equal for warm glow. Complementing the blood donation literature noted above, economic modeling studies have found that donations of time (i.e. volunteering) are found to be driven more by warm glow than are monetary donations (Clary et al., 1998; Lilley & Slonim, 2014). Meirer and Stutzer (2008) hypothesize that volunteering provides social and psychological benefits that may reinforce the experience of warm glow. Volunteers in their study generally engaged in helping for social interaction, development of skills, or using new equipment that fosters an intrinsic benefit of work enjoyment. The authors also claim that warm glow can be understood in a long-term sense of life-satisfaction, such that the personal reflection on previous efficacious actions are more likely to have intrinsic value when they also benefit others. Similarly, Omoto and Snyder (1995) found that long-term AIDS volunteers are driven by an affective reward to support self-esteem. Warm glow acted as a signal for these volunteers that volunteering improved their self image.

Conversely, other research in the economics of charitable giving has found that AWG is dependent on giving or not giving—like an on/off switch—rather than scaled to degree of impact. Null (2011) found that subjects exposed to a giving matching program,

were more likely to make several smaller donations to less efficient charities, even at the expense of up to 25% gift matching, because of the short-lived, repeated warm glow benefit (although the authors did not address the concept of fairness among their participants in distributing funds more evenly). In this sense, warm glow can drive inefficient giving and Null concludes, "If these choices are indicative of how donors would respond to changes in the social benefit of their gifts in the real world, the results bode ill for efficiency of resource allocation across charities." (p. 464)

There are other instances in which warm glow is *not* associated with increased giving and may predict lower rates of prosocial behavior. Imas (2014) found that warm glow giving has clear limits when put at odds with personal benefit. In a real-effort task (hand squeezes), people were willing to work for the benefit of others more than for themselves for small incentives, but not large incentives. The consistently measured difference between small and large incentives appears to be about two dollars. Mayo and Tinsley (2009) studied whether warm glow was a significant motivator for wealthy donors. They found evidence that the self-serving attribution bias and fundamental attribution error may cause the rich to fail to receive a warm glow benefit from giving to others, by downplaying others' misfortune as due to poor merit, rather than bad luck. Other studies have investigated the contextual factors of a helping situation that might downplay the role of warm glow in giving in favor of other emotional or situational motivators. Andreoni (1995) found that people were more prosocial when giving was framed as such (moving personal funds to a charity) than when it was framed as a negative (earning money by moving public goods to a private one), even when the outcomes are identical. In other words, it is not sufficient for warm glow that we avoid

doing bad; some form of (actual or imagined) positive action must be perceived by the agent.

Erlandsson, Jungstrand, and Västfjäll (2016) found that warm glow was trumped by feelings of guilt when personal responsibility was low in relation to the cause of the problem, when the task requires low effort, or when the victim expects to be helped. This finding complements classic research on social influence and diffusion of responsibility as crucial contexts that define bystander response to emergencies (Bickman, 1972; Fischer et al., 2011). Only when the individual feels some level of responsibility for the good behavior does warm glow emerge as predictive as guilt for action. An uninvolved observer is unlikely to experience warm glow by proxy.

Warm glow is thus inherently linked with emotions that pertain to other people, such as empathy and guilt. Warm glow is also closely related to our personal identity and sense of self-efficacy. Warm glow shows clear evidence as a motivator for prosocial action, but the degree to which it is anticipated and experienced can sensitive to contextual factors of the prosocial behavior. Warm glow may provide a more stable way to predict cross-domain differences in prosocial behavior, if it correlates with multiple prosocial actions or alternatively, as a predictor for the frequency at which people engage in prosocial behavior.

CHAPTER III

GENERAL STUDY DESIGN AND HYPOTHESES

The two studies contained in this dissertation were conducted with the goal of testing a structured introspection task as an intervention for experienced pseudoinefficacy. The first study is in the domain of charitable giving, replicating previous findings, and exploring moderating effects of individual differences on pseudoinefficacy. Study two adapts the findings and design from the first study to a new context: blood donation. This study is a conceptual replication in that instead of "children not helped" that act to demotivate, negative affect is attempted to be induced by a negative image and highlight of the need.

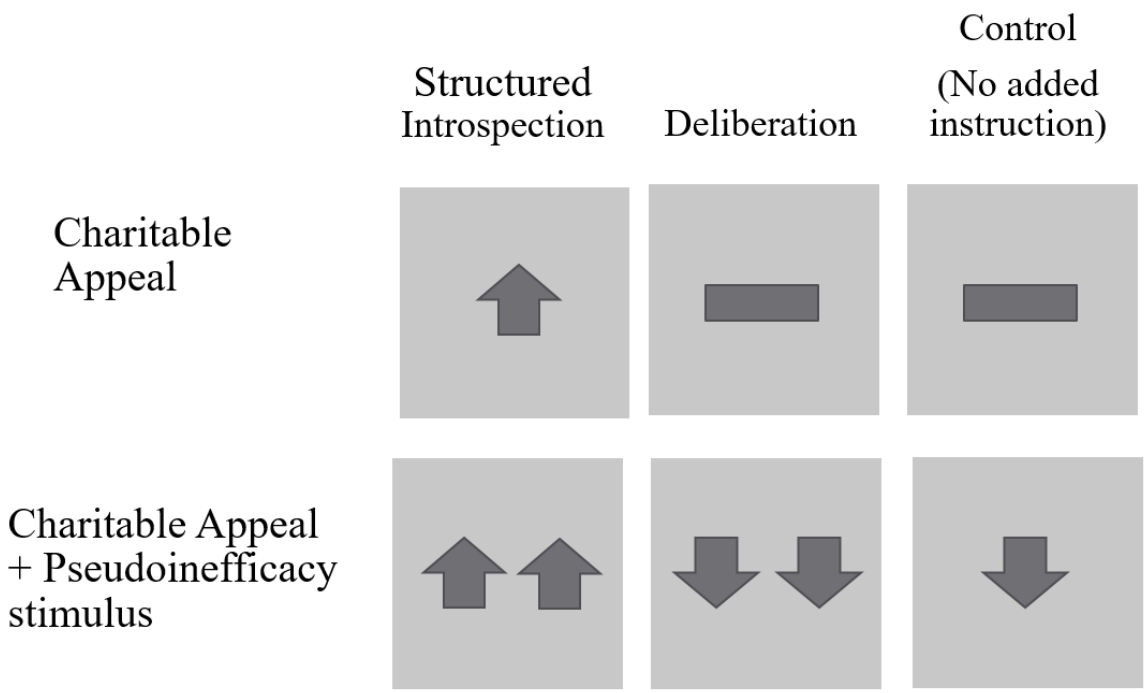
Pseudoinefficacy is hypothesized to decrease helping motivations and anticipated warm glow by producing negative emotions from thinking about others that cannot be helped and by viewing negative stimuli. Introspection is predicted to affect the processing of the emotional stimuli by drawing attention away from emotional aspects of the scenario and offering a format for evaluating and comparing the factors in the decision space. By reframing the scenario in the manner, it is expected that participants will be less susceptible to bias caused from negative affect and "drop in the bucket" thinking.

Structured introspection supplies a set factors for consideration and asks participants to rate the degree to which the factor *should* influence their decision. Structured introspection is compared to an unstructured deliberation task in which participants asked to think about the factors that should influence their choice but are offered no guidance as to which factors to consider. These conditions are also compared

to a control condition in which participants are offered no added instruction between the scenario and outcome variables.

The design and structure of the two studies are nearly identical. Both studies use a 3 x 2 between subjects design (see Figure 1). The columns note the intervention condition (Structure Introspection, Deliberation, and Control). The rows indicate the pseudoinefficacy manipulation (Appeal alone or with stimuli designed to induce pseudoinefficacy).

Figure 1. Factorial design of studies



The arrows in the condition boxes indicate the expected direction and size of the effect on the outcome variables. First, looking at the control, a main effect of pseudoinefficacy is predicted such that the inclusion of this stimuli will decrease anticipated warm glow and prosocial behaviors. A main effect of structure introspection is also predicted such that structured introspection will increase anticipated warm glow and prosocial

behaviors. An interaction is predicted between the two manipulations such that SI will be most effective when the pseudoinefficacy stimuli are present, such that it will increase warm glow and prosocial behaviors beyond control and SI with the standard appeal. Lastly deliberation is expected to have either no effect (in the case of the appeal alone) or have a negative effect such that warm glow and prosocial behaviors are depressed beyond control. The formal hypotheses are as follows:

Hypothesis 1: The pseudoinefficacy stimuli will cause decreased anticipated warm glow from helping, replicating the findings from Västfjäll, Slovic, and Mayorga, (2015).

Hypothesis 2a: The guided introspection condition will result in greater anticipated warm glow and increased rate and degree or prosocial behaviors.

Hypothesis 2b: The effect of the introspection task will interact with pseudoinefficacy condition such that it will be more effective when participants are reminded about the greater need they cannot help. In other words, the differences in anticipated warm glow and prosocial behaviors between the introspection condition and the other two conditions will be larger when pseudoinefficacy stimuli are included compared to when no such information is included.

Hypothesis 3a: The deliberation condition will offer no increase over the no-instruction control condition in warm glow ratings or prosocial behaviors.

Hypothesis 3b: The deliberation condition *may* result in even lower warm glow and prosocial behaviors particularly in the pseudoinefficacy condition.

CHAPTER IV

STUDY 1: INTROSPECTION INTERVENTION IN CHARITABLE DONATIONS

Rationale and Exploratory Hypotheses

In many situations that involve helping others, there are broader needs that cannot be met from a single prosocial act. For example, if you are approached about making a donation to an environmental conservation organization, you are inherently aware that your donation will not solve the issue in its entirety. From this perspective, many are drawn in to "drop-in-the-bucket" style thinking where the efficacy of a prosocial action appears lessened by the mere presence of the "unhelped" need. When the expressed need originates from identified individual or an affect-rich stimulus, the negative affect from this stimulus effectively mix with any anticipated positive affect from the prospect of giving, diminishing perceived efficacy, and consequentially lowering the chances of helpful behavior (Västfjäll, Slovic, & Mayorga, 2015). The current study seeks to intervene in this affective mixing process by drawing attention to the cues producing affect in the environment (i.e. the helped target, and the unhelped targets).

Improving decision making through the use of decision aids, intervention, or priming is not a new development, but applying these tools to address bias in charitable decision making is a novel solution. For some decisions, normative behavior may be easily defined, such as choosing the option that maximizes payout for the self. Improving decisions in prosocial contexts does not necessarily imply greater overall donation amounts, as donation decisions (including the amount donated) may be based on personal importance and moral conviction, rather than an objective normative standard. Thus,

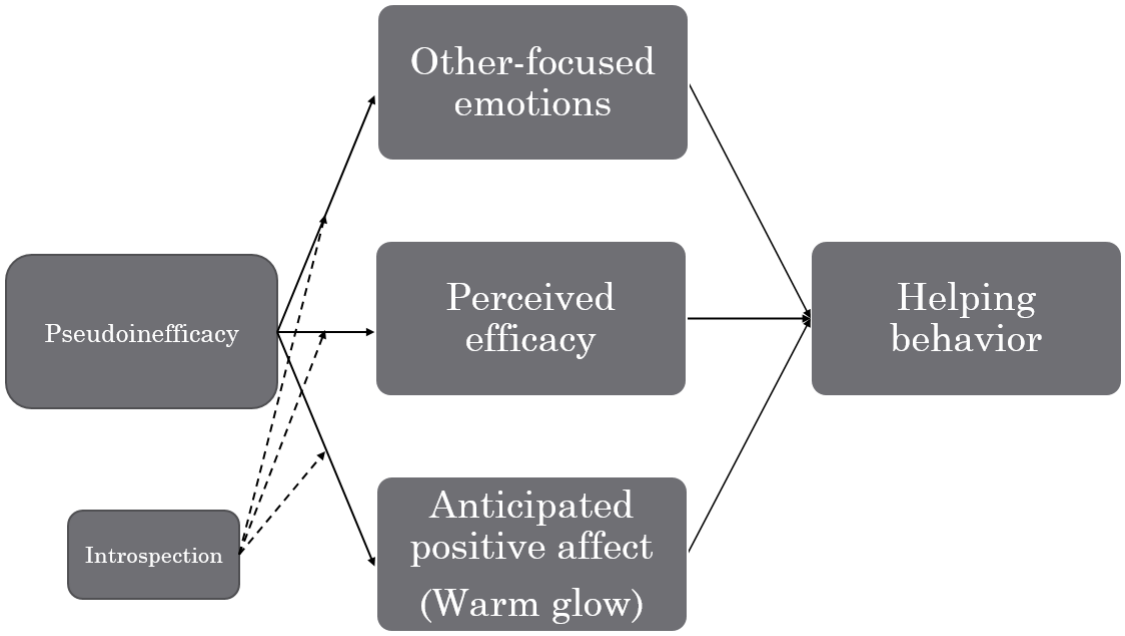
improving decisions in prosocial contexts *may* result in increased overall donations, but should focus on reducing bias and satisfaction of the decision maker as well.

Introspective thinking is a "lite" version of structured decision making, that prompts the decision maker to informally consider and evaluate factors of the decision environment (structured introspection) or deliberate on the factors themselves without evaluation (unstructured introspection). By slowing down decision makers and forcing them to briefly evaluate the relevant decision information, introspection is hypothesized to decrease the influence of "affective lures" or factors of the decision environment that appear attractive (or unattractive) because of overreliance on the affective reaction to the stimuli, rather than because they possess an objective (dis)advantage.

In the current study, introspection is applied to charitable giving by instructing participants to rate how much the benefit to the child should influence their decision to help, as well as how much the "unhelped child" should influence their decision. In a deliberative condition, no guidance on the factors is provided and participants are simply asked to think deeply about the decision factors for 30 seconds. It is predicted that guided introspection will cause people to more readily identify the unhelped child as an irrelevant or less important emotional stimuli in their decision and thus report greater warm glow, be less likely to be demotivated from action, and will express greater decision satisfaction, compared to people in a control condition that does not introspect and a deliberation condition (see Figure 2). It is possible that unguided introspection will result in more varied responses because it relies on the decision maker to identify the source of the negative affect as irrelevant. But, among those that identify the "unhelped" as an irrelevant source of affect, the effect on warm glow, motivation and decision

satisfaction may be similar to the guided introspection. In addition to these predictions, individual differences are explored as moderators for pseudoinefficacy and the effect of the intervention.

Figure 2. Conceptual model for study 1. Adapted from Butts, Lunt, Freling, and Gabriel (2019)



Solicitations to needy causes often utilize emotional content to increase attention to the cause. As such, these solicitations can involve a myriad of emotions that can influence the decision to donate. We may experience emotions toward the victim, toward the requester, or toward related organization(s), and all or none of the above. Mayorga (2012) found that emotion regulation moderated reactions to help when a group of unhelped individuals was highlighted in a charitable decision context. Specifically, people who reported more difficulty in regulating their emotions also reported being more demotivated by unhelped children, donated less, and felt less warm glow from donating (Mayorga, 2012). Conversely, people who found their emotions more

manageable tended to be *motivated more* by the unhelped children. This finding suggests that each individual's emotional response to these images can differentially influence the motivations to help, when an opportunity is given. Seeing a child in dire need that we cannot help can undoubtedly cause emotion in most individuals. But to some these stimuli could be overwhelmingly sad, others may simply ignore it or fail to recognize the origin of the feeling, or it may bring about a greater sense of need for action. Emotion regulation ability helps explains reactions to the affect-rich stimuli, for individuals who experience an emotional reaction to the stimuli. Conversely, more immediate responses to the stimuli might be determined by people's general tendency to rely on or more readily consider emotional cues in an environment as relevant sources of decision information. Thus, an individual difference in emotional reactance or cognitive reflection may be a stronger predictor of when the "unhelped" are influential in the decision to donate and shape the associated emotions.

The current study seeks to explore other possible individual difference moderators of the pseudoinefficacy effect as well as the intervention described above. Developments in cognitive psychology and decision theory have resulted in several measures that seek to capture one's processing style (i.e. more emotional vs. more calculative). A well-known measure of processing style is the Rational Experiential Inventory (Pacini & Epstein, 1999) which uses self-reports of one's preference for experiential thinking (e.g. "I like to rely on my intuitive impressions) vs rational thinking (e.g. "I enjoy intellectual challenges"). Since these relationships are exploratory, no formal hypotheses will be made. However, one can speculate that a tendency for deliberative thinking may cause people to be less influenced by unaided children beyond reach than those with a tendency

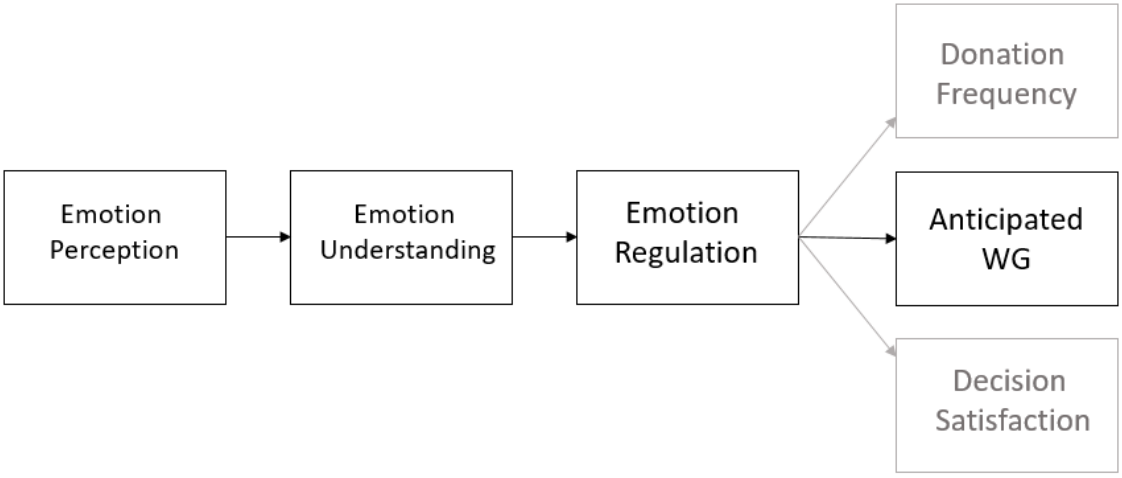
to rely on their emotions. People with rational thinking tendencies may be thus aided by both introspection conditions more than experiential thinkers, because they possess a readily available framework for deliberating on the relevant decision factors.

Another moderator that may be crucial for evaluating context in charitable decision is emotional intelligence, or the one's individual ability to perceive, feel, understand, and manage one's own (and others') emotions (Mayer, Salovey, Caruso, & Sitarenios, 2003). In other words, one's natural ability to identify and recognize personal emotions and identify the sources of those emotions will be crucial to identifying the unhelped children as a contextual factor rather than objective evidence of inefficacy. Drawing on the Cascading model of emotional intelligence (Joseph & Newman, 2010), emotional intelligence can influence cognitions and behaviors in donation contexts through an emotional process of 1) emotion perception, 2) emotion understanding, and 3) emotion regulation. I hypothesize that pseudoinefficacy for unhelped children occurs when the donation stimuli are processed as negative emotional content, the content is interpreted as relevant to the decision, and the emotion is not regulated (or is regulated in a maladaptive manner). Conversely, the unhelped children may not negatively influence the decision if the stimuli are not perceived as emotional, the source of the emotion is understood as irrelevant, or the emotion is regulated. The facets of emotional intelligence will be operationalized using the Difficulty in Emotion Regulation subscales: Awareness (emotion perception), Non-acceptance of emotional responses (emotion understanding), and Strategies (emotion regulation).

The cascading model of emotional intelligence is be tested to explore the affective process that predicts experiencing pseudoinefficacy. This causal model will be tested

using three mediation analyses, comparing across the pseudoinefficacy conditions. The model would predict that individual differences in emotion perception (DERS: Awareness and Clarity) will predict greater emotional understanding (Non-acceptance of emotional responses) which will predict emotion regulation (Impulse control & Regulation strategies), finally predicting anticipated warm glow (and donation frequency, decision satisfaction; see Figure 3).

Figure 3. Cascading model of emotion processing predicting outcome variables in Study 1



Tendencies toward rational or experiential thinking will be explored as a possible moderator for both the pseudoinefficacy effect, and the effect of introspection on anticipated warm glow (WG), donation behavior, and decision satisfaction. Participants' ratings of the Rational Experiential Inventory, as well as the Emotional Reactivity Task (ERT) (Skagerlund, Forsblad, Slovic, & Västfjäll, 2019) will be scored and tested as a moderator in the inference tests for each of the formal hypotheses.

Method

Participants. Six-hundred and five participants (49.9% identified as female, 73.2% Caucasian, M_{age}= 32.94) were recruited from Prolific Academic (www.Prolific.ac) for an online survey. Participants were screened on residency (U.S. only) and age (18+).

Design. The study was advertised as a 10-15 minute online survey on "Emotion and Decision Making" and participants were paid $3 for completing the survey. After digitally signing a consent document, participants read a short background paragraph on the country of Yemen and were provided with a map of the Middle East, highlighting the location of Yemen. Next, a 20-second charitable appeal video (https://www.youtube.com/watch?v=2dF2zXogCFw) was displayed detailing the famine crisis in Yemen and the effort Save the Children, a non-profit providing immediate aid to children in foreign countries, made to provide aid. The video contains footage of an emaciated child, highlighting a story about "Baby Nusair," with text on the screen and low music. To decrease the chance of participant skipping the video, the survey would not allow progression for 20 seconds. Half of the participants (n= 301) were assigned to the pseudoinefficacy condition and were given an additional picture (see Appendix 1) and the phrase, "Countless more children are at risk of starvation as Yemen edges toward the brink of famine. **Some children, like those shown in the picture below, are forced to flee due to violence and are often not able to receive aid.**" This text was placed just below the video, above the picture.

Participants were randomized into one of three intervention conditions: structured introspection, deliberation, or a control condition. In the structured introspection condition, participants were asked to "think more deeply about the factors…that might

influence your decision to help the charity". Participants then rated two factors (three in the pseudoinefficacy condition) on their perceived degree of normative influence, on a 5-point scale of "not at all" to "extremely". The factors rated included "The contextual information about the war and famine in Yemen." "The need of the children currently at risk, like baby Nusair." and (for the pseudoinefficacy condition) "The information of the many children who are unable to receive aid." In the deliberation condition, participants were also asked to "think more deeply about the factors…that might influence your feelings toward helping the charity" and were given 30 seconds to think. The survey was locked and progressed automatically after 30 seconds. In the control condition, participants simply continued on to the next section. Participants next completed ratings of warm glow, a semi-hypothetical donation, affective ratings surrounding the scenario and donation, individual difference measures, and lastly a demographic questionnaire.

Materials. Materials for Study 1 are presented in Appendix A. The phrase and experience of "warm glow" may not be familiar to most people. Thus, warm glow was defined for participants and operationalized with a two-step question. Participants were first given a definition of warm glow and were then asked to briefly recollect a time when they might have "experienced a good feeling from doing something good for someone else". Participants were then asked to imagine that they were able to give money to a trusted aid organization to help the children in Yemen and how much warm glow they might experience on a 0-100 scale if they were to donate. Response format consisted of a two-step procedure: Five responses were provided in the first step (0-20 low or no warm glow, 21-40, 41-60, 61-80, 81-100 high to extreme warm glow). Participants were then

asked to further specify their warm glow between the range they picked in the second step (e.g. to specify a number between 21 and 40).

For the donation task, participants were informed of a random drawing among the survey participants for a prize of $100. The participants could then choose a number between 0 and $100 of their potential winnings that they could donate to Save the Children to help the children in Yemen. At the end of the data collection, a random participant was chosen and their prize (minus the donation sent to Save the Children) was awarded.

Participants rated several statements regarding their feelings (sadness, sympathy) toward the target of the video (Baby Nusair). Participants who donated money rated their anticipated guilt if they didn't donate, while participants who did not donate any of their prize winnings rated their experienced guilt from not donating.

Participants also rated their decision satisfaction toward their donation ("How satisfied are you with your decision regarding the donation to Save the Children?"), the perceived efficacy of their donation ("How much do you think your donation would help children like baby Nusair?"), and the degree to which the donation opportunity made themselves feel better ("How much did the opportunity of donating money make you feel better?"). To measure a possible effect of emotional reactance, a 6-item measure was used with statements such as "I felt annoyed by being shown the charity appeal" and "I felt 'moved' by the appeal" (reverse scored). Participants were asked to reflect on humanitarian crises and rate the degree to which "drop in the bucket" thinking or being reminded of those we are unable to help influences their motivation to help others on a 4-point scale, as well as the direction of the effect (demotivates or motivates more).

Participants lastly made ratings of how negative they found the video (and the added picture in the pseudoinefficacy condition) on a 11=-point scale from -10 (very negative) to 0 (neutral).

Three individual difference measures were included to explore a possible moderating influence on the pseudoinefficacy effect or intervention. The Rational-Experiential inventory, designed to measure tendencies for different modes of thinking is a 40-item battery of statements in which participants rate the statements as "definitely false" or "definitely true" of themselves on a 5-point scale. After scoring, the measure provides four subscales on two dimensions of ability and engagement (rational ability, rational engagement, experiential ability, and experiential engagement). To study the process of emotion regulation in the scenario, the Difficulty in Emotion Regulation Scale (DERS) was administered. The DERS provides 6 subscales (Nonacceptance of Emotional Responses, Difficulty in Engaging in Goal-Directed Behavior, Impulse Control Difficulties, Lack of Emotional Awareness, Limited Access to Emotion Regulation Strategies, and Lack of Emotional Clarity). This scale measures emotion-related experiences and behaviors using a 5-point frequency scale from almost never (0-10%) to almost always (91-100%). Lastly, the Emotion Reactivity Task measures individual tendencies to rely on the affect heuristic. This measure asks participants to rate several behaviors (15 behaviors in the shortened version used here) for perceived risk and benefit. Person-level correlations are then calculated between risk and benefits of the behaviors and this individual correlation score was used in subsequent analyses.

Results

Descriptive and Preliminary Analyses. Table 1 displays the means and standard deviations of the outcome variables and scenario reactions, split by condition and totaled. There were some notable and unexpected differences among the variables between conditions. One can observe a general trend of greater values across all variables in the pseudoinefficacy condition, compared to control. Additionally, collapsing across the pseudoinefficacy manipulation, the structured introspection condition resulted in slightly less warm glow (M = 58.54, SD = 26.63), donations (M = 46.84, SD = 34.99), and perceived efficacy (M = 4.17, SD= 1.78), compared to the other two condition. This difference may be a result of the blunted responses in the structured introspection (SI) appeal-only condition. Participants in the SI appeal-only condition reported lower average anticipated warm glow (M = 55.13, SD = 27.43) from the prospect of donating and a lower average donation (M = 41.15, SD = 33.68) than the other conditions. This result is explored later in the inference tests.

Just looking at the introspection conditions, the rated values of the decision factors differed slightly. When viewing the video charity appeal alone, introspective participants rated the influence the contextual information of the war and famine in Yemen with a mean of 3.6 (SD = 1.11) while the need of the victim as 4.16 (SD = 0.96). In the pseudoinefficacy condition, the contextual information had a slightly higher mean of 3.75 (SD = 1.04) and a similar rating of the victim's need (M = 4.17, SD =0.99). Neither of these ratings differed significantly between the pseudoinefficacy condition and appeal-only condition (t(198) = -0.99, p=.07, t(198) = -0.12, p=.80, respectively.

Table 1. Study 1 Outcome Variables Means (SD) by Condition

		Warm Glow	Donation	Sadness	Sympathy	Mood increase	Guilt	Decision Satisfaction	Perceived Efficacy
	Range	0-100	$0-100	1-7	1-7	1-7	1-7	1-7	1-7
Appeal only	Structured Introspection	55.13 (27.43)	41.15 (33.68)	5.47 (1.62)	5.81 (1.61)	3.86 (1.9)	4.38 (2.18)	5.47 (1.46)	4.05 (1.99)
	Deliberation	59.91 (28.84)	48.95 (33.28)	5.76 (1.45)	6.02 (1.32)	4.21 (1.98)	5.02 (2.07)	5.76 (1.29)	4.44 (1.84)
	Control	60.25 (28.14)	45.41 (33.42)	5.47 (1.52)	5.85 (1.43)	4.11 (1.86)	4.44 (2.08)	5.55 (1.43)	4.24 (1.55)
	Total	58.52 (28.16)	45.26 (33.5)	5.57 (1.53)	5.89 (1.45)	4.07 (1.91)	4.62 (2.12)	5.6 (1.39)	4.25 (1.8)
Apeal + *Pseudo*	Structured Introspection	61.68 (25.6)	52.1 (35.5)	5.76 (1.35)	6.06 (1.24)	4.52 (1.76)	5.08 (1.84)	5.88 (1.16)	4.27 (1.56)
	Deliberation	63.08 (26.16)	49.69 (34.13)	5.76 (1.47)	6.09 (1.3)	4.34 (1.89)	4.86 (2.05)	5.85 (1.26)	4.36 (1.87)
	Control	60.13 (27.75)	46.76 (36.03)	5.74 (1.49)	6.05 (1.39)	4.03 (2.05)	4.4 (2.32)	5.87 (1.24)	4.47 (1.74)
	Total	61.65 (26.43)	49.58 (35.18)	5.75 (1.43)	6.07 (1.3)	4.3 (1.91)	4.79 (2.09)	5.87 (1.21)	4.37 (1.72)
Total	Structured Introspection	58.54 (26.63)	46.84 (34.99)	5.62 (1.49)	5.94 (1.43)	4.21 (1.85)	4.74 (2.04)	5.69 (1.32)	4.17 (1.78)
	Deliberation	61.47 (27.53)	49.32 (33.62)	5.76 (1.46)	6.05 (1.31)	4.28 (1.93)	4.94 (2.06)	5.8 (1.27)	4.4 (1.85)
	Control	60.19 (27.88)	46.06 (34.62)	5.6 (1.51)	5.95 (1.41)	4.07 (1.95)	4.42 (2.19)	5.7 (1.35)	4.35 (1.65)
	Total	60.07 (27.34)	47.41 (34.38)	5.66 (1.48)	5.98 (1.38)	4.19 (1.91)	4.7 (2.11)	5.73 (1.31)	4.31 (1.76)

In comparison, participants in the pseudoinefficacy condition rated the influence of the pseudoinefficacy information in between the two other factors (M = 3.87, SD = 1.06). Table 2 displays the percent of participants who donated, split between the between-subjects conditions. Donation frequency was consistent across conditions, with all conditions falling between 80-90% of the sample donating at least some amount to the charity.

Table 2. Percent Donating to Charity by Condition

		Did not donate	Donated	*n*
Appeal only	Structured Introspection	16.7%	83.3%	96
	Deliberation	12.6%	87.4%	103
	Control	18.1%	81.9%	105
	Total	15.8%	84.2%	304
Appeal + *Pseudoinefficacy*	Structured Introspection	14.4%	85.6%	104
	Deliberation	10.0%	90.0%	100
	Control	15.5%	84.5%	97
	Total	13.3%	86.7%	301
Total	Structured Introspection	15.5%	84.5%	200
	Deliberation	11.3%	88.7%	203
	Control	16.8%	83.2%	202
	Total	14.5%	85.5%	605

Variable correlations are displayed in Table 3, with the Cronbach's alpha on the horizontal for scale variables. As expected, anticipated warm glow and donation were significantly correlated (r = .30, p<.001). Interestingly, the ERT measure was negatively correlated with all of the outcome variables such that a higher score (i.e. a more positive correlation between risk and benefits of risks) was associated with lower ratings of warm glow, lower donation amounts, and lower perceived efficacy. Warm glow and donations were also positively correlated with Experiential Ability (r = .14, p<.001; r =. 10, p =

Table 3. Pearson Correlation Matrix of Study 1 Variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Warm Glow	-														
2. Donation	.298**	-													
3. Sadness	.512**	.343**	-												
4. Sympathy	.504**	.330**	.822**	-											
5. Mood increase	.611**	.337**	.479**	.446**	-										
6. Guilt	.505**	.436**	.470**	.467**	.537**	-									
7. Decision Satisfaction	.140**	.220**	.166**	.126**	.247**	0.061	-								
8. Perceived efficacy	.524**	.285**	.399**	.381**	.631**	.467**	.229**	-							
9. ERT	-.208**	-.149**	-.128**	-.177**	-.115**	-.197**	-0.051	-.128**	-0.74 (0.21)						
10. DERS	-0.024	-0.001	-0.019	-0.021	-0.041	0.073	-.210**	-0.037	.142**	19.59 (25.29) *.84*					
11. REI- RA	-0.041	-0.040	-0.021	-0.005	-0.078	-0.076	.179**	-0.073	-.109**	-.496**	3.80 (0.72) *.88*				
12. REI- RE	-0.057	0.031	-0.009	0.012	-.111**	-0.069	.122**	-.086*	-.103*	-.327**	.731**	3.76 (0.76) *.86*			
13. REI- EA	.144**	.099*	.156**	.169**	.148**	.085*	.144**	.131**	-.161**	-.190**	.125**	0.074	3.34 (0.76) *.89*		
14. REI- EE	.218**	.168**	.226**	.237**	.209**	.148**	.139**	.186**	-.182**	-0.050	-0.056	0.004	.818**	3.34 (0.79) *.88*	
15. Appeal Aversion	-.388**	-.189**	-.386**	-.388**	-.363**	-.275**	-.217**	-.404**	.236**	.149**	-0.057	-0.016	-.158**	-.209**	1.86 (0.49) *.70*

Note: *p≤.05, **p≤.01. Mean (SD) and *Cronbach's α* of scale measures on the diagonal.

.015, respectively) and Experiential Engagement (r = .22, p<.001; r = .17, p<.001, respectively) from the REI measure. The DERS was not associated with warm glow or donation but showed a negative correlation with decision satisfaction (r=-.21, p<.001), such that those with more difficultly with their emotional experiences were also less satisfied with their decision. The DERS subscales, not included in the table, were also correlated with the outcome variables. Subjects scoring higher in Non-acceptance of Emotional Experience was associated with a greater donation amount, r = .10, p = .012. Warm glow showed a small negative correlation with Awareness, such that subjects who reported greater difficulty in recognizing emotional states in themselves was associated with lower anticipated warm glow, r = -.09, p = .03.

Hypothesis Tests. Hypotheses tests were completed using stepwise multiple linear regression with planned orthogonal contrasts codes. Step 1 included the covariates Age, Gender (binary coded), and Education. Step 2 entered the contrast codes. Comparisons captured by planned contrasts are presented in Table 4 for each of dependent variables (warm glow, donation, donated or not, decision satisfaction).

Hypothesis 1 predicted a main effect of pseudoinefficacy such that it would depress outcome variables. This hypothesis was not supported by the data. Mean Warm glow, donation, and rate of donation showed no significant differences between the control (appeal-only) and experimental condition (WG β = -0.06, p = .11; Donation β = 0.06, p = .32, Rate of Donation $exp(\beta)$ = 0.90, $Wald$ = 1.46, p = .23). A significant difference was found for decision satisfaction (F(8, 586) = 32.95, p = .01, R^2=.03), but in the opposite direction as predicted: the condition containing the appeal video and pseudoinefficacy stimuli resulted in significantly greater reported donation decision satisfaction (M = 5.87,

SD = 1.21) than with the charity appeal video alone (*M* = 5.6, *SD* = 1.39), (β = -0.10, *p* = .01). Hypothesis 2a was also not supported, predicting a main effect benefit from the structure introspection over control. The guided introspection condition showed no significant difference in mean warm glow, donation amount, donation rate, or decision satisfaction when compared to deliberation (contrast 2: Warm glow β = -.05, *p* = .27; Donation β = -0.03, *p* = .47, Satisfaction β = -.04, *p* = .29, Rate of Donation *exp(β)* = 0.81, *Wald* = 1.95, *p* = .16) or control alone (contrasts 3; Warm glow β = -.03, *p* = .54; Donation β = 0.02, *p* = .64, Satisfaction β = 0.04, *p* = .79, Rate of Donation *exp*(*β)* = 1.04, *Wald* = 0.09, *p* = .77) or when these two conditions are combined (contrast 5; Warm glow β = -0.00, *p* = .94; Donation β = -0.04, *p* = .34, Satisfaction β = -.01, *p* = .76, Rate of Donation exp(*β)* = 0.91, *Wald* = 1.45, *p* = .23).

Table 4. Standardized Contrast Coefficients (SE) for Outcome Variables in Study 1

Contrast	Warm Glow	Donation	Decision Satisfaction	Donated or not†
1. Appeal only vs w/ Pseudoinefficacy	-0.059 (1.11)	-0.063 (1.40)	-0.104 (0.05)**	0.901 (0.12)
2. SI vs D	-0.046 (1.36)	-0.032 (1.71)	-0.039 (0.07)	0.831 (0.15)
3. SI vs C	-0.027 (1.37)	0.006 (1.72)	-0.01 (0.07)	1.046 (0.14)
4. SI & D vs C	0.004 (1.93)	-0.026 (0.99)	-0.01 (-0.01)	0.912 (0.08)
5. SI vs Others	0.042 (0.78)	-0.015 (0.99)	-0.029 (0.04)	0.954 (0.08)
6. SI_c vs SI_p	0.069 (1.94)	0.096 (2.46)*	0.091 (0.09)*	1.089 (0.20)
7. D vs C	-0.02 (1.36)	-0.039 (1.71)	-0.02 (1.36)	0.794 (0.15)
8. SI_p VS Others	0.027 (0.49)	0.063 (0.62)	0.053 (0.02)	0.998 (0.05)

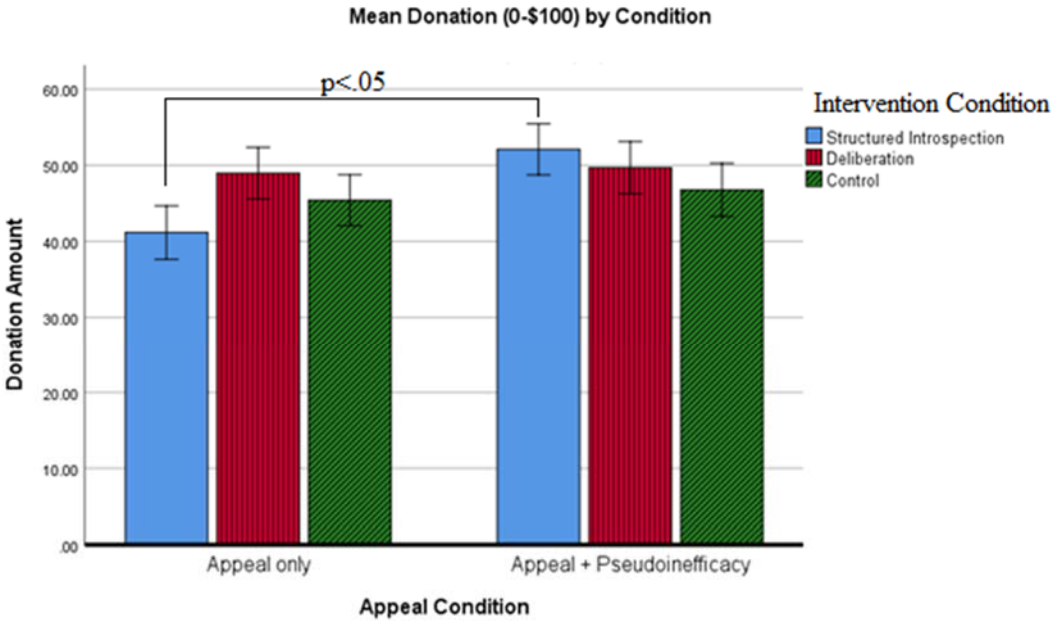
Note. SI= Structured Introspection, D=Deliberation, C= Control, SI_p=Structured Introspection (Pseudoinefficacy condition); *=p<.05, **=p≤.01; † Logistic regression, coefficients are expressed as odds ratio multiplier exp(β).

Hypothesis 2b, predicting an interaction between the intervention and pseudoinefficacy manipulations, was partially supported. The thinking task manipulation did interact with the pseudoinefficacy manipulation for donation amount but not in the predicted manner (See Figure 4). The effect of the structured introspection was moderated by the presence or absence of the pseudoinefficacy stimuli (contrast 6): when viewing the appeal alone and completing the introspection task (with no pseudoinefficacy information), participants donated significantly *less* of their potential lottery winnings (β = 0.10, t = 2.34, p = .02) and were less satisfied with their decision (β = 0.08, t = 2.05, p = .04) than when the information about the unaided children was present in the scenario and introspection task. This relationship was not observed for warm glow (β = 0.07, t = 1.68, p = .09) or rate of donation (exp(β) = 1.08, *Wald* = 0.14, p = .71).

A test of the deliberation condition compared to control revealed that Hypothesis 3a was not supported. The control and deliberation conditions did not significantly differ between warm glow, donation amount, rate of donation, or decision satisfaction (contrast 7; WG β = -0.02, t = -0.50, p = .62; Donation β = -0.05, t = -1.19, p = .23, Satisfaction β = -.03, t = -0.80, p = .43, Rate of Donation *exp(β)* = 0.78, *Wald* = 2.86, p = .09). Consequentially, exploratory Hypothesis 3b was not supported. There was no evidence that the deliberation condition differed or that this effect interacted with the pseudoinefficacy manipulation. Although no formal hypothesis was stated *a priori*, the SI and Deliberation conditions share a required extended thinking session that could differ from the control condition. However, there was no main effect found for the thinking conditions (SI and D) compared to control (contrast 4; Warm glow β = 0.00, t =

0.07, p = .94; Donation β = -.04, t = -0.95, p = .34, Satisfaction β = -.01, t = -0.30, p = .76, Rate of Donation exp(β) = 0.91, *Wald* = 1.45, p = .23).

Figure 4. Study 1 mean donations amount by condition



Note: Error bars represent -1/+1 SE

Exploratory Analysis. Several exploratory analyses were conducted in accordance with the predicted moderators of the pseudoinefficacy effect. The first set of analyses used multiple mediation models, testing a process model constructed from the cascading model of emotional intelligence. Three mediation models were run with PROCESS v3.3 by Andrew Hayes for SPSS Version 23, using 5000 bootstrapped samples. The process model dictates that emotional perception will affect outcome variables *through* emotional understanding and emotion regulation. This model was conducted for three outcome variables: warm glow, donation amounts, and rate of donation. The results from the models did not support the cascading model of emotion intelligence in charitable decision

making. The models explained little variance in the outcome variables (warm glow R^2=.01, donation R^2=.02, rate of donation Nagelkerke R^2=.02). The bootstrap confidence intervals indicated that the coefficient of the indirect effect of emotion perception through emotion understanding and emotion regulation was not significant for warm glow (β = -.06, SE=.08, 95% CI = -.22,.17), donation amount (β = -.19, SE = .10, 95% CI = -.39,.01), or rate of donation (β = -.01, SE = .01, 95% CI = -.03,.01). These path coefficients were also not moderated by the pseudoinefficacy manipulation.

The second planned exploratory analysis tested for moderation effects of three individual difference measures: the REI, the DERS, and ERT. Interaction terms were constructed for use in regression to test if the effect of the pseudoinefficacy manipulation was moderated by any of the three individual difference measures. Multiple regression was used with three control variables (Age, Gender, Education) and contrast codes testing the interaction. The results did not support a moderation hypothesis.

The pseudoinefficacy manipulation did not interact with the ERT for donation amount (β = 0.07, t = 0.57, p = .57), or rate of donation ($exp(\beta)$ =1.05, SE = .17, p = .76). A significant interaction term was found for the ERT with the pseudoinefficacy condition for warm glow (β = 0.25, t = 2.00, p = .046). However, a scatter plot of the interaction revealed the effect to be driven by a single outlier on the ERT measure, with a positive correlation between risk and benefit of 0.75 (the average correlation was -.74). Removing this outlier weakened the interaction term to well above p<.05 significance level (β = 0.01, t = 0.32, p = .75). The pseudoinefficacy manipulation did not interact with scores on the DERS for warm glow (β = 0.003, t = 0.02, p = .96), donation (β = 0.05, t = 0.93, p = .35), or rate of donation ($exp(\beta)$ =1.00, SE = .002, p = .07). Lastly, the REI emotional

ability and REI emotional engagement were tested as moderators of pseudoinefficacy. Experiential ability did not significantly interact with the pseudoinefficacy on the anticipated warm glow (β = 0.15, t = 0.83, p = .40), donation amount (β = -0.12, t = -0.67, p = .50), or rate of donation ($exp(\beta)$ =1.04, SE = .07, p = .59). Similarly Experiential Engagement was not a significant moderator of the manipulation for warm glow (β = 0.05, t = 0.25, p = .80), donation amount (β = 0.03, t = 0.14, p = .89), or rate of donation ($exp(\beta)$ =0.65, SE = 0.74, p = .29).

A final exploratory analysis was conducted to compare the predictive power of the individual difference measures on the outcome variables, controlling for demographics and reported frequency of donation behaviors outside of the survey. First, a baseline model was fit with the covariates Age, Gender, Education, and reported frequency of donation behaviors (never donate, occasionally, infrequently, regularly) predicting each of warm glow, donation amount, and rate of donation. Next, separate models were run (due to multicollinearity concerns) including the three individual difference measures in the second step (Table 5).

In model Step 2.1, the REI subscales were entered as predictors of warm glow. This model explained significantly more variance than the base model for warm glow, $F(8, 585) = 7.62$, $R^2 = .09$, $R^2\Delta = .04$, $p < .001$. Particularly, Experiential Engagement was a significant predictor of warm glow (β = .29, t = 4.00, p<.001), while the other subscales were not predictive of warm glow. This result suggests that people higher in a tendency to engage with emotional related aspects of their environment predicted greater reported anticipated warm glow from donating. Comparatively, the DERS subscales did not explain significantly more variance than the base model ($F(10,584) = 3.90$, $R^2 = .06$, $R^2\Delta$

=.008, p = .56) and none of the subscales were individually predictive of anticipated warm glow. The ERT scores predicted significantly more variance than the base model, $F(5,583) = 3.90$, $R^2 = .09$, $R^2\Delta = .036$, $p < .001$. There was a significant negative relationship between the ERT and warm glow such that the more negative a correlation between risk and benefit someone scores, the more anticipated warm glow they report from the prospect of the donation.

For donation amount, a similar pattern was discovered ($F(8,585) = 7.88$, $R^2 = .10$, $R^2\Delta = .03$, $p = .001$) with a greater tendency for experiential engagement predicting higher donation amount ($\beta = .21$, $t = 2.90$, $p = .004$). Adding the DERS subscales also explained significantly more variance in the donation amount model, ($F(10,584) = 6.37$, $R^2 = .10$, $R^2\Delta = .03$, $p = .003$). The Goals subscales relationship suggests that greater difficulty in engaging in goal directed behavior when experiencing emotions ("When I'm upset, I have difficulty focusing on other things.") predicts greater donation amounts, $\beta = 0.13$, $t = 2.33$, $p = .02$.The strategy subscale was negatively related to donation amount such that those who have more limited emotion regulation strategies donated less than those who were more skilled in emotion regulation, $\beta = -0.19$, $t = -2.46$, $p = .014$. Lastly, the DERS Non-Acceptance subscale was positively related to donations such that individuals who were less accepting of emotion experiences donated less than those who were more open to emotion experiences $\beta = 0.18$, $t = 3.55$, $p < .001$. Correlation scores from the ERT were similarly predictive of donations as they were with warm glow, $F(5,583) = 10.88$, $R^2 = .09$, $R^2\Delta = .02$, $p = .001$. Again, a negative association was found such that the more negative a correlation between risk and benefit, the greater amount donated, $\beta = -0.14$, $t = -3.39$, $p = .001$.

Logistic regression was used to model donation (0=did not donate, 1=donated). The omnibus test of the model found that adding the REI subscales predicted significantly more variance, χ^2 (1)=5.37, p = .02, Nagelkerke R^2 = .13. Again the Experiential Engagement was the only significant predictor such that a greater tendency to engagement in emotion within the environment predict a greater chance of donating, *exp(β)* = 1.95, *SE* = 0.28, p = .019. Similar to warm glow, the DERS subscales did not explain additional variance beyond the control measures, $\chi^2(1) = 8.65$, p = .19, Nagelkerke R^2 = .14. The subscale Non-Acceptance was mildly predictive of chance of donation such that individuals who were less accepting of emotion experiences donated less often than those who were more open to emotion experiences, *exp(β)* = 1.07, *SE* = 0.03, p = .03. The ERT again explained variance beyond the control measures, $\chi^2(1)=5.37$, p = .02, Nagelkerke R^2 = .13. Again, a negative association was found such that that the more negative a correlation between risk and benefit someone scores, the greater chance of donation, *exp(β)* = 0.29, *SE* = 0.51, p = .02.

Exploratory Analyses. Several moderating variables were tested in an effort to explain the significant differences in donations and decision satisfaction between the structured introspection conditions (contrast 6 in Table 4). The difference in donations between these two conditions was not moderated by scores on the ERT (β = 0.00, t = .01, p = .99), DERS (β = 0.02, t = 0.39, p = .83), REI-RA (β = -0.00, t = -.02, p = .99), REI-RE (β = -0.01, t = -.05, p = .96), REI-EA (β = -0.00, t = -.02, p = .98), or REI-EE (β = -.05, t = -.30, p = .77). Nor did these measures moderate the difference in decision satisfaction (ERT β = -0.09, t = -0.65, p = .52; DERS β = -0.02, t = -0.38, p = .71; REI-RA β = -0.25, t = -1.17, p = .24, REI-RE β = -0.23, t = -1.09, p = .28, REI-EA β = 0.15, t = 0.83, p =

.41; REI-EE $\beta = 0.19$, $t = 1.10$, $p = .27$). Psychological distance from the appeal was the only significant variable that moderated the difference in donations between these two conditions, on $\beta = 0.23$, $t = 2.16$, p = .03. This result suggests that when participants introspected about the video appeal only, this increased psychological distance from the scenario and decreased the amount donated, although this relationship did not explain the difference in decision satisfaction, $\beta = 0.06$, $t = 0.53$, $p = .60$.

Table 5. Linear Regression of Study 1 Outcome Variables on Individual Difference Measures

Step		Warm Glow	Donation	Donated or Not †
1	Gender (1=male, 2=female)	0.09*	0.05	0.96
	Education	-0.13**	-0.04	0.81*
	Age	-0.04	-0.14**	0.97**
	Donation Frequency	0.21***	0.27***	2.05***
	R^2	0.05	0.07	0.11
2.1	Rational Ability	0.04	-0.10	0.73
	Rational Engagement	-0.09	0.09	1.08
	Experiential Ability	-0.13	-0.09	0.69
	Experiential Engagement	0.29***	0.21**	1.95*
	R^2	0.09	0.10	0.15
2.2	DERS Goals	0.000	0.13*	1.06
	DERS Impulse	0.07	-0.07	0.97
	DERS Awareness	-0.07	0.01	1.00
	DERS Strategy	-0.10	-0.19*	0.95
	DERS Clarity	0.02	-0.04	1.00
	DERS Non-Acceptance	0.04	0.18***	1.07*
	R^2	0.063	0.10	0.14
2.3	ERT	-0.18***	-0.14***	0.29*
	R^2	0.087	0.09	0.13

Note. *=p<.05, **=p≤.01; † Logistic regression, coefficients are expressed as exp(β).

Further exploratory analyses were conducted to investigate the relationships between the individual difference measures and the stated reactions to the stimuli, and the self-rated motivational differences from the pseudoinefficacy information, Table 6

contains the Pearson correlations. Affective reactions to the video appeal were uncorrelated with individual differences measures (ERT r =0.00, p = .97; DERS r = -0.04, p = .28; REI- RA r = -0.02, p = .61; REI-RE r = -.08, p = .06; REI-EA r = 0.04, p = .69; REI-EE r = -0.03, p = .50). Rated affect toward the pseudoinefficacy picture was significantly related to the ERT (r = 0.16, p =.007) and the REI-EE subscale (r = -.12, p = .04) but was uncorrelated with the other measures (DERS r = -.09, p = .12; REI- RA r = 0.01, p = .92; REI-RE r = -.12, p = .05; REI-EA r = -0.05, p = .44). Within the pseudoinefficacy condition, the more participants rated the added information as influential on their decision, the higher scores exhibited on the REI-EA (r = 0.15, p =.008) and REI-EE (r = 0.20, p =.001). These two subscales were also related to degree to which people rated the information at motivating/demotivating (REI-EA r = 0.16, p =.005; REI-EE r = 0.24, p <.001) such that those who express greater experiential ability or experiential engagement also rated the pseudoinefficacy stimuli as more motivating. The ERT was also related to this question such that less reliance on affect as information (more negative individual correlation) was related to rating the pseudoinefficacy information as motivating (r = -.18, p =.002).

The relationship among the motivation influence variables and Experiential Ability and Experiential Engagement did not replicate among the whole sample when asked about how generally “drop in the bucket thinking” might influence their choice (r = -.01, p =.91, r = 0.02, p =.62, respectively). This more general measure was instead only related to the DERS (r = 0.11, p =.007) such that greater reported difficulty in emotion regulation predicted more self-rated influence on prosocial action. In regard to motivation, again higher scores Experiential Ability and Experiential Engagement were

Table 6. Pearson Correlations between Individual Differences and Motivations

	1.	2. [a]	3. [a]	4.	5.	6.	7. [a]	8.	9.	10.	12.	13.	14.
1. Warm glow	-												
2. Pseudo-Influence	0.45**	-											
3. Pseudo-motivate	0.41**	.51**	-										
4. Gen Pseudo-Influence	0.11**	0.14*	0.12*	-									
5. Gen Pseudo-Motivate	0.25**	0.27**	0.35**	-.09*	-								
6. Affect-Video	-0.04	0.01	0.02	-0.03	0.04	-							
7. Affect-Pseudo Picture	-.18**	-0.10	-0.07	-0.03	-0.04	0.73**	-						
8. DERS	-0.02	0.02	0.04	0.11**	-0.04	-0.04	-0.09	-					
9. ERT	-.23**	-0.05	-0.18**	-0.04	-0.09*	-0.00	.16**	.16**	-				
10. REI- RA	-0.04	-0.09	-0.05	-0.06	-0.04	-0.02	0.01	-.50**	-.10*	-			
12. REI- RE	-0.06	-0.04	-0.06	-0.04	-0.04	-0.08	-0.11	-.33**	-.10*	.73**	-		
13. REI- EA	.14**	.15**	0.16**	-0.01	.14**	0.04	-0.05	-.19**	-.16**	.13**	0.074	-	
14. REI- EE	.22**	.20**	0.24**	0.020	.15**	-0.03	-.12*	-0.05	-.18**	-0.06	0.00	.89**	-

Note: *p≤.05, **p≤.01. Most correlations have sample size N=604, [a]n=301 for pseudoinefficacy condition.

related to greater motivation from "drop in the bucket" thinking (r = .14, p <.001, r = 0.15, p <.001, respectively). The ERT was slightly related to rated motivation, in the direction that *more* reliance on affect as information predicted more motivation (r = -.09, p =.03).

Discussion

This study sought to replicate previous research on the pseudoinefficacy effect in a one-shot charitable decision. In addition, structured introspection was tested as an experimental intervention for the influence of negative affect and perceived inefficacy in charitable contexts. Overall, the hypotheses were not supported. No main effect was observed from the pseudoinefficacy manipulation on the outcome variables. Post-hoc analysis did not reveal any significant moderators of the effect. It is possible the pseudoinefficacy information was overshadowed by the negative frame of the video appeal. The picture of the children who were unable to receive aid was rated more neutral (less negatively) than the video appeal.

The hypothesis tests for the introspection condition comparisons revealed small differences in donation amounts and decision satisfaction, but not for warm glow or rate of donation. The differences observed suggested that the effect of the structured introspection was moderated by the presence of the pseudoinefficacy information. This interaction was best explained by differences in psychological distance from the appeal. When the video was shown by itself and participants were instructed to only reflect on the context of the appeal and the benefit to the recipient, participants distanced themselves from the message of the appeal and donated less money.

Conversely, when participants also introspected about the children who were unable to receive aid, no such distancing was observed and donations were slightly above the control. A closer look at open-ended question for participants to detail the thoughts that they experienced during the task revealed that introspecting on the video appeal alone caused participants to feel manipulated and the participants expressed distrust with the charity. This finding has important implications for future test of introspective tasks. The content and type of the factors that subjects are asked to introspect about can be invoke resistance to the task or the message conveyed. No individual difference measure could help explain this finding.

The exploratory regressions with the individual difference measures revealed that the REI, DERS, and new ERT measures were related to feelings surrounding charitable action and donation behavior. Several regressions investigated the influence of the individual difference variables on the outcome variables warm glow, donation amount, and rate of donation. Outcome variables were best predicted by the REI subscale Experiential Engagement, or willingness to engage in affective experiences predicts increased prosocial behaviors. Interestingly, the ERT was also predictive of these three outcome variables. This finding suggests that these individual differences measures are capturing variance from a shared psychological phenomenon related to the degree to which affective stimuli are processed within a decision context. This is supported by the correlations with the influence and motivation questions in Table 6. The ERT may provide a measure of one's naturally tendency to rely on affect as information. Future research will be needed to tease apart how the human affective systems interact with attention for determining the relevancy of emotional stimuli to prosocial decisions.

CHAPTER V

INTROSPECTION INTERVENTION IN BLOOD DONATIONS

Rationale and Hypotheses. Research in blood donation has found that perceived self-efficacy is a significant and robust predictor of willingness and intentions to donate blood, such that people who do not donate indicate that they are not confident in their ability to complete the donation (Giles, McClenahan, Cairns, & Mallet, 2004). Several studies have found that self-efficacy is negatively associated with a fear of needles or an irrational fear of becoming sick from donating. Another study found that the most reported factor for the avoidance of blood donation is simple laziness. While laziness is a possible explanation, it is also possible that it is a constructed response to explain a pattern of diminished self-efficacy from internal negative affect regarding blood donation. In other words, when asked, people aren't consciously aware of the influence of negative affect on self-efficacy, the easiest explanation for not being a donor is that they simply "haven't gotten around to it."

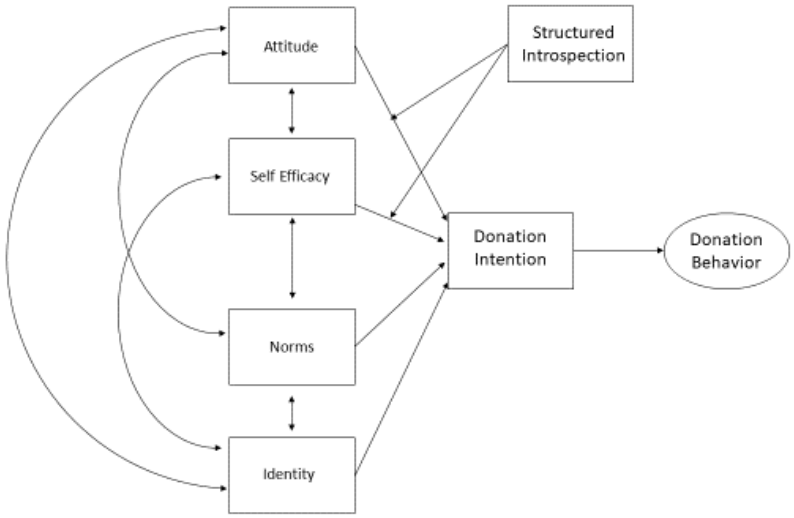
Much current literature on blood donation neglected to study affect toward blood donation as an influential force on willingness and intentions to donate. Blood donation has inherent negative physical experiences for the self that are readily available in people's mind when considering to donate (i.e. needle poke, fatigue), not to mention the negative connotation of harm that blood possess. However, what is not often easily accessible in these decisions are the life-saving benefits to a specific recipient and the low risk of physical complication (studies report objective risk during blood donation to be somewhere between .01%-.0.8% ;Crocco & D'Elia, 2007; Sorensen, Johnsen, & Jorgensen, 2008).

An open question in the literature is whether feelings and behaviors toward blood donation exhibit the same biases as in the monetary donation literature. The process that is predicted to drive diminished self-efficacy in blood donations is that negative affect dampens anticipated warm glow, and consequentially diminishes the perceived efficacy of the donation. Similar to the "unhelped child" in study 1, the negative affect from visualizing blood donations and attending to the overall need for blood donation blends with positive emotions from the perceived good from donating and thus demotivates intentions to donate. If negative affect from the blood donation processes is dampening the anticipated positive emotion benefits from donating, this could result in the perception of inefficacy. In addition, the current study again explores the introspection intervention that shares the design of Study 1. An introspective task may allow people to perceive the source of their negative affect, and adjust their feelings toward donating.

Actual blood donations can be difficult to document—especially in a single-session experiment—due to the lack of availability of operating donation centers or blood drives. This study will consist of two-parts to allow time for participants to complete a donation. Additionally, blood donation can take a significant amount of planning and time to accomplish. Thus, the Theory of Planned Behavior will be used as a model to capture shifts in intentions and attitudes toward blood donation, as base rates of donation behavior will likely be low. Figure 5 describes the proposed structural model, drawing on the Theory of Planned Behavior. The Theory of Planned Behavior (TPB) framework (Ajzen, 2002; Armitage & Conner, 2001) uses a multiple mediation model for behavioral change including the exogenous variables of attitude evaluation, perceptions of social pressure and of norms, self-efficacy, and identity. These factors directly influence

intentions and indirectly donation behavior. Note that the model proposes that each of these factors can influence intentions independently. The introspection manipulation will influence the path starting from Attitudes to Perceived Efficacy, thus indirectly influencing donation behavior. Introspecting on the factors that influence choice will cause more people to consciously observe the source of their negative affect, and consequentially will have more positive feelings toward blood donation and greater perceived efficacy toward donating. While Subjective Norms and Identity of blood donation will be measured in this study, there are no specific predictions on how the introspection might influence the paths between norms and the other variables.

Figure 5. Proposed TPB model for blood donation



This study will screen on the basis of blood donor status (not qualified, regular donor, infrequent or one-time donor, or non-donor). Regular donors and non-qualifying donors would not benefit from an intervention to increase donor response. Infrequent, one-time, or non-donors will be invited to complete an online survey. This study again manipulated the scope of the issue by providing a pseudoinefficacy information section

for half of the participants. Again, the introspection manipulation is utilized to investigate potential benefits for blood donors in introspecting on the factors related to blood donation.

Method

Participants. Four hundred and fourteen participants were recruited from Prolific Academic for a two-part online survey. Participants were screened on residency (U.S. only) and age (18+).

Design. The study was advertised as a two-part (10 minutes for part 1, 5 minutes for part 2) online survey. Participants were paid $2 for completing the first survey and $1 for the second. Because a blood donation motivation intervention would not be applicable to regular donors or people who are known to be ineligible, participants were also screened on donor status. Participants who identified themselves as having "never attempted to donate blood or plasma before," "donated blood or plasma once," or "have donated several times but not regularly," were invited to participate in the first survey. Thirty additional participants from the sample reported in the survey comments that medical complications prevented them from donating blood and were excluded from the second survey invitation and further analysis. This resulted in 384 participants for survey 1 (43.5% identified as female, 70.2% Caucasian, M_{age}= 32.82). After digitally signing a consent document, participants rated their feelings toward donating blood themselves, on a 21-point scale from "Very Negative -10" to "Very Positive +10". Next, participants were presented with a short story and a picture about a child recipient of blood donation who is dependent on regular blood transfusions. Participants were randomly assigned to the pseudoinefficacy condition (n= 185) or control (n=199). In the pseudoinefficacy

condition, participants were given an additional picture of someone donating blood (see Appendix 2) and 3 bullet-point facts regarding the need for blood donation, “4.5 million Americans will a need blood transfusion each year”, “43,000 pints: amount of donated blood used each day in the U.S. and Canada.”, and “Someone needs blood every two seconds.” This text was placed just below the picture. The control condition saw only the picture and narrative concerning the child recipient.

Participants were then randomized into one of three intervention conditions: structured introspection, deliberation, or a control condition. In the structured introspection condition, participants were asked to “think more deeply about the factors that might influence your feelings toward donating blood.” Participants then rated two factors (three in the pseudoinefficacy condition) on how much they thought each factor should influence their feelings toward donating blood next week, on a 5-point scale of “not at all” to “extremely”. The factors rated included “Physical discomfort associated with the act of donating blood”, “The physical benefit to the recipient of the donation”, and (for the pseudoinefficacy condition) “The facts provided about blood donation need”. In the deliberation condition, participants were also asked. “Before continuing, we would like you to think more deeply about the factors that might influence your feelings toward donating blood” and were given 30 seconds to think. The urvey locked and progressed automatically after 30 seconds. In the control condition, participants simply continued on to the next section. Participants next completed ratings of warm glow, affective ratings surrounding the scenario and donation, ratings according to the Theory of Planned Behavior, and lastly a demographic questionnaire.

Materials. A copy of the materials for study 2 can be found in Appendix B. Participants rated warm glow in a similar two-step fashion as in study 1: After reading a definition of warm glow, participants rated how much warm glow they might experience on a 0-100 scale if they went to a blood drive and donated blood. Five responses were provided in the first step (0-20 low or no warm glow, 21-40, 41-60, 61-80, 81-100 high to extreme warm glow). Participants were then asked to further specify their warm glow between the range they picked (e.g. specify a number between 21and 40).

To alleviate concerns of experimenter demand effects, participants were instructed, "Now we would like you to consider the possibility of donating blood yourself in the next week while answering the following questions. Again, we will not be asking or requiring you to commit to a blood donation. There are no right or wrong answers in this section, we are only interested in your opinion and beliefs."

Next participants completed the TPB measures, presented in a random order. The measure included sections on Attitude, Subject Norms, Control Behaviors, Self-efficacy, Perceived Behavioral Control, Identity, and Donation Intentions. All sections used 7-point bi-polar scales. Each section was averaged by totaling the responses and dividing by the number of items. Attitudes toward blood donation consisted of a 5-item measure with the instructions "Please rate how you feel about donating blood this week on the following dimensions". The dimensions included Unpleasant/Pleasant, Unsatisfying/Satisfying, Bad/Good, Harmful/Beneficial, and Repulsive/Attractive. Subjective Norms was evaluated with 6 questions. In the first question, participants rated agreement with the statement, "Most people who are important to me think I should give blood this week". Participants then rated the likelihood that various members of their

social group (friends, family, peers, etc.) would think that "you should donate blood next week". Self-efficacy beliefs were rated with four-items, "How confident are you that you will be able to give blood this week?", "If it were entirely up to me, I am confident that I would be able to give blood this week", "I believe I have the ability to give blood this week", and "To what extent do you see yourself as capable of giving blood this week". Perceived Behavioral Control was also measured with four-items, "My giving blood this week is likely to be influenced by factors beyond my control", "How much personal control do you feel you have over giving blood this week", "It is mostly up to me whether or not I give blood this week", and "How much do you feel that giving blood this week is beyond your control?". Identity as a blood donor was assessed with three items, "To give blood is an important part of who I am", "I would describe myself as an advocate for blood donation", "Giving blood is important to maintain a good self-image of myself". Donation intention was measured with 3 items, "I intend to give blood this week", I will try to give blood this week", and "I have decided to give blood this week". Control behaviors were evaluated by responding to how likely 9 possible donation events (e.g. "a previous experience", "fear of needles") would influence their giving of blood next week.

After the TPB measures, participants rated their affect (21-point negative/positive scale) toward the pictures in the scenario, and lastly completed a demographic questionnaire. Five days later, participants were contacted with an invitation to the second survey and were given three days to respond. Three-hundred and twenty-eight completed the second survey (14.5% attrition) and were retained for further analysis. A comparison between the drop out participants and those that completed both waves did not reveal any significant difference in overall affect toward blood donation at time 1

(drop-outs *M*=3.99, *SD* = 5.34; completed both *M* = 3.61, *SD* = 5.59), age (drop-outs *M* = 31.82, *SD* = 10.99; completed both *M* = 33.00, *SD* =12.48), or other demographic variables. The second survey first asked participants about their behaviors related to blood donation since the first survey. They selected one of the following options, "I did not think about nor did I make an attempt to donate blood or plasma", "I thought about donating blood or plasma but did not attempt any behaviors toward completing the donation", "I completed steps toward donating blood or plasma (looking up blood center, got more information, talk to others, etc.) but did not attempt to complete donation. (Describe behavior)", "I donated blood or plasma since the last survey or am scheduled to do so in the near future", and "I attempted to donate since the last survey but did not complete donation (state reason)". Then participants completed the overall affect rating the TPB measure once again, with the text frames altered to donating blood "in the future" instead of "next week".

Results

Descriptive and Preliminary Analyses. Table 7 displays the means and standard deviations of the outcome and TPB variables, split by condition and totaled. The grey rows can be used to compare the appeal conditions (single child or single child with pseudoinefficacy information) with each other and the grand mean. Intervention conditions can be compared with each other and the grand mean in the last 4 rows of the table. There were some notable and unexpected differences among the variables between conditions and across the two waves. Outcome variables differed little by appeal condition.

Table 7. Study 2 Mean Warm Glow and TPB measures by Condition

		Warm Glow	Attitude		Norms		Self-efficacy		PCB		Identity		Donation Intention	
Condition		*T1*	*T1*	*T2*	*T1*	*T2*	*T1*	*T2*	*T1*	*T2*	*T1*	*T2*	*T1*	*T2*
Single child	SI	66.07 (27.13)	3.93 (1.33)	4.67 (1.33)	3.3 (1.63)	3.68 (1.44)	3.67 (1.46)	4.55 (1.32)	5.08 (1.72)	5.04 (1.46)	3.1 (1.45)	3.1 (1.51)	2.08 (1.56)	4.28 (1.87)
	D	70.88 (23.58)	3.87 (1.24)	4.84 (1.07)	3.27 (1.49)	3.99 (1.53)	3.25 (1.29)	4.27 (1.37)	4.67 (1.75)	5.14 (1.36)	3.17 (1.42)	2.92 (1.54)	2.29 (1.37)	3.99 (1.96)
	C	65.81 (23.71)	3.82 (1.38)	4.77 (1.34)	3.67 (1.46)	4.12 (1.56)	3.42 (1.33)	4.55 (1.37)	4.71 (1.7)	4.93 (1.39)	3.49 (1.5)	3.43 (1.37)	2.77 (1.84)	4.73 (1.84)
	Total	67.38 (24.86)	3.87 (1.31)	4.75 (1.26)	3.42 (1.53)	3.93 (1.52)	3.46 (1.37)	4.47 (1.35)	4.83 (1.72)	5.03 (1.4)	3.26 (1.46)	3.17 (1.48)	2.39 (1.63)	4.36 (1.9)
Single + Pseudo-inefficacy	SI	71.72 (21.2)	4.01 (1.29)	5.13 (1.12)	3.91 (1.38)	4.23 (1.22)	3.84 (1.31)	4.28 (1.14)	4.59 (1.68)	4.56 (1.38)	3.44 (1.25)	3.59 (1.3)	3.02 (1.51)	4.8 (1.65)
	D	60.77 (27.67)	3.66 (1.39)	4.39 (1.57)	3.64 (1.66)	4.03 (1.53)	3.55 (1.49)	4.18 (1.61)	4.74 (1.67)	5.1 (1.46)	3.05 (1.58)	3.14 (1.46)	2.21 (1.57)	4.14 (2.09)
	C	64.98 (22.23)	3.95 (1.32)	4.68 (1.45)	3.69 (1.8)	4.3 (1.5)	3.29 (1.54)	4.46 (1.25)	4.41 (1.86)	4.85 (1.5)	3.18 (1.52)	3.46 (1.67)	2.31 (1.66)	4.38 (1.8)
	Total	65.06 (24.69)	3.84 (1.34)	4.68 (1.44)	3.73 (1.63)	4.16 (1.44)	3.55 (1.47)	4.29 (1.38)	4.6 (1.73)	4.88 (1.46)	3.2 (1.48)	3.36 (1.49)	2.46 (1.61)	4.39 (1.9)
Total	SI	68.45 (24.85)	3.96 (1.3)	4.86 (1.26)	3.56 (1.55)	3.91 (1.37)	3.75 (1.4)	4.43 (1.25)	4.88 (1.71)	4.84 (1.44)	3.24 (1.37)	3.3 (1.44)	2.48 (1.6)	4.5 (1.79)
	D	65.13 (26.36)	3.75 (1.33)	4.58 (1.39)	3.48 (1.59)	4.01 (1.52)	3.42 (1.41)	4.22 (1.5)	4.71 (1.7)	5.12 (1.41)	3.1 (1.5)	3.05 (1.49)	2.25 (1.48)	4.08 (2.03)
	C	65.45 (22.98)	3.87 (1.35)	4.73 (1.38)	3.68 (1.61)	4.2 (1.53)	3.36 (1.42)	4.51 (1.31)	4.58 (1.77)	4.9 (1.43)	3.35 (1.51)	3.44 (1.5)	2.57 (1.77)	4.58 (1.82)
	Total	66.27 (24.77)	3.86 (1.33)	4.72 (1.35)	3.57 (1.58)	4.04 (1.48)	3.5 (1.41)	4.38 (1.37)	4.72 (1.73)	4.96 (1.43)	3.23 (1.47)	3.26 (1.48)	2.43 (1.62)	4.38 (1.89)

Collapsing across the pseudoinefficacy manipulation, the structured introspection condition resulted in slightly greater warm glow (*M*=68.45, *SD=24.36*), attitude toward donating blood (*M*=3.96, *SD=1.3*), and self-efficacy (*M*=3.75, *SD=1.40*), compared to the other two conditions. For donation intentions, the structured introspection condition with pseudoinefficacy showed the highest mean (*M*=3.02), *SD=1.51*). This result is explored later in the inference tests.

Table 8. Blood donation behavior at time 2

Condition		No action or thought	Thought about BD	Completed steps toward BD	Attempted or Completed BD	*n*
Single child	SI	64.4%	23.7%	5.1%	6.8%	59
	D	50.0%	42.0%	4.0%	4.0%	50
	C	48.4%	37.1%	4.8%	9.7%	62
	Total	54.4%	33.9%	4.7%	7.0%	171
Single + Pseudo	SI	51.2%	30.2%	11.6%	7.0%	43
	D	57.6%	34.8%	4.5%	3.0%	66
	C	50.0%	39.6%	2.1%	8.3%	48
	Total	53.5%	35.0%	5.7%	5.7%	157
Total	SI	58.8%	26.5%	7.8%	6.9%	102
	D	54.3%	37.9%	4.3%	3.4%	116
	C	49.1%	38.2%	3.6%	9.1%	110
	Total	54.0%	34.5%	5.2%	6.4%	328

Table 8 displays the percent of participants who participated in the range of blood donation behaviors. Blood donation attempts and completed blood donations were collapsed into a single category. Percent for rows are split between the experimental conditions. The rate of attempted or completed donation rates was low (6.4% across all conditions).

A little over half (54%) of the participants reported no action or thought beyond the first survey, while about a third (34.5%) participated in some additional thought about blood donation.

The remaining amount (5.2%) completed some steps toward completing a donation, such as researching a donation center. Interestingly, the structured introspection with pseudoinefficacy information showed a small boost in this category (11.6%) compared to the deliberation (4.5%) and control (2.1%) conditions, although this difference was not statistically significant χ^2 (6) = 6.33, p=.387.

Table 9 contains the Pearson correlations between the outcome variables and TPB measures for each time point. The single item overall affect ratings toward donating were highly correlated between time points (r=.82, p<.001), and with the attitudes measure (r=.64, p<.001). Thus the attitudes measure was used in further analysis as a measure containing affective responses, in order to maintain coherence to the TPB model. The range of donation behaviors were strongly correlated with intentions to donate at time 1 (r=.56, p<.001) and time 2 (r=.45, p<.001). Anticipated warm glow from donating was moderately correlated with self-efficacy at time 1 (r=.21, p<.001) and donation intentions (r=.29, p<.001) but had a smaller correlation with donation behaviors, r=.18, p=.001.

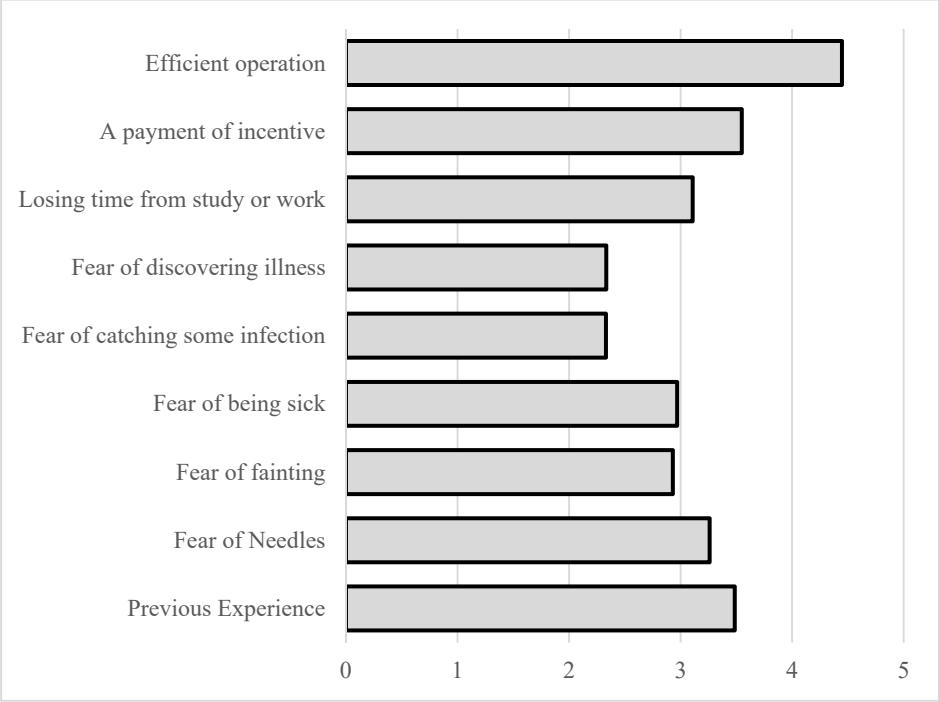
Figure 6 shows the mean self-ratings for factors in blood donation influencing their decision to donate. An efficient operation was the highest rated factor (M = 4.45, SD = 2.16), indicating worries about complications during the donation process or time concerns prevent many from attempting donation.

Table 9. Correlation Matrix with Outcome Variables and TPB measures.

Variable			1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
Overall affect	1.	T1	-														
	2.	T2	.82**	-													
Warm glow	3.	T1	.40**	.43**	-												
Attitude	4.	T1	.64**	.60**	.41**	*0.84*											
	5.	T2	.72**	.81**	.43**	.67**	*0.87*										
Norms	6.	T1	.24**	.33**	.35**	.38**	.41**	*0.92*									
	7.	T2	.29**	.38**	.33**	.40**	.40**	.67**	*0.90*								
Self-efficacy	8.	T1	.33**	.33**	.21**	.35**	.35**	.26**	.20**	*0.63*							
	9.	T2	.40**	.48**	.23**	.35**	.43**	.20**	.21**	.44**	*0.66*						
PCB	10.	T1	-0.16	-0.14	-0.04	-0.11	-0.15	0.00	-0.10	.19**	.11*	*0.88*					
	11.	T2	-0.07	-0.09	-0.02	-0.07	-0.10	-0.11	-0.08	.12*	.17**	.52**	*0.86*				
Identity	12.	T1	.44**	.49**	.38**	.48**	.47**	.48**	.47**	.26**	.24**	-0.09	-0.06	*0.75*			
	13.	T2	.42**	.52**	.29**	.40**	.51**	.47**	.55**	.28**	.28**	-0.10	-0.09	.76**	*0.79*		
Donation intention	14.	T1	.40**	.47**	.29**	.45**	.49**	.46**	.38**	.41**	.24**	0.05	-0.02	.60**	.55**	*0.94*	
	15.	T2	.65**	.74**	.38**	.56**	.66**	.44**	.53**	.34**	.50**	-0.09	-0.02	.54**	.65**	.55**	*0.96*
Donation behavior	16.	T2	.35**	.41**	.18**	.29**	.36**	.24**	.22**	.24**	.21**	-0.10	-0.08	.36**	.41**	.56**	.45**

Note. Cronbach's Alpha on the diagonal in *italics* for TPB measures; *=p≤.05, **=p≤.01

Figure 6. Mean self-rating of influence of control behaviors



Hypothesis tests. Hypotheses tests were completed using stepwise multiple linear regression with planned orthogonal contrasts codes. Step 1 included the covariates Age, Gender (binary coded: 1=male, 2=female), and Education). Step 2 entered the contrast codes. Coefficients for the planned contrasts are presented in Table 10 for each of dependent variables (Warm glow, Self-efficacy, Attitude, and donation intentions). The difference scores for the TPB measures were calculated by subtracting time 2 from time 1. These scores were regressed on the covariates and contrast codes.

Hypothesis 1, predicting a main effect of pseudoinefficacy, was not supported. Warm glow (, Self-efficacy, Attitude, and donation intentions showed no significant differences between the control (single child appeal) and experimental condition (appeal with pseudoinefficacy stimuli). Hypothesis 2a, predicting a main effect of SI, was partially supported. The structured introspection condition showed no significant difference in mean warm glow, attitude, or donation intentions compared to deliberation

or control. A significant difference in Self-efficacy was observed comparing the SI to control condition such that the SI condition resulted in significantly higher ratings of self-efficacy at time 1 ($\beta = .11$, $p = .05$) than the control condition. This difference was also statistically significant comparing the SI condition to the other two conditions combined ($\beta = .12$, $p = .03$). Hypothesis 2b predicted an interaction between the intervention and pseudoinefficacy manipulations. The intervention manipulation did interact with the pseudoinefficacy manipulation but not in the predicted manner (See Figure 7).

The effect of the structured introspection was moderated by the presence or absence of the pseudoinefficacy stimuli (contrast 6) for only donation intentions: when viewing the appeal child appeal alone and then completing the introspection task (with no pseudoinefficacy information), participants reported significantly *less* intention to donate ($\beta = 0.10$, $p = .02$) than control. Conversely, including the pseudoinefficacy stimuli resulted in intentions to donate slightly above those reported in the control. Hypothesis 3 tested the effect of deliberation and was not supported. The control and deliberation conditions did not significantly differ between warm glow, donation amount, rate of donation, or decision satisfaction (contrast 7).

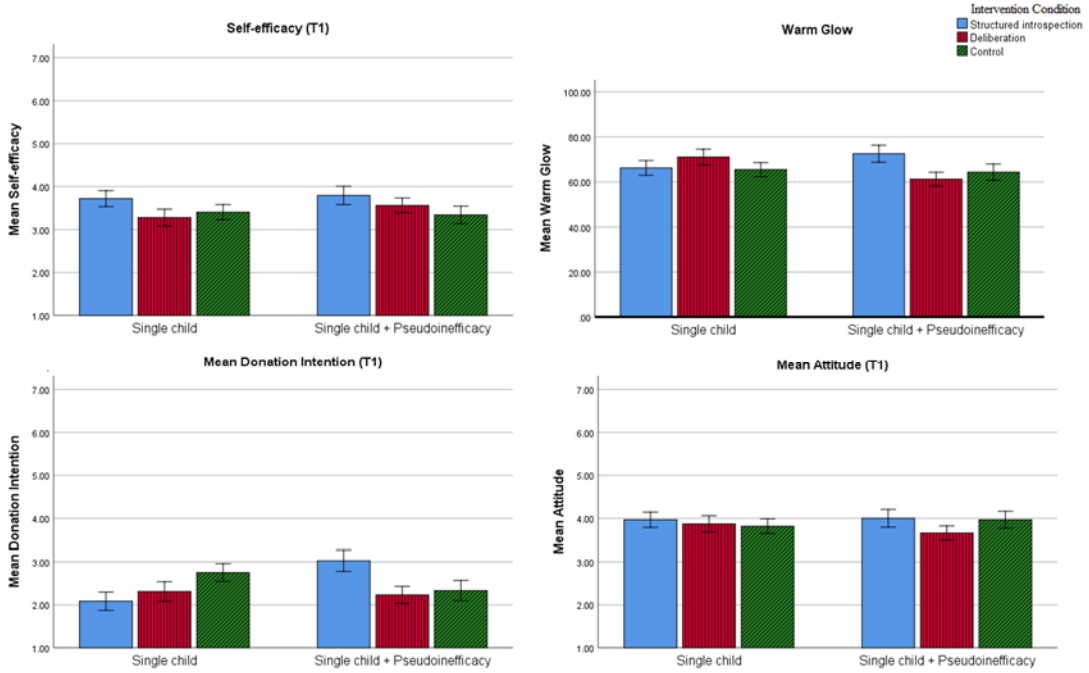
Consequentially, exploratory Hypothesis 3b was not supported. There was no evidence that the deliberation condition differed from the other two conditions or that this effect interacted with the pseudoinefficacy manipulation. Lastly, there was no main effect found for the outcome variables comparing thinking conditions (SI and D) to control (contrast 4).

Table 10. Contrast coefficients (SD) for Outcome Variables in Study 2

	Warm Glow	Self-efficacy		Attitude		Donation Intention	
Contrast		T1	Δ	T1	Δ	T1	Δ
1. Single child vs w/ Pseudoinefficacy	0.02 (1.39)	-0.04 (0.08)	0.03 (0.11)	-0.01 (0.08)	-0.01 (0.07)	-0.05 (0.09)	0.01 (0.10)
2. SI vs D	0.06 (1.70)	0.10 (0.10)	-0.07 (0.14)	0.70 (0.09)	0.01 (0.09)	0.07 (0.16)	0.04 (0.12)
3. SI vs Control	0.07 (1.74)	0.11 (0.10)*	-0.02 (0.14)	-0.01 (0.07)	-0.01 (0.09)	0.00 (0.11)	0.00 (0.12)
4. SI & D vs Control	-0.02 (0.97)	-0.08 (0.06)	-0.02 (0.08)	0.01 (0.05)	0.02 (0.05)	0.04 (0.06)	0.02 (0.07)
5. SI vs Others	0.07 (1.00)	0.12 (0.06)*	-0.05 (0.08)	0.06 (0.05)	-0.00 (0.05)	0.04 (0.06)	0.03 (0.07)
6. SI_c vs SI_p	0.07 (2.52)	0.02 (0.14)	0.04 (0.20)	0.01 (0.14)	0.06 (0.13)	0.16 (0.17)**	-0.07 (0.17)
7. D vs Control	-0.02 (1.7)	-0.01 (0.09)	-0.06 (0.13)	0.04 (0.09)	0.02 (0.09)	0.07 (.011)	0.04 (0.12)
8. SI_p VS Others	0.10 (0.68)	0.08 (0.04)	-0.00 (0.06)	0.04 (0.04)	0.04 (0.04)	0.14 (0.04)**	-0.04 (0.05)

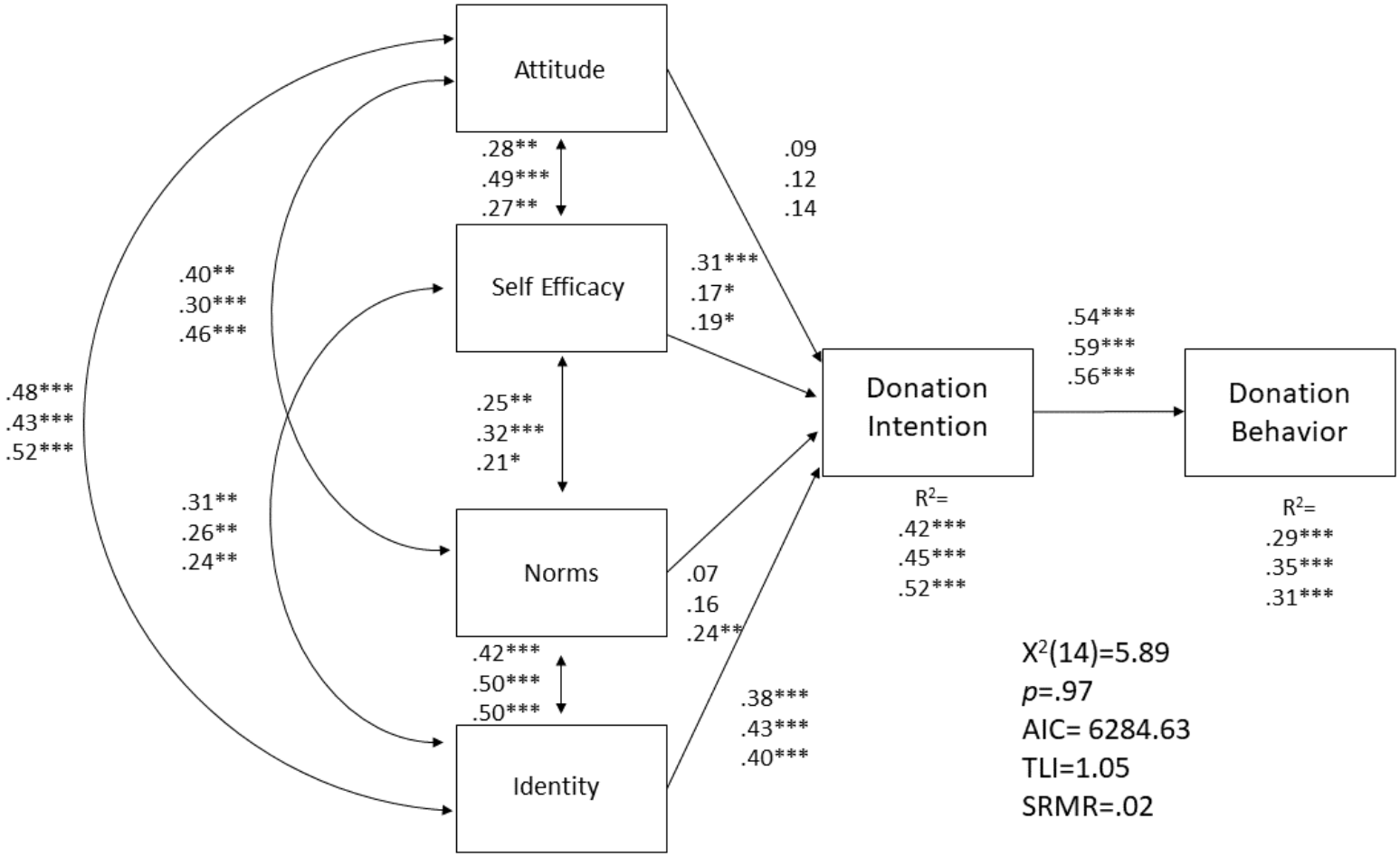
Note. SI= Structured Introspection, D=Deliberation, SI_p=Structured Introspection (Pseudoinefficacy condition), SI_c=Structured Introspection (control condition); Δ= difference score T2-T1;*=p≤.05, **=p≤.01.

Figure 7. Mean warm glow, self-efficacy, attitude, and donation intention by condition



Exploratory analysis. Data were analyzed using path analysis in Mplus version 6.12. The model was specified according to the Theory of Planned Behavior: donation behavior is predicted solely by donation intentions. Intentions are driven by 4 factors: Attitude toward blood donation, perceived Self-efficacy, perceived Norms, and Identity. These exogenous variables were allowed to covary with one another within the model. Skew in the donation and intent behaviors toward no action and low intent resulted in concerns about about non-normality. Thus, the model was fit with maximum likelihood parameter estimates with standard errors and Satorra-Bentler chi-square (MLM) with robustness against non-normality. The overall model produced good a fit $\chi^2(4) = 1.95$, p=.74, TLI =1.02, SRMR = .01. The model explained 46% of the variance (R^2) in donation behaviors while explaining 32% of the variance in donation intentions. The model was then split by the introspection manipulation (see Figure 8), $\chi^2(14) = 5.90$, p=.97, TLI =1.05, SRMR = .02. Splitting by this condition variable revealed marked differences in the paths from

Figure 8. TPB path analysis by introspection condition



Note: Top coefficient = Structure Introspection, middle = deliberation, bottom = Control. *=$p \leq .05$, **=$p \leq .01$, ***=$p \leq .001$

Self-efficacy to Donation intentions and the covariance from Attitude with Self-efficacy. Constraining these paths to be equal across conditions produce significantly poorer fit, indicating a significant difference between the conditions, Satorra-Bentler Scaled Chi-square $\chi^2(5) = 15.10$, p=.01. More specifically, the SI condition had a significantly stronger path between Self-efficacy and intentions ($\beta = .31$, $p < .001$) compared to the Deliberation condition ($\beta = .12$, $p = .08$) or Control ($\beta = .14$, $p = .04$). The covariance from Attitudes and Self-efficacy was stronger in the Deliberation condition ($\beta = .49$, $p < .001$) compared to the SI ($\beta = .28$, $p = .01$) or the Control ($\beta = .27$, $p = .04$).

Discussion

Study 2 sought to explore identical psychological phenomenon as study 1 but within an understudied context of prosocial behavior: blood donation. The pseudoinefficacy manipulation that visually displayed a negative aspect of blood donation (the procedure itself) and highlighted the need for blood donations did not produce a main effect across multiple outcome variables. Additionally an introspection task was again used as an intervention to mitigate experiences of negative affect in a prosocial decision context. This manipulation produced a significant boost in self-efficacy for blood donation in the structured introspection, compared to the deliberation or control conditions. Results from a path analysis revealed that the structured introspection strengthened the relationship between self-efficacy and donation intentions, indirectly affecting donation behaviors. Conversely, deliberation caused a stronger path between attitudes and self-efficacy, while in the control condition Norms and Identity were the strongest predictors of donation intention. This suggests than an unguided thought process may cause people to dwell on their emotions, which can decrease

efficacy when valence of the emotion is negative.The structured introspection, meanwhile is thought to have encouraged a meta-analytic perspective by forcing people to evaluate the factors of a decision space, providing a boost in self-efficacy. While both versions of the introspection condition saw a boost in self-efficacy, the condition with the pseudoinefficacy information included saw a greater increase in donation intentions, even compared to all other conditions. Introspecting about the larger need and those at risk (in tandem with personal feelings and the benefits to recipient), caused the greatest benefit to donation intentions. These findings also lend support to the Theory of Planned Behavior in blood donations.

CHAPTER V

GENERAL DISCUSSION

Summary of Studies. The studies in this dissertation were designed to examine the phenomenon of pseudoinefficacy and to test a novel introspection intervention as a method of de-biasing pseudoinefficacy. Results from two studies failed to replicate the pseudoinefficacy phenomenon by adding stimuli about those one cannot help. In study 1 the pseudoinefficacy information did not lead to decreased anticipated warm glow, donation amount, or the decision to donate or not. In study 2, the manipulation did not directly influence anticipated warm glow, attitudes toward blood donation, intentions to donate or actual blood donation behavior.

The cause of the failed manipulation is unclear. In study 1, one could argue that the video appeal overshadowed the pseudoinefficacy condition in terms of induced negative affect. The ratings of the video and pseudoinefficacy stimuli revealed that people rated the video as significantly more negative than the pseudoinefficacy stimuli. If the emotion responses to these stimuli are averaged (see Västfjäll, et al., 2016) then including the less negative stimuli of the pseudoinefficacy condition might actually make the affective evaluation of the overall scenario to be more positive. However, this was not the case in study 2, in which the single child condition contained only a positive stimulus of a happy girl who was helped from blood donation. This mix of stimuli also did not produce a main effect of decreased warm glow or donation intentions.

The results of the intervention were mixed. In study 1, the introspection condition did not influence warm glow or directly influence prosocial behaviors compared to deliberation or control. The interaction of the pseudoinefficacy with the intervention

revealed that decision satisfaction and donation amount was lower when participants introspected about the scenario—only considering the two factors of the context and the need—than when the pseudoinefficacy information was included and rated it in the introspection task. This curious finding was best explained by an interaction with psychological distancing, such that participants in the appeal-only SI condition distanced themselves from the scenario and donated less money. However, this interaction did not explain the difference in decision satisfaction observed. A reading of the open-ended questions about what participants were thinking during the task revealed that participants in the appeal-only SI condition tended to report "skepticism toward the charity" and mentioned notions of feeling "slightly manipulated". Reports of these thoughts were less prevalent in the pseudoinefficacy variant of the SI condition. Introspective tasks could be viewed as manipulative for a few reasons. The task itself may have been viewed as a ploy to influence behavior toward donating employed by the charity. People who are more emotionally sensitive may have distanced themselves from the scenario as a protective measure, rather than reengaging with the scenario content. The two-item introspection task in the appeal-only condition may have been perceived as too limited, rating only the context and benefit to the victim.

Study 1 failed to also pin down a clear moderator of differing motivational reactions to pseudoinefficacy stimuli. The DERS and REI Experiential subscales (Ability and Engagement) appear to relate to both how much influence this information has over people, as well as the direction of the influence (demotivated or motivated more). However, neither of these subscales on their own moderated the pseudoinefficacy manipulation. The novel ERT measure was also predictive of these motivational

questions and giving overall but, again, this measure did not moderate the pseudoinefficacy manipulation. The ERT measure provides the most interesting results in that the task itself is completely unrelated to prosocial behaviors. These results suggest that these individual difference measures are tapping into a shared psychological phenomenon related to the tendency to use affect as information in decision of the emotion. However, the failed replication of the pseudoinefficacy effect does not allow significant variance in the conditions to be explained.

Introspection in study 2 demonstrated promise for increasing intentions to donate blood. The structured introspection lead to a small main effect of increased perceived self-efficacy of blood donation over the deliberation and control conditions. A path analysis using the TPB model revealed that this boost to self-efficacy provided indirect effects to increased blood donation through the relationship of self-efficacy to donation intentions. Additionally, deliberation seemed to increase the relationship between blood donation attitudes and perceived self-efficacy, suggesting that deliberating participants may be focusing on the personal attitudes, strengthening the relationship between how one feels toward blood donation in the moment with rating of self-efficacy to complete the donation. In comparison, the control condition supported the multi-facet TPB model for intentions such that attitudes, self-efficacy, norms, and identity all individually predict donation intentions. Identity was the strongest predictor of donation intentions in the control condition. Thus introspection may draw attention away from identity concerns, norms, and attitudes and toward ability in evaluating the prospective of donating blood.

An interaction between the introspection condition and pseudoinefficacy condition was also found, supporting stated hypotheses. The results suggest that

introspection increased perceived self-efficacy over deliberation and control but only in the pseudoinefficacy introspection condition did this increase in efficacy translate to increased intentions. This finding compliments the study 1 finding such that the number and type factors provided in the structured introspection is crucial to thought process around the decision context. Rating the importance of the greater need, beyond our help, may provide a sense of urgency to the decision, suppressing impressions of personal costs.

Limitations. Research conducted online has some inherent limitations. The majority of measures used in both studies rely on self-report. Self-reported tendencies are subjective to personal biases and abilities to reflect accurate on one's own thinking patterns. This can provide misleading values in measures of thinking style such that it allows false beliefs to remain undetected. Online research also sacrifices a controlled lab experience. Differences in participation environments can increase unexplained error. Survey environment may attract particular types of participants who are more technologically savvy or who find electronic tasks more stimulating. Thus the results of online research may not reflect the population as whole, or in contexts where prosocial behaviors are exhibited in the presence of others.

Limitations in the format for measuring prosocial behavior were also present in this research. In study 1, the donation was semi-hypothetical such that it was not the participant's own money but an anticipated chance of an extra sum. Real donations with personal funds may be influenced by different factors than hypothetical donations. While study 2 did allow time for blood donation behaviors to occur, many people in the study

noted timing issues, transportation concerns, or availability of donation locations. Thus, one week may not accurately capture a long-term effect of the intervention(s).

Future directions. Future research needs to be done to explore if and when the pseudoinefficacy effect can replicated in prosocial behavior. It does not appear to be sufficient to only present information about the greater need or children who cannot receive aid. More research is needed to determine if pseudoinefficacy only occurs with particular framing (e.g. only with identified targets) or in certain populations (e.g. young students). Another possibility is that the stimuli must produce a feeling of utter hopelessness in order to demotivate action. Additional research is also needed to determine differential reactions to pseudoinefficacy stimuli. A future study could systematically explore how the individual difference measures used here (ERT, DERS and REI) moderate basic emotional reaction to generic stimuli. Understanding how emotion is integrated in the mind may provide the key to understanding when pseudoinefficacy or "drop in the bucket" thinking occurs and when it motivates or demotivates prosocial action.

Blood donation remains an understudied area. The results here suggested that warm glow was only weakly correlated with donation intentions. Research has found that warm glow is more predictive of continued donations rather than single behaviors, suggesting that warm glow is learned experience (Ferguson et al., 2012a & 2012b). Thus a multi-wave longitudinal design may better explain how warm glow is affected over time, such that people may become more sensitive to contextual information of the victims as their ability to anticipate warm glow develops.

Future research for introspection is needed to understand the critical elements from the task. Evidence from this research suggested that the number and type of factors that participants introspect about is important. A more systematic variation of introspective tasks could elucidate when the task is perceived as manipulative versus enlightening to participants. We know from the previous research that simply including more factors is not beneficial but future studies will need to determine a sweet spot of effort and introspective value.

Practical Implications. This research has several implications for applied contexts, such as donation solicitation for charities, and, more broadly, conveying information to the public regarding global issues. Charitable organizations must decide how best to communicate with potential new donors and maintain relationships with regular donors. The research presented in this dissertation suggests that people may be more directly influenced by other factors in the scenario, such as personal connection to the cause or specific context of the need rather than by emotional reaction to pictures and videos in the case of solicitation. In other words, the motivational forces within an unexpected donation solicitation (as in the case of the studies presented here) may differ from contexts of unprompted, self-generated, or spontaneous prosocial behavior. Solicitations for donations or charitable may be so wide-spread that emotional content within them may have lost its "shock value" to potential donors. Cameron and Payne (2011) argue that the expectation of giving money causes some to preemptively regulate emotions as a psychological protection measure. We know that emotional images *can* affect prosocial motivations. However, it is possible that humans are more susceptible to biases resulting from emotional content when the context of the need is *not* within an

expectation to donate. A study of donations to the Swedish Red Cross found that an iconic image from the Syrian war led to a massive and unanticipated boost to donations after going viral on social media, but this effect faded quickly (Slovic, Västfjäll, Erlandsson, & Gregory, 2017). NGO's and charitable efforts will struggle to compete for attention in markets saturated with emotional appeals, an effect that may become more pronounced as a humans are becoming more connected in the digital age.

Electronic devices are becoming ubiquitous sources of information and interconnectivity across the world. Newzoo (2018) reports that the number of smartphone users is expected to exceed 3.8 billion by the year 2020. These devices provide huge shifts in communication and connectivity between humans, but may have important side effects. No other time in human history have we been more aware of the suffering of others. One could spend one's entire existence attempting to stay informed with the litany of crises, neediness, and terrible tragedies occurring in the world. The onslaught of the "ever-present need" may drive humans to become increasingly numb to media depicting suffering or tragedy, as to engage with every negative image would be neither helpful nor psychologically healthy.

The open-ended response results from study 1 implied that many suspected they were being manipulated by their emotions. Appeals to prosocial behavior may benefit from a shift effort away from emotional appeals toward other perceived benefits of the behavior, such as social connectedness or economic sustainability. On the other hand, consumers of electronic information will need to consider whether the side-effects from being continually immersed in the internet are worth the more easily evaluable benefits.

The broader implications of the introspection intervention are less clear and future research will need to uncover the context in which it will beneficial to decision making. The results from Study 2 imply that reflecting on how factors in a decision space might influence us may increase our sense of our abilities to accomplish challenging tasks. As the scale of global crises will only increase over time due to population growth and climate change, the need to feel that our actions are worthwhile will become more critical. Instructing people to introspect on the motivational influences in their lives is one way to increase the evaluability of our choices and behaviors. However, introspection may also have a detrimental effect on prosocial efforts if the framing of the reflection task is too narrow (i.e. only 2 factors considered) or the personal value of the outcome is already low. Thus, introspection may make our personal values more evaluable in contrast to object information, but the usefulness of that evaluation may rely on the implications of those personal values.

Conclusions. In the current age, disasters and humanitarian crises are widely covered by media, documented, and discussed endlessly through the internet. We are awash with this information, yet our responses to the needy remain suboptimal in comparison to our stated values of human life, animal life, and ecological life. The research in value-of-life and prosocial behavior seeks to explain and de-bias this gap. Mixed findings paint a picture of interconnected and competing psychological forces that sway prosocial motivation. The various contexts and circumstances of helping behaviors complicate matters further. As the population grows, humans will continue to struggle to grasp the scale of victims in need.

This dissertation sought to improve decision making in a prosocial behavior context with a simple framing intervention. While success of the intervention was limited, introspection remains a tool of interest in de-biasing scope neglect and the role of negative affect in environments where prosocial behavior is involved. The evidence suggests that by turning inward to scrutinize the degree to which decision factors *should* influence us, we may increase our perception of self-efficacy. Maintaining a sense of efficacy while being continuously reminded of global crises will be a challenge for the future of humankind. Save the Children's director recently announced that up to 85,000 children under the age of 5 have starved to death in Yemen since 2015, with 14 million more still in dire risk (Karasz, 2018). Climate change looms over human society, with over 1 million species on the verge of extinction (Resnick, 2019). Small changes in motivation and prosocial behaviors can have large impacts when aggregated. Most importantly, even single instances of giving can make a world of a difference to a suffering child or endangered animal.

APPENDIX A

MATERIALS FOR STUDY 1

Start of Block: Background and Intro

On the next few pages, we will ask you to evaluate a charitable appeal regarding the famine crisis in Yemen. Yemen is a country in the Middle East affected by war and conflict. This conflict has made civilians, especially children, at risk of violence and now starvation and malnutrition.

The appeal on the next page in the form on a video with text. Please watch the entire video (duration: 20 seconds) read the information carefully

End of Block: Background and Intro

Start of Block: Single Child Condition

As the war in Yemen enters its fourth year – children in Yemen are facing a massive crisis. The volatile civil war, taking place in the midst of growing poverty, is causing the world's worst humanitarian emergency. More than 11 million children urgently need lifesaving assistance. Countless more children are at risk of starvation as Yemen edges toward the brink of famine. Please view the charitable appeal video below (20 seconds long). Once finished, please advance to the next screen.

End of Block: Single Child

Start of Block: Pseudo

As the war in Yemen enters its fourth year – children in Yemen are facing a massive crisis. The volatile civil war, taking place in the midst of growing poverty, is causing the world's worst humanitarian emergency. More than 11 million children urgently need lifesaving assistance. Please view the charitable video below (20 seconds long) that requests aid for children like Baby Nusair, then read the information below.

Countless more children are at risk of starvation as Yemen edges toward the brink of famine. Some children, like those shown in the picture below, are forced to flee due to

violence and are often not able to receive aid.

End of Block: Pseudo

Start of Block: Structured Introspection

On the following page, we will ask you to consider a helping behavior for the charity in the appeal (Save the Children). First we would like you to think more deeply about the factors in the previous scenario that might influence your decision to help the charity.

Please rate how much the following factors should influence your feelings toward helping children in Yemen:

	Not at all (1)	Slightly (2)	Moderately (3)	Significantly (4)	Extremely (5)
The information of the many children who are unable to receive aid (1)	○	○	○	○	○
The contextual information about the war and famine in Yemen (3)	○	○	○	○	○
The need of the children currently at risk, like baby Nusair (2)	○	○	○	○	○

End of Block: Structured

Start of Block: Deliberation

On the following page, we will ask you to consider a helping behavior. First we would like you to think more deeply about the factors in the previous scenario that might influence your feelings toward helping the charity. Please spend 30 seconds thinking more deeply about factors in the scenario that might influence your feelings toward helping the children in Yemen, if given the opportunity to do so. **The page will automatically advance in 30 seconds.**

End of Block: Deliberation

Start of Block: No added instruction

Thank you. Please continue to the next page.

End of Block: No added instruction

Start of Block: Warm glow

We will also ask you to think about "warm glow", a positive feeling that you may experience when you do something good for someone. Take a moment to think about one situation from your own life when you experienced this feeling.

Now, imagine that you had the opportunity to donate money to a trusted aid organization to help children facing starvation and malnutrition, like baby Nusair in the video. Please rate the strength of warm glow you would expect to feel if you were able to donate money to help the children by choosing a number between 0-100, using the options below:

- ○ 0-20 Low and no warm glow (1)
- ○ 21-40 (2)
- ○ 41-60 (3)
- ○ 61-80 (4)
- ○ 81-100 High to extreme warm glow (5)

Page Break

Now we would like you to specify that feeling a little bit further. You chose [RESPONSE PROVIDED HERE]. Now, please pick a number within the category. For example, if you selected 21-40 then you would specify a number between 21 and 40 that best fits your feeling of warm glow.

_____

End of Block: Warm glow

Start of Block: Donation

In addition to the payment specified by Prolific for participating in this study, you will also be entered in a drawing for a chance of winning an additional $100.

We offer you the opportunity, should you receive the additional $100, to donate some of this money to Save the Children, in their effort to aid children in Yemen facing starvation, like baby Nusair in the video. You can use the box below to choose the amount that you are willing to commit to giving, if you are selected to receive the $100. Select 0 if you do not wish to donate anything, or 100 if you wish to donate all your winnings, or any number in between to indicate how much you wish to donate. We will pay you the remaining part of the bonus and will donate the amount you chose to Save the Children.

Amount of potential lottery winning I would like to donate, if won ($0-$100)

_____

End of Block: Donation

Start of Block: Feelings

Now please answer the questions below regarding your feelings toward the video portion of charitable appeal.

How much do you feel sad when thinking about baby Nusair?

- Not at all sad (1)
- (2)
- (3)
- (4)
- (5)
- (6)
- Very sad (7)

How much do you feel sad when thinking about the children who could not receive aid?

- Not at all sad (1)
- (2)
- (3)
- (4)
- (5)
- (6)
- Very sad (7)

How much sympathy do you feel thinking about baby Nusair?

- ○ Not at all sympathetic (1)
- ○ (2)
- ○ (3)
- ○ (4)
- ○ (5)
- ○ (6)
- ○ Very sympathetic (7)

How much did the opportunity of donating money make you feel better?

- ○ Not at all (1)
- ○ (2)
- ○ (3)
- ○ (4)
- ○ (5)
- ○ (6)
- ○ Very much (7)

How much guilt would you expect to feel if you chose to not donate any of your lottery winnings?

- ○ None at all (1)
- ○ (2)
- ○ (3)
- ○ (4)
- ○ (5)
- ○ (6)
- ○ Very much (7)

How satisfied are you with your decision regarding the donation to Save the Children?

- ○ Not at all satisfied (1)
- ○ (2)
- ○ (3)
- ○ (4)
- ○ (5)
- ○ (6)
- ○ Very much satisfied (7)

How much guilt did you experience from deciding not to donate any of your lottery winnings?

- ○ None at all (1)
- ○ (2)
- ○ (3)
- ○ (4)
- ○ (5)
- ○ (6)
- ○ Very much (7)

How much do you think your donation would help children like baby Nusair?

- ○ Not at all (1)
- ○ (2)
- ○ (3)
- ○ (4)
- ○ (5)
- ○ (6)
- ○ Very much (7)

End of Block: Feelings

Start of Block: Experience with appeal

Please write a brief description (1-2 sentences) of your thoughts and feelings you experienced while viewing the charity appeal.

_____

_____

_____

_____

_____

Page Break

We interested in your reaction to the charitable appeal displayed earlier. Please answer the following questions.

I experienced an emotional reaction to the appeal

- ○ Strongly disagree (2)
- ○ Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (1)

Page Break

Please rate your level of agreement with the following statements regarding the charity appeal:

	Strongly disagree (4)	Disagree (5)	Agree (6)	Strongly agree (7)
I felt annoyed by being shown the information (13)	○	○	○	○
I purposefully ignored or looked away from the appeal (14)	○	○	○	○
The appeal made me feel angry (15)	○	○	○	○
I distanced myself from the situation shown in the appeal (16)	○	○	○	○
I felt "moved" by the appeal (17)	○	○	○	○
I felt that the appeal was "over the top" (18)	○	○	○	○

End of Block: Experience with appeal

Start of Block: Pseudo Q's

Thinking back to the scenario, there was a picture and information about children who were unable to receive aid. How much do you think seeing the children who could not receive aid influenced your motivation toward helping the charity?

- ○ Did not influence my motivation at all (1)
- ○ Influenced my motivation a little (2)
- ○ Moderately influenced my motivation (4)
- ○ Greatly influenced my motivation (5)

And, in what way did this information about the children who were unable to receive aid influence your motivation, if at all?

- ○ Strongly demotivated me from helping (1)
- ○ Slightly demotivated me from helping (2)
- ○ Slighted motivated me more to help (4)
- ○ Strongly motivated me more to help (5)
- ○ Other (please explain briefly) (3)

_____

In large-scale humanitarian crises, we are often reminded of victims that we are unable to help or problems we cannot entirely solve. Sometimes, this causes the perception that our

actions are like a "drop in the bucket". In general, how much do you think this "drop in the bucket" feeling influences your motivation toward helping others?

- ○ Did not influence my motivation at all (1)
- ○ Influenced my motivation a little (2)
- ○ Moderately influenced my motivation (3)
- ○ Greatly influenced my motivation (4)

In what way does "drop in the bucket" thinking influence your motivation, if at all?

- ○ Strongly demotivates me from helping others (1)
- ○ Slightly demotivates me from helping others (2)
- ○ Slightly motivates me more to help others (4)
- ○ Strongly motivates me more to help others (5)
- ○ Other (please explain briefly) (3) _____

End of Block: Pseudo Q's

Start of Block: rate pics/vid

How negative did you find the images shown earlier? Please rate below

Video of baby Nusair (***no need to watch again***):

- ○ Very Negative -10 (1)
- ○ -9 (2)
- ○ -8 (3)
- ○ -7 (4)
- ○ -6 (5)
- ○ -5 (6)
- ○ -4 (7)
- ○ -3 (8)
- ○ -2 (9)
- ○ -1 (22)
- ○ Neutral0 (23)

Picture of children that are unable to receive aid:

- ○ Very Negative -10 (1)
- ○ -9 (2)
- ○ -8 (3)
- ○ -7 (4)
- ○ -6 (5)
- ○ -5 (6)
- ○ -4 (7)
- ○ -3 (8)
- ○ -2 (9)
- ○ -1 (10)
- ○ Neutral0 (11)

End of Block: rate pics/vid

Start of Block: Intro to ID

Thank you, now we will turn to some general questions about your tendencies in thinking & feeling.

End of Block: Intro to ID

Start of Block: DERS

Please indicate how often each of the following statements apply to you by selecting the ppropriate number from the scale below.	1 almost never (0-10%) (1)	2 sometimes (11-35%) (2)	3 about half the time (36%-65%) (3)	4 most of the time (66-90%) (4)	5 almost always (91-100%) (5)
1) I am clear about my feelings. (1)	○	○	○	○	○
2) I pay attention to how I feel. (4)	○	○	○	○	○
3) I experience my emotions as overwhelming and out of control. (5)	○	○	○	○	○
4) I have no idea how I am feeling. (6)	○	○	○	○	○
5) I have difficulty making sense out of my feelings. (7)	○	○	○	○	○
6) I am attentive to my feelings. (8)	○	○	○	○	○
7) I know exactly how I am feeling. (9)	○	○	○	○	○

8) I care about what I am feeling. (10)	○	○	○	○	○
9) I am confused about how I feel. (11)	○	○	○	○	○
10) When I'm upset, I acknowledge my emotions. (12)	○	○	○	○	○
11) When I'm upset, I become angry with myself for feeling that way. (13)	○	○	○	○	○
12) When I'm upset, I become embarrassed for feeling that way. (14)	○	○	○	○	○
13) When I'm upset, I have difficulty getting work done. (15)	○	○	○	○	○
14) When I'm upset, I become out of control. (16)	○	○	○	○	○
15) When I'm upset, I believe that I will remain that way for a long time. (17)	○	○	○	○	○

16) When I'm upset, I believe that I will end up feeling very depressed. (18)	○	○	○	○	○
17) When I'm upset, I believe that my feelings are valid and important. (19)	○	○	○	○	○
18) When I'm upset, I have difficulty focusing on other things. (20)	○	○	○	○	○
19) When I'm upset, I feel out of control. (21)	○	○	○	○	○
20) When I'm upset, I can still get things done. (22)	○	○	○	○	○
21) When I'm upset, I feel ashamed at myself for feeling that way. (23)	○	○	○	○	○
22) When I'm upset, I know that I can find a way to eventually feel better. (24)	○	○	○	○	○

23) When I'm upset, I feel like I am weak. (25)	○	○	○	○	○
24) When I'm upset, I feel like I can remain in control of my behaviors. (26)	○	○	○	○	○
25) When I'm upset, I feel guilty for feeling that way. (27)	○	○	○	○	○
26) When I'm upset, I have difficulty concentrating. (28)	○	○	○	○	○
27) When I'm upset, I have difficulty controlling my behaviors. (29)	○	○	○	○	○
28) When I'm upset, I believe there is nothing I can do to make myself feel better. (30)	○	○	○	○	○
29) When I'm upset, I become irritated at myself for feeling that way. (31)	○	○	○	○	○

30) When I’m upset, I start to feel very bad about myself. (32)	○	○	○	○	○
31) When I’m upset, I believe that wallowing in it is all I can do. (33)	○	○	○	○	○
32) When I’m upset, I lose control over my behavior. (34)	○	○	○	○	○
33) When I’m upset, I have difficulty thinking about anything else. (35)	○	○	○	○	○
34) When I’m upset I take time to figure out what I’m really feeling. (36)	○	○	○	○	○
35) When I’m upset, it takes me a long time to feel better. (37)	○	○	○	○	○
36) When I’m upset, my emotions feel overwhelming. (38)	○	○	○	○	○

End of Block: DERS

Start of Block: REI

Please rate the following statements about your feelings, beliefs and behaviors using the scale below. **Work rapidly**	Definitely false 1 (1)	2 (2)	3 (3)	4 (4)	Definitely true 5 (5)
I like to rely on my intuitive impressions. (1)	○	○	○	○	○
Using my "gut feelings" usually works well for me in figuring out problems in my life (2)	○	○	○	○	○
I don't have a very good sense of intuition. (3)	○	○	○	○	○
Intuition can be a very useful way to solve problems. (4)	○	○	○	○	○
I believe in trusting my hunches. (5)	○	○	○	○	○

I often go by my instincts when deciding on a course of action. (6)	○	○	○	○	○
I don't think it is a good idea to rely on one's intuition for important decisions. (7)	○	○	○	○	○
I don't like situations in which I have to rely on intuition. (8)	○	○	○	○	○
I tend to use my heart as a guide for my actions. (9)	○	○	○	○	○
I trust my initial feelings about people. (10)	○	○	○	○	○
I think there are times when one should rely on one's intuition. (11)	○	○	○	○	○
When it comes to trusting people, I can usually rely on my gut feelings. (12)	○	○	○	○	○

If I were to rely on my gut feelings, I would often make mistakes. (13)	○	○	○	○	○
I generally don't depend on my feelings to help me make decisions. (14)	○	○	○	○	○
I hardly ever go wrong when I listen to my deepest "gut feelings" to find an answer. (15)	○	○	○	○	○
I would not want to depend on anyone who described himself or herself as intuitive. (16)	○	○	○	○	○
I suspect my hunches are inaccurate as often as they are accurate (17)	○	○	○	○	○

I can usually feel when a person is right or wrong, even if I can't explain how I know. (18)	○	○	○	○	○
My snap judgments are probably not as good as most people's. (19)	○	○	○	○	○

Please rate the following statements about your feelings, beliefs and behaviors using the scale below. **Work rapidly.**	Definitely false 1 (1)	2 (2)	3 (3)	4 (4)	Definitely true 5 (5)
I am not very good at solving problems that require careful logical analysis. (1)	○	○	○	○	○
I don't like to have to do a lot of thinking. (2)	○	○	○	○	○
I enjoy solving problems that require hard thinking. (3)	○	○	○	○	○
I try to avoid situations that require thinking in depth about something. (4)	○	○	○	○	○
I have a logical mind. (5)	○	○	○	○	○

I'm not that good at figuring out complicated problems. (6)	○	○	○	○	○
I am much better at figuring things out logically than most people. (7)	○	○	○	○	○
I enjoy intellectual challenges. (8)	○	○	○	○	○
Reasoning things out carefully is not one of my strong points. (9)	○	○	○	○	○
I am not a very analytical thinker. (10)	○	○	○	○	○
I prefer complex to simple problems. (11)	○	○	○	○	○
Thinking hard and for a long time about something gives me little satisfaction. (12)	○	○	○	○	○

I don’t reason well under pressure. (13)	○	○	○	○	○
I have no problem in thinking things through clearly. (14)	○	○	○	○	○
I enjoy thinking in abstract terms. (15)	○	○	○	○	○
Knowing the answer without having to understand the reasoning behind it is good enough for me. (16)	○	○	○	○	○
Thinking is not my idea of an enjoyable activity (17)	○	○	○	○	○
I usually have clear, explainable reasons for my decisions. (18)	○	○	○	○	○
Using logic usually works well for me in figuring out problems in my life. (19)	○	○	○	○	○

Learning new ways to think would be very appealing to me. (20)	○	○	○	○	○

End of Block: REI

Start of Block: ERT_short

Below are a number of activities. We want you to rate each of the activities in terms of how you perceive their **risks**. Do not spend too much time on any one activity.	Not at all risky 1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	Extremely risky 7 (7)
Taking ecstasy (4)	○	○	○	○	○	○	○
Taking cocain (5)	○	○	○	○	○	○	○
Smoking (6)	○	○	○	○	○	○	○
Shoplifting (7)	○	○	○	○	○	○	○
Cheating on a partner (8)	○	○	○	○	○	○	○
Driving a car (9)	○	○	○	○	○	○	○
Eating sugar (10)	○	○	○	○	○	○	○
Switching careers (11)	○	○	○	○	○	○	○
Taking painkillers (12)	○	○	○	○	○	○	○
Riding a rollercoaster (13)	○	○	○	○	○	○	○

Drinking tea (14)	○	○	○	○	○	○	○
Resting (15)	○	○	○	○	○	○	○
Reading (16)	○	○	○	○	○	○	○
Eating a salad (17)	○	○	○	○	○	○	○
Drinking Water (18)	○	○	○	○	○	○	○

Below are a number of activities. We want you to rate each of the activities in terms of how you perceive their **benefits**. Do not spend too much time on any one activity.	Not at all beneficial 1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	Extremely beneficial 7 (7)
Taking ecstasy (4)	○	○	○	○	○	○	○
Taking cocaine (5)	○	○	○	○	○	○	○
Smoking (6)	○	○	○	○	○	○	○
Shoplifting (7)	○	○	○	○	○	○	○
Cheating on a partner (8)	○	○	○	○	○	○	○
Driving a car (9)	○	○	○	○	○	○	○
Eating sugar (10)	○	○	○	○	○	○	○
Switching careers (11)	○	○	○	○	○	○	○
Taking painkillers (12)	○	○	○	○	○	○	○

Riding a rollercoaster (13)	○	○	○	○	○	○	○
Drinking tea (14)	○	○	○	○	○	○	○
Resting (15)	○	○	○	○	○	○	○
Reading (16)	○	○	○	○	○	○	○
Eating a salad (17)	○	○	○	○	○	○	○
Drinking Water (18)	○	○	○	○	○	○	○

End of Block: ERT_short

Start of Block: Demographics

This is the last section. Please complete the following demographic questionnaire.

*

Please enter your age:

_____

Which option best describes your gender:

- ○ Male (1)
- ○ Female (2)
- ○ Choose not to respond (3)

Your ethnic identity:

- [ ] Black (1)
- [ ] Asian/ Pacific Islander (2)
- [ ] Caucasian (3)
- [ ] Hispanic (4)
- [ ] Native American (5)
- [ ] Other: (6) _____
- [ ] Choose not to respond (7)

What is the highest level of school you have completed or the highest degree you have received?

- ○ Less than high school diploma (1)
- ○ High school graduate (high school diploma or equivalent including GED) (2)
- ○ Some college but no degree (3)
- ○ Associate degree in college (2-year) (4)
- ○ Bachelor's degree in college (4-year) (5)
- ○ Master's degree (6)
- ○ Doctoral degree (7)
- ○ Professional degree (JD, MD) (8)

How often do you donate money to charity?

- ○ Never (1)
- ○ Very rarely (6)
- ○ On occasion (Holidays, charitable events) (2)
- ○ Periodically (one or few times a year) (4)
- ○ Regularly (monthly donor) (3)

End of Block: Demographics

Start of Block: submit

If there is anything that you would like your experimenter to know, please comment below. If not, please submit your answers.

_____

_____

_____

_____

_____

End of Block: submit

APPENDIX B

MATERIALS FOR STUDY 2

Study 2, part 1

Start of Block: Screener

This study involves the topic of blood *donation*. Which of the options below best describes your donor status:

- ○ Have never attempted to donate blood or plasma before
- ○ Have attempted before, have not completed blood or plasma donation (state reason) _____
- ○ I have donated blood or plasma once
- ○ I have donated blood or plasma multiple times but not regularly
- ○ I donate blood or plasma on a regular basis
- ○ I am not eligible to donate blood or plasma

End of Block: Screener

Start of Block: Intro

Thank you for choosing to complete this study. On the next few pages, we will ask you to answer several questions on the topic of blood donation. There are no right or wrong answers in this section, we are only interested in your opinion and beliefs.

End of Block: Intro

Start of Block: Affect

Overall, when you think about the prospect of donating blood yourself, how do you feel?

- ○ Very Negative -10
- ○ -9
- ○ -8
- ○ -7
- ○ -6
- ○ -5
- ○ -4
- ○ -3
- ○ -2
- ○ -1
- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9

○ Very Positive 10

End of Block: Affect

Start of Block: Single/Pseudo

Gabriella Martinez is dependent on blood transfusions every three weeks or so. She has a rare form of anemia – beta thalassemia major. She has been receiving transfusions since she was a baby and will continue to do so. Her family frequently attends blood drives to thank donors for the precious gift they are giving Gabriella and patients like her.

[PSEUDO CONDITION]

Gabriella Martinez is dependent on blood transfusions every three weeks or so. She has a rare form of anemia – beta thalassemia major. She has been receiving transfusions since she was a baby and will continue to do so. Her family frequently attends blood drives to thank donors for the precious gift they are giving Gabriella and patients like her.

3 Facts about blood donation

- 4.5 million Americans will a need blood transfusion each year.
- 43,000 pints: amount of donated blood used each day in the U.S. and Canada.
- Someone needs blood every two seconds.

End of Block: Single/Pseudo

Start of Block: Structured

We would like you to think more deeply about the factors that might influence your feelings toward donating blood. When considering the prospect of donating blood, please rate how much the following factors from the previous information *should* influence your feelings toward donating blood:

	Not at all	Slightly	Moderately	Significantly	Extremely
Physical discomfort associated with the act of donating blood	○	○	○	○	○
The facts provided about blood donation need	○	○	○	○	○
The physical benefit to the recipient of the donation	○	○	○	○	○

End of Block: Structured

Start of Block: Deliberation

Before continuing, we would like you to think more deeply about the factors that might influence your feelings toward donating blood. Please spend the next 30 seconds thinking about the factors that might influence your feelings toward donating blood. The survey will automatically advance to the next page in 30 seconds.

End of Block: Deliberation

Start of Block: Control

Continue to the next page when you are ready.

End of Block: Control

Start of Block: Warm glow

We will also ask you to think about "warm glow", a positive feeling that you may experience when you do something good for someone. Take a moment to think about one situation from your own life when you experienced this feeling.

Now, imagine that you went to blood drive and donated blood, providing a life-saving resource for person in need. Please rate the strength of warm glow you would expect to feel if you donated blood by choosing a number between 0-100, using the options below:

- ○ 0-20 Low and no warm glow
- ○ 21-40
- ○ 41-60
- ○ 61-80
- ○ 81-100 High to extreme warm glow

Page Break

Now we would like you to specify that feeling a little bit further. You chose [RESPONSE HERE]. Now, please pick a number within the category. For example, if you selected 21-40 then you would specify a number between 21 and 40 that best fits your feeling of warm glow.

_____

End of Block: Warm glow

Start of Block: Post-manip

Thank you. Now we would like you to consider the possibility of donating blood yourself in the next week while answering the following questions. Again, we will not be asking or requiring you to commit to a blood donation. There are no right or wrong answers in this section, we are only interested in your opinion and beliefs.

End of Block: Post-manip

Start of Block: Attitudes

Please rate how your feel about donating blood this week on the following dimensions

	1	2	3	4	5	6	7	
Unpleasant	○	○	○	○	○	○	○	Pleasant
Satisfying	○	○	○	○	○	○	○	Unsatisfying
Bad	○	○	○	○	○	○	○	Good
Harmful	○	○	○	○	○	○	○	Beneficial
Repulsive	○	○	○	○	○	○	○	Attractive

End of Block: Attitudes

Start of Block: Subjective norm and normative beliefs

Most people who are important to me think I should give blood this week

	1	2	3	4	5	6	7	
strongly disagree	○	○	○	○	○	○	○	strongly agree

Please rate the likelihood that each entity below would think that you should donate blood next week:

Your parents

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Your friends

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Your extended family

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Your community members

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Your work or school peers

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

End of Block: Subjective norm and normative beliefs

Start of Block: Intentions

I intend to give blood this week

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

I will try to give blood this week

	1	2	3	4	5	6	7	
improbably	○	○	○	○	○	○	○	probable

I have decided to give blood this week

	1	2	3	4	5	6	7	
strongly disagree	○	○	○	○	○	○	○	strongly agree

End of Block: Intentions

Start of Block: Self efficacy-beliefs

How confident are you that you will be able to give blood this week?

	1	2	3	4	5	6	7	
not at all confident	○	○	○	○	○	○	○	very confident

If it were entirely up to me, I am confident that I would be able to give blood this week

	1	2	3	4	5	6	7	
strongly agree	○	○	○	○	○	○	○	strongly disagree

I believe I have the ability to give blood this week

	1	2	3	4	5	6	7	
definitely do	○	○	○	○	○	○	○	definitely do not

I am capable of giving blood this week

	1	2	3	4	5	6	7	
extremely incapable	○	○	○	○	○	○	○	extremely capable

End of Block: Self efficacy-beliefs

Start of Block: Self efficacy-ability

My giving blood this week is likely to be influenced by factors beyond my control

	1	2	3	4	5	6	7	
strongly disagree	○	○	○	○	○	○	○	strongly agree

How much personal control do you feel you have over giving blood this week

	1	2	3	4	5	6	7	
no control	○	○	○	○	○	○	○	complete control

It is mostly up to me whether or not I give blood this week

	1	2	3	4	5	6	7	
strongly disagree	○	○	○	○	○	○	○	strongly agree

How much do you feel that giving blood this week is beyond your control?

	1	2	3	4	5	6	7	
not at all	○	○	○	○	○	○	○	very much so

End of Block: Self efficacy-ability

Start of Block: Control behaviors

How likely it would be that each would facilitate and/or prevent you from giving blood next week:

A previous experience

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Fear of needles

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Fear of fainting

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Fear of being sick

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Fear of being catching some infection

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Fear of discovering some illness

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Losing time from study or work

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

A payment or incentive

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

An efficient operation would encourage you to give blood

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

End of Block: Control behaviors

Start of Block: Identity

Please assess the items below in the extent that they are part of your identify

To give blood is an important part of who I am

	1	2	3	4	5	6	7	
no definitely not	○	○	○	○	○	○	○	yes, definitely

Giving blood is important to maintain a good self image of myself

	1	2	3	4	5	6	7	
no definitely not	○	○	○	○	○	○	○	yes, definitely

I would describe myself as an advocate for blood donation

	1	2	3	4	5	6	7	
no definitely not	○	○	○	○	○	○	○	yes, definitely

End of Block: Identity

Start of Block: Image-rate

Now we would like you to rate the images you viewed earlier.

Now we would like you to rate the image you viewed earlier and one additional image.

How does this image make you feel?

Very Negative -10

- ○ -9
- ○ -8
- ○ -7
- ○ -6
- ○ -5
- ○ -4
- ○ -3
- ○ -2
- ○ -1
- ○ 0
- ○ 1
- ○ 2
- ○ 3

- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9
- ○ Very Positive 10

How does this image make you feel?

- ○ Very Negative -10
- ○ -9
- ○ -8
- ○ -7
- ○ -6
- ○ -5
- ○ -4
- ○ -3
- ○ -2
- ○ -1
- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9

○ Very Positive 10

End of Block: Image-rate

Start of Block: Demographics

This is the last section. Please complete the following demographic questionnaire.

Please enter your age:

_____

Which option *best* describes your gender?

○ Male

○ Female

○ Prefer not to answer

Please indicate your highest level of education

- ○ 8th grade or less
- ○ High school, no graduate
- ○ High school graduate
- ○ Vocational
- ○ Some college
- ○ College graduate
- ○ More than college graduate (specify: MA/MS, JD, MD, PhD or other)

_____

Which of the following best describes your ethnic background?

- ○ White (Caucasian)
- ○ Black (African-American)
- ○ Native American
- ○ Hispanic
- ○ Asian or Pacific Islander
- ○ Other _____

End of Block: Demographics

Start of Block: Comment &End

If there is anything that you would like your experimenter to know, please comment below. If not, please submit your answers.

_____

_____

End of Block: Comment &End

Study 2, part 2

Start of Block: donation status

Thank you for completing our first study. Which of the options below best describes your thoughts and behavior toward donating blood **since the last survey**:

- ○ I did not think about nor did I make an attempt to donate blood or plasma
- ○ I thought about donating blood or plasma but did not attempt any behaviors toward completing the donation
- ○ I completed steps toward donating blood or plasma (looking up blood center, got more information, talk to others, etc.) but did not attempt to complete a donation. (Describe behavior) _____
- ○ I donated blood or plasma since the last survey or am scheduled to do so in the near future
- ○ I attempted to donate since last survey, did not complete blood or plasma donation (state reason) _____

End of Block: donor status

Start of Block: intro

Thank you for choosing to complete this study. On the next few pages, we will again ask you to answer several questions on the topic of blood donation. There are no right or wrong answers in this section, we are only interested in your opinion and beliefs.

End of Block: intro

Start of Block: affect

Overall, when you think about the prospect of donating blood yourself, how do you feel?

- ○ Very Negative -10
- ○ -9
- ○ -8
- ○ -7
- ○ -6
- ○ -5
- ○ -4
- ○ -3
- ○ -2
- ○ -1
- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9

○ Very Positive 10

Please rate how your feel about donating blood in the future on the following dimensions

	1	2	3	4	5	6	7	
Unpleasant	○	○	○	○	○	○	○	Pleasant
Satisfying	○	○	○	○	○	○	○	Unsatisfying
Bad	○	○	○	○	○	○	○	Good
Sad	○	○	○	○	○	○	○	Happy
Repulsive	○	○	○	○	○	○	○	Attractive

End of Block: affect

Start of Block: Intentions

Thinking into the future, what is your intention to donate blood?

I intend to give blood in the future

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

I will try to give blood in the future

	1	2	3	4	5	6	7	
improbably	○	○	○	○	○	○	○	probable

I have decided to give blood in the future

	1	2	3	4	5	6	7	
strongly disagree	○	○	○	○	○	○	○	strongly agree

End of Block: Intentions

Start of Block: Social norms

Most people who are important to me think I should give blood in the future

	1	2	3	4	5	6	7	
strongly disagree	○	○	○	○	○	○	○	strongly agree

Please rate the likelihood that each entity below would think that you should donate blood in the future:

Your parents

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Your friends

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Your extended family

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Your community members

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Your work or school peers

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

End of Block: Social norms

Start of Block: Self efficacy beliefs

How confident are you that you will be able to give blood in the future?

	1	2	3	4	5	6	7	
not at all confident	○	○	○	○	○	○	○	very confident

If it were entirely up to me, I am confident that I would be able to give blood in the future

	1	2	3	4	5	6	7	
strongly agree	○	○	○	○	○	○	○	strongly disagree

I believe I have the ability to give blood in the future

	1	2	3	4	5	6	7	
definitely do	○	○	○	○	○	○	○	definitely do not

To what extent do you see yourself as capable of giving blood in the future

	1	2	3	4	5	6	7	
extremely incapable	○	○	○	○	○	○	○	extremely capable

End of Block: Self efficacy beliefs

Start of Block: Control beliefs

My giving blood in the future is likely to be influenced by factors beyond my control

	1	2	3	4	5	6	7	
strongly disagree	○	○	○	○	○	○	○	strongly agree

How much control do you feel you have over giving blood in the future

	1	2	3	4	5	6	7	
no control	○	○	○	○	○	○	○	complete control

It is mostly up to me whether or not I give blood in the future

	1	2	3	4	5	6	7	
strongly disagree	○	○	○	○	○	○	○	strongly agree

How much do you feel that giving blood in the future is beyond your control?

	1	2	3	4	5	6	7	
not at all	○	○	○	○	○	○	○	very much so

End of Block: Control beliefs

Start of Block: Control behaviors

How likely it would be that each would facilitate and/or prevent you from giving blood in the future:

A previous experience

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Fear of needles

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Fear of fainting

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Fear of being sick

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Fear of being catching some infection

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Fear of discovering some illness

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

Losing time from study or work

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

A payment or incentive

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

An efficient operation would encourage you to give blood

	1	2	3	4	5	6	7	
unlikely	○	○	○	○	○	○	○	likely

End of Block: Control behaviors

Start of Block: Identity

Please assess the items below in the extent that they are part of your identify

To give blood is an important part of who I am

	1	2	3	4	5	6	7	
no definitely not	○	○	○	○	○	○	○	yes, definitely

Giving blood is important to maintain a good self image of myself

	1	2	3	4	5	6	7	
no definitely not	○	○	○	○	○	○	○	yes, definitely

I would describe myself as an advocate for blood donation

	1	2	3	4	5	6	7	
no definitely not	○	○	○	○	○	○	○	yes, definitely

End of Block: Identity

Start of Block: Ending

If you did not complete a blood donation since the last survey, please briefly describe the reason.

_____

_____

_____

_____

_____

Page Break

If there is anything that you would like your experimenter to know, please comment below. If not, please submit your answers.

_____

_____

_____

_____

_____

End of Block: Ending

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