THE INTERPLAY OF TRUE SELF-KNOWLEDGE ON BELIEF IN FREE WILL

AND MORAL OUTCOMES

A Dissertation

by

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ABSTRACT

Belief in free will has meaningful consequences on morally relevant behaviors; however, there is limited research identifying a potential mechanism for these effects. Two studies explored whether subjective perceptions of knowing one's "true self" play a mediating role in this relationship. Prosociality served as the primary outcome variable in these studies. Study 1 tested the hypothesis that attenuating free will beliefs reduces people's true self-knowledge such that they experience and engage in less prosocial emotions, intentions, and behavior. Participants completed a free will manipulation, measure of true self-knowledge, and their prosocial emotions, intentions, and behavior towards different people in need. Study 2 was a short-term motivational intervention aimed to augment belief in free will and assessed whether strengthening people's belief in free will increases feelings of true self-knowledge such that people engage in more virtuous behaviors. Participants in the free will intervention condition were asked to write about experiences where they utilized their free will in vivid detail for three days. Belief in free will, true self-knowledge, and prosocial measures were assessed on day four. Both studies did not find direct evidence for true self-knowledge as a mediator for these effects. The current research highlights the ongoing need to identify potential mechanisms for the effect of belief in free will on moral outcomes. Limitations and directions for future research are discussed.

DEDICATION

To my parents, who have given me everything and more.

And to Ryan Gosling, for without his existence, a number of amazing dissertation memes would not be possible.

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CONTRIBUTORS AND FUNDING SOURCES

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CHAPTER I

INTRODUCTION

In the long run, we shape our lives, and we shape ourselves. The process never ends until we die. And the choices we make are ultimately our own responsibility.

–Eleanor Roosevelt

The existence of free will has been contentious among philosophers, psychologists, and even laypersons for centuries. While some theorists have declared that free will is nothing more than an illusion (e.g., Wegner, 2004) or the mistaken assumption of conscious causation (e.g., Bargh, 2008), many assert that the existence of free will is not of utmost importance, but rather the *belief* in free will is what bears the most weight on our thoughts and actions (Bergner & Ramon, 2013; Monroe & Malle, 2010). Indeed, over the past decade, there have been burgeoning lines of research attesting to the importance of believing in free will (see Baumeister & Brewer, 2012, for a review). In fact, there has been a large niche of research that has focused extensively on the influence of free will beliefs on morally relevant behaviors such as cheating (Vohs & Schooler, 2008), aggression (Baumeister, Masicampo, & DeWall, 2009), and ungratefulness (Mackenzie, Vohs, & Baumeister, 2014). While establishing that free will beliefs, in fact, have meaningful consequences on moral behavior, little research has yet to empirically demonstrate *why* this belief influences moral action as well as *how* researchers and practitioners can augment people's belief in free will in the long term.

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The current research is designed to address these gaps in literature by investigating a potentially important mechanism, perceived true self-knowledge, for this relationship and developing an intervention aimed at reliably boosting people's free will beliefs. The present studies specifically test the hypothesis that attenuating free will beliefs will reduce people's subjective experience of knowing their "true self" such that they subsequently engage in less moral behaviors. To mitigate these effects, a secondary hypothesis examined whether increasing people's belief in free will makes people feel more "in touch" with their true selves and propel them to behave more virtuously.

Lay Understanding of Free Will

While scholars may operationalize free will in different terms, most people understand free will as the ability to freely choose their own actions and determine their own outcomes (Aarts & van den Bos, 2011; Bergner & Ramon, 2013; Mele, 2006; Stillman & Baumeister, 2010). For instance, in an attempt to distinguish between scholarly conceptions of free will focused primarily on discussions about causation and determinism and ordinary people's understanding of free will, Monroe and Malle (2010) discovered that free will is perceived by laypersons as a choice to behave according to one's desires without internal or external pressures (see also Monroe, Dillon, & Malle, 2014). Similarly, Stillman, Baumeister, and Mele (2011) sought to examine how laypersons differentiate between actions indicative or not indicative of free will. Content analyses of autobiographical narratives indicate that behaviors involving action control such as goal progress and achievement, conscious evaluation of decisions, and moral behaviors reflect acts of free will. More recently, Feldman, Baumeister, and Wong

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(2014) assessed the link between belief in free will and the concept of choice and found a strong cognitive association between the two ideas. More specifically, the more people believe in free will, the stronger they associate the experience of choice with freedom. Taken together, the feeling that people can freely choose actions among infinite options seems to be central to many lay beliefs about free will.

A complementary perspective of free will is the notion that individuals have the opportunity to act in numerous ways in the same situation (Baumeister, Bauer, & Lloyd, 2010; Mackenzie, Vohs, & Baumeister, 2014). In contrast to the philosophical understanding of determinism, which posits that every event is casually inevitable, and only one action and one outcome is possible, free will suggests that any set of actions could result in different outcomes (Alquist, Ainsworth, Baumeister, Daly, and Stillman, 2015; Bergner & Ramon, 2013; Mackenzie et al., 2014). Unsurprisingly, belief in free will is positively associated with internal locus of control (Paulhus & Carey, 2011; Stillman et al., 2011), self-efficacy (Crescioni, Baumeister, Ainsworth, Ent, & Lambert, 2016), and the Big Five traits of conscientiousness, emotional stability, and openness to experience (Stillman et al., 2011). This research suggests that belief in free will is deeply intertwined with traits that embody agency and autonomy. In line with these ideas, belief in free will is argued to promote willingness to exercise effortful control over one's behavior (Stillman, Baumeister, Vohs, Lambert, Fincham, & Brewer, 2010). Research has also found that belief in free will leads people to imagine more counterfactual possibilities or how things "might have been" (Alquist et al., 2015). While free will indeed encompasses the experience of choice, pivotal to its conceptualization is the

ability to engage in many alternative actions that may lead to a multitude of outcomes.

Belief in Free Will and Moral Responsibility

The belief that people have the license to behave infinitely is remarkably widespread. A myriad of research has shown that most people believe in free will (Nahmias, Morris, Nadelhoffer, & Turner, 2005), and many even believe they have more free will than others (Pronin & Kugler, 2011). Moreover, belief in free will is not limited to western cultures; in fact, intuitions about free will have been demonstrated cross-culturally (Sarkissian, Chatterjee, De Brigard, Knobe, Nichols, & Sirker, 2010). The prevalence of free will beliefs suggests that it has functional significance and vast implications for social attitudes and behavior. This functional significance, according to some theorists (e.g., Clark et al., 2014), is a sense of moral responsibility.

The proposition that free will beliefs serve to hold the self and others personally and morally responsible for their behaviors has been empirically supported. For instance, Bergner and Ramon (2013) found a strong relationship between belief in free will and morality. More specifically, greater belief in free will is associated with the perception that morality guides most human behavior and is related to having higher moral standards. Belief in free will has also been linked to belief in a just world for others and for oneself (Carey & Paulhus, 2013). It seems the affordance of choice inherent in free will beliefs suggests that the world is fair and just, and people get what they deserve. In a similar vein, people who believe in free will tend to extract more meaningful lessons after reflecting on past misdeeds, suggesting that people indeed think about ways they could have acted differently and can presumably be more upstanding in the future

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(Stillman & Baumeister, 2010).

   The intimate relationship between belief in free will and moral responsibility is also echoed in research investigating punitive actions and retribution. Research has found that believing in free will increases the severity of punishment toward people who commit immoral (Clark et al., 2014; see also Shariff et al., 2014) or criminal acts (Paulhus & Carey, 2013). Similarly, when judging the moral actions of a person in a hypothetically deterministic universe, people ascribe greater moral responsibility for a wrongdoing if they believe people have free will or the ability to do "otherwise" (Nahmias et al., 2005; see also Feltz & Cova, 2014; Nichols & Knobe, 2007). In this way, perceiving the transgressor's actions as freely chosen increases the culpability of their behavior. Thus, belief in free will is important in assigning moral responsibility and serves to justify punishment for less virtuous members of society.

Belief in Free Will and Immoral Behavior

   If believing in free will instills a sense of moral responsibility, undermining these beliefs should provide people with a license to behave unscrupulously. Indeed, an extant amount of research has shown that this is the case. In their provocative research on disbelief in free will and cheating behaviors, Vohs and Schooler (2008) found that temporarily attenuating belief in free will, by exposing people to deterministic worldviews, increases dishonesty and encourages cheating. They argue that the absence of belief in free will can undermine the self as agent, thereby reducing one's sense of personal responsibility and promoting negative behavior. This influential finding inspired more inquiries into the behavioral effects of belief in free will. For instance,

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Baumeister and colleagues (2009) found that inducing disbelief in free will reduces prosocial intentions, helping behaviors, and increases aggression towards others. Similarly, Stillman and Baumeister (2010) found that disbelief in free will reduces volunteerism, and this effect was especially pronounced for individuals high in psychopathy. While belief in free will motivates people to behave according to high moral standards, disbelief in free will suggests that people have little control and choice in their actions, and instead, urges people to behave in more impulsive, automatic ways. Without belief in free will guiding behavior, people cannot be held responsible for their actions and behave more negatively as a consequence.

While not directly classified as immoral behaviors, reducing belief in free will has been shown to influence other important psychological phenomenon such as conformity (Alquist, Ainsworth, & Baumeister, 2013) and gratitude (MacKenzie et al., 2014). Research has found that attenuating free will beliefs causes people to lose their motivation to exercise self-control and think for themselves, increasing the likelihood that they will conform to group norms (Alquist et al., 2013). While the valence of conformity is subject to individual interpretation, if normative behavior resembles immoral actions, there is a possibility for many downstream consequences of following the thoughts and behaviors of others. Moreover, belief in free will is argued to be an important component of experiencing gratitude (MacKenzie et al., 2014). MacKenzie and colleagues (2014) found that modifying belief in free will changes perceptions of motivational sincerity. That is, when people's belief in free will is reduced, they perceive benefactors as having less free will and do not feel as much gratitude for their acts of

prosocial behavior. This is particularly important in that free will beliefs can alter judgments of one's moral character.

The relationship between belief in free will and morally relevant behaviors suggests that people are causal agents in the social world. That is, there is a sense of authorship behind each choice or action one makes. Providing a direct test of this association, research has found that inducing disbelief in free will attenuates different components of self-agency (Lynn, Muhle- Karbe, Aarts, & Brass, 2014). Additionally, Aarts and van den Bos (2011) found that belief in free will is strengthened when people perceive they are willfully producing chosen outcomes while engaging in goal-directed behaviors. They suggest that the "intentional binding" between action and outcome produces feelings of self-agency underlying free will beliefs (Aarts & van den Bos, 2011, p. 533). Furthermore, belief in free is associated with proximal determinants of agency such as higher self-efficacy, greater mindfulness, lower levels of perceived life stress, and the pursuit of meaningful goals (Crescioni et al., 2016). Overall, these findings suggest belief in free will invokes a sense of agency and heightens the experience of action control.

Personal agency is also often used to explain the many effects of belief in free will. For instance, the relationship between disbelief in free will and conformity may be due to the fact that undermining the existence of free will causes people to exert less effort to think independently; this in turn makes them more vulnerable to social influence (Alquist et al., 2013). In other words, attenuating free will beliefs diminishes feelings of self-agency, increasing normative behavior. Similarly, one possibility for

why people with high free will beliefs generate more counterfactual thoughts about the self (Alquist et al., 2015) is that free will greatly contrasts an alternate state of affairs with actual reality. Self-focused counterfactuals instill the belief that people can *freely* engage in better decisions and actions in the future. Of particular relevance to the current research, agency can help explain the immoral outcomes of disbelieving in free will. As previously mentioned, Vohs and Schooler (2008) suggest that the absence of free will can undermine the self as agent and create a "'why bother?' mentality" such that people lose their sense of self-control and engage in unethical behaviors such as cheating (p. 54). In a similar vein, Baumeister et al. (2009) contend that disbelief in free will diminishes self-control and the experience of volition, producing antisocial behaviors such as aggression and reduced helpfulness. Taken together, when individuals feel they can freely choose their own actions and control the outcomes of a situation, they evoke a sense of personal agency that helps them navigate their behaviors in the social world.

Belief in Free Will and the True Self

The belief that one can freely will their actions suggests that the self, as an acting agent in the social world, plays a guiding role in behavior. The experience of personal agency and causation invoked from free will beliefs suggests that it can influence people's core assumptions about who they are or their "true self" (Newman, De Freitas, & Knobe, 2015; Schlegel & Hicks, 2011). The true self is generally understood as a set of immutable characteristics and attributes within individuals that influences healthy psychological functioning (see Horney, 1950; Jung, 1953; Miller, 1979; Rogers, 1959; Winnicott, 1960). Lay theories about the true self suggests that it is a relatively private

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entity that may be separate from one's behaviors (e.g., Laing, 1960) and may be an hidden aspect of one's self subject to discovery (Schlegel, Vess, & Ardnt, 2012).

To capture one's subjective understanding of the true self, researchers have focused on the experience of self-alienation or true-self awareness. Self-alienation refers to feeling disconnected or "out of touch" with one's true self (Costas & Fleming, 2009; Rokach, 1988; Wood, Linley, Maltby, Baliousis, & Joseph, 2008). These feelings arise when there is a discrepancy between one's conscious awareness and one's actual experience of thoughts and emotions. True-self awareness reflects one's trust and responsiveness to one's core or real self (Kernis & Goldman, 2006). This entails the acknowledgement of one's strengths and weaknesses and feeling "in touch" with one's internal motives and desires. Both self-alienation and true-self awareness are vital components of the higher order construct of authenticity, conceptualized as the unhindered operation of one's true self in daily life (Wood et al., 2008; Kernis & Goldman, 2006).

Research is beginning to explore the implications belief in free will has on the true self. Recently, Seto and Hicks (2016) discovered that attenuating free will beliefs reduces people's subjective experience of knowing their true self. More specifically, people report feeling more alienated from their true selves, less true-self awareness, and experienced lowered perceptions of authenticity when their sense of choice and control over their actions have been threatened. This relationship can be explained by the same personal agency inherent in free will beliefs. Many theoretical perspectives suggest that personal agency represents an essential component of one's identity (e.g., Ryan & Deci,

2000). Our sense of self is also thought to emanate from how we ascribe authorship or agency to our actions (Wegner, 2003). Because a sense of agency is uniquely tied to the self, then lowering belief in free will creates a division between one's acting agent and their true self. Losing a sense of agency is analogous to losing a fundamental aspect of our identity, causing people to feel less certain about who they really are.

The loss of true self-knowledge when belief in free will is weakened may help explain why disbelief in free will has been associated with many immoral or antisocial behaviors. It is possible that people are more likely to behave without a sense of moral self-regulation when their acting agent is out of touch with their true self. At a fundamental level, people believe their true selves are morally good (Newman, Bloom, & Knobe, 2014). In fact, research has found that inauthentic behaviors (i.e., behaviors that do not reflect one's true self) incite feelings of immorality (Gino, Kouchaki, & Galinsky, 2015). It is plausible that when belief in free will is diminished, and we feel that our actions do not embody our true selves, we may act without a sense of moral responsibility. That is, reducing belief in free will may remove our true self as a "moral compass," making it more likely to engage in antisocial behaviors.

The True Self and Immoral Behaviors

There is an emerging line of research illustrating that moral character is an essential component to personal identity. For instance, people are more likely to ascribe morally good qualities (e.g., racial equality) to an agent's true self compared to morally bad qualities (e.g., racial discrimination), suggesting that people have a strong tendency to believe the true self is fundamentally good (Newman et al., 2015). Similarly, people

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tend to place more value on moral character traits such as courage, fairness, and honesty when making judgments about a person's identity (Goodwin, Piazza, & Rozin, 2014). Research has also found that changes to a person's moral character traits reflect changes to a person's true self more than changes to other characteristics about the self, including non-moral personality traits, basic cognitive processes, memories, and desires/preferences (Strohminger & Nichols, 2014). Thus, it seems that moral information greatly bears on our evaluations of the self.

More importantly, research is beginning to explore how the relationship between perceptions of the true self and perception of morality influences moral regulation of behavior. Recently, Gino, Kouchaki, and Galinsky (2015) found evidence that behaving inauthentically (i.e., failing to act in accordance with one's true self) violates one's sense of morality. When participants recalled instances in which they were untrue to their selves, they experienced greater feelings of immorality and impurity and engaged in compensatory prosocial behaviors to restore their moral goodness. This is parallel to research demonstrating that people are more likely to engage in compensatory helping behaviors after recalling unethical deeds (e.g., Lee & Schwartz, 2010a; Zhong & Liljenquist, 2006).

While Gino and colleagues (2015) assessed authenticity as a predictor of moral judgment, research by Christy, Seto, Schlegel, Vess, and Hicks (2016) examined moral behavior as a predictor of subjective self-knowledge. They found that reflecting on past immoral behaviors attenuates current perceptions of self-knowledge such that people report feeling less "in touch" with their true selves. These findings are consistent with

moral rationalization (see Tsang, 2002), in which people try to uphold their sense of moral goodness by justifying their immoral actions. It is possible that people may deny self-knowledge after committing immoral acts, as a means of maintaining the belief that one's true self is morally good. Together, this seminal work illustrates the unique intersection between the true self and morally relevant behaviors.

Overall, these findings suggest a strong interface between belief in free will, subjective perceptions of the true self, and moral and immoral conduct. Attenuating belief in free will has been linked to feeling less in touch with one's true self (Seto & Hicks, 2016) as well as a host of negative outcomes (see Vohs & Schooler, 2008; Baumeister et al., 2009). Similarly, true self-knowledge and authenticity are uniquely tied to moral and immoral behaviors (Christy et al., 2016; Gino et al., 2015). The current research aims to bridge these lines of research together by empirically examining the role true self-knowledge plays in the relationship between belief in free will and moral and immoral actions. Specifically, this research tests the hypothesis that diminishing free will beliefs attenuates people's perceptions of true self-knowledge such that they subsequently engage in less moral behavior.

The current research will first examine whether the relationship between belief in free will and morally relevant behavior is mediated by subjective perceptions of true self-knowledge, as illustrated in Figure 1. This mediation model will test the main prediction that diminishing free will beliefs reduces true self-knowledge such that participants engage in less moral actions.
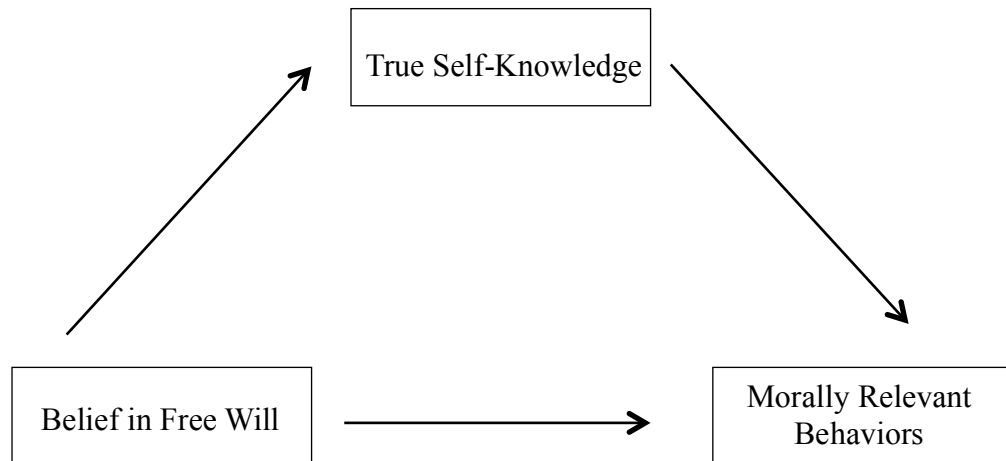
Figure 1. Proposed mediation model.

Although it is possible that true self-knowledge mediates the relationship

between belief in free will and morally relevant behaviors, it is also plausible that true

self-knowledge *moderates* the relationship between free will beliefs and moral and

immoral action. Exploratory analysis will test two competing predictions. The first

prediction is that true self-knowledge interacts with belief in free will to predict immoral

conduct such that participants reporting less self-knowledge would behave more

immorally in the low belief in free will condition compared to participants reporting

greater self-knowledge or in the high belief in free will condition. That is, one's sense of

moral responsibility is the least regulated when people's beliefs about free will are

threatened and they feel less in touch with their moral, true selves. On the other hand, it

is possible that participants with less self-knowledge in the high belief in free will

condition will behave more immorally compared to those with greater self-knowledge or

in the low free will condition. Perhaps, believing in free will promotes moral

responsibility only to the extent that people feel close and connected with their moral

true selves. Thus, the proposed research will also explore the moderation model

illustrated in Figure 2.
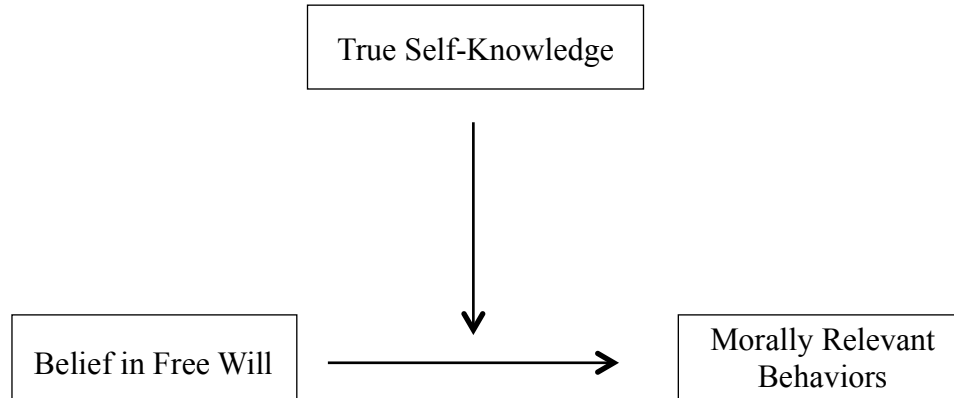
Figure 2. Proposed moderation model

Overview of the Studies

Two studies investigated the potential mediating (or moderating) role of the true

self in the regulation of morally relevant behaviors. The current set of studies focused on

prosocial emotions, intentions, and behaviors as the primary dependent variable, as

previous research has already established a link between free will beliefs and helpfulness

(Baumeister et al., 2009). Additionally, prosocial actions are often used as compensatory

behaviors following immoral conduct, suggesting that prosociality is a strong example of

moral behavior (Lee & Schwartz, 2010a; Zhong & Liljenquist, 2006).

Study 1 examined whether manipulating belief in free will influences prosocial

emotions (e.g., compassion, empathy), intentions (e.g., willingness to donate money and

willingness to help), and actions (e.g., volunteering for a service project). Study 2 is an

intervention study aimed at augmenting free will beliefs. Sample sizes for both studies

were determined as follows: To provide adequate power to detect effect sizes, a sample

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size of over 100 participants per cell was determined before data collection based on recommendations in the psychological literature (e.g., Simmons, Nelson, & Simonsohn, 2011; VanVoorhis & Morgan, 2007). Data collection was terminated after this goal was met.[1]

Pilot Study

A pilot study was conducted to examine whether true self-knowledge mediated and/or moderated the relationship between belief in free will and morally relevant behaviors. The dependent variable used in the pilot study was a self-report measure of prosocial intentions. The pilot study aimed to conceptually replicate research linking belief in free will and helpfulness (Baumeister et al., 2009). True self-knowledge was assessed using a measure of self-alienation, which refers to the extent to which one feels "out of touch" with his or her true self (Wood et al., 2008). Based on the proposed mediation model, the main prediction is that diminishing belief in free will gives rise to feelings of self-alienation, and in turn, reduces people's intentions to behave prosocially. The exploratory moderation model will test the two competing interaction effects described earlier.

Participants

Two hundred sixty-two individuals (166 female; M_{age} = 18.63, SD = .81) recruited from the Texas A&M University psychology subject pool participated in a

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[1] The data collection for Study 2 was terminated before the sample size goal was met due to slow recruitment.

[2] Seven participants were excluded from analyses for failing to follow instructions for completing the free will manipulation (e.g., wrote about how the statements are true instead of false in the low belief in free

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study for partial completion of course requirements. Participants were predominantly white (77%) and non-Hispanic (75%).

Materials and Procedure

Participants were escorted to a private computer and were informed that they would be participating in a study exploring their personality and attitudes. Participants completed the measures described below and were debriefed following the end of the study.

Free Will Manipulation. Participants completed the free will manipulation developed by Seto and Hicks (2016; see Appendix A). Participants were randomly assigned to read a brief description about high or low belief in free will and were presented with 10 statements that reflect belief in free will. Participants were asked to think about "why these statements are true (false) based on [their] own experiences and select a statement from the list below that have proven especially true (false) in [their] life," for high and low belief in free will conditions, respectively. Finally, they described how each chosen statement is true (false) based on their own experiences and "think about specific examples from [their] life and provide as much detail as possible." Participants selected a total of three statements.

Participants indicated their agreement with a general belief in free will statement (e.g., "People have complete free will.") taken from the FAD-Plus (Paulhus & Carey, 2011) as a manipulation check. Responses were made on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Higher scores indicated greater general belief in free will ($M = 5.21$, $SD = 1.39$).

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Self-Alienation. Participants completed the self-alienation subscale of The Authenticity Scale (Wood et al., 2008; see Appendix B). Responses (e.g., "I feel as if I don't know myself very well.") were made on a 7-point scale (1 = *does not describe me at all*; 7 = *describes me very well*). A composite score was created by averaging all the responses. Higher scores indicated higher self-alienation ($M = 2.47$, $SD = 1.43$, $\alpha = .91$).

Prosocial Intentions. Prosocial intentions were assessed using a 30-item measure developed by Gaesser and Schacter (2014; see Appendix C). Participants read 30 scenarios that describe everyday situations of people in need (e.g., lost dog, locked out of a house, sudden illness). Then, they rated their willingness to help a person in need using a 7-point scale (1 = *not at all*, 4 = *moderately willing*, 7 = *very willing*). A composite score was created by averaging all the responses. Higher scores indicated greater prosocial intentions ($M = 5.43$, $SD = .93$, $\alpha = .95$).

Results and Discussion

To ensure the free will manipulation was successful, an independent samples *t*-test was conducted. There were significant differences in general belief in free will ($t(252) = -3.839$, $p = .000$, 95% CI [-.970, -.312], $d = .520$). Participants in the high free will belief condition reported greater free will beliefs ($M = 5.53$, $SD = 1.23$) compared to participants in the low free will belief condition ($M = 4.89$, $SD = 1.46$).

An independent samples *t*-test was also conducted to examine differences in prosocial intentions and self-alienation between free will conditions. There was a marginally significant difference in prosocial intentions ($t(260) = -1.692$, $p = .092$, 95% CI [-.419, .032], $d = .205$). The results were in the predicted direction such that

participants in the low belief in free will condition reported less willingness to help another person ($M = 5.33$, $SD = .98$) compared to participants in the high belief in free will condition ($M = 5.52$, $SD = .87$). Surprisingly, the difference in self-alienation was trending towards significance ($t(260) = 1.607$, $p = .109$, 95% CI [-.064, .629], $d = .199$). The results were in the predicted direction such that participants in the low belief in free will condition reported greater self-alienation ($M = 2.61$, $SD = 1.46$) compared to participants in the high belief in free will condition ($M = 2.33$, $SD = 1.39$).

Mediation. Although there was not a traditionally significant difference in prosocial intentions and self-alienation between free will conditions, a meditational analysis was conducted to examine the indirect effect of condition on prosocial intentions through perceived self-alienation. Researchers have argued that the presence of a total effect is not a necessary condition for observing significant indirect effects through theoretically meaningful mediators (Hayes, 2009; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Rucker, Preacher, Tormala, & Petty, 2011; Shrout & Bolger, 2002; Zhao, Lynch, & Chen, 2010).

A bootstrapping analysis (Preacher & Hayes, 2008) based on 5,000 resamples tested whether the indirect effect of the condition on prosocial intentions through self-alienation was significantly different from zero. Unfortunately, the 95% CI for the indirect effect contained zero [-.009, .069], indicating that the indirect effect of condition on prosocial intentions through perceived self-alienation was not significant.

Moderation. To examine the influence of self-alienation and free will condition on prosocial intentions, a hierarchical regression equation was computed. Self-alienation

was standardized, the free will condition was dummy-coded (0 = low free will condition; 1 = high free will condition), and the product of these variables was used as the interaction term (Aiken & West, 1993). The main effect of free will condition marginally predicted prosocial intentions (β = .169, p = .139), and self-alienation significantly predicted prosocial intentions (β = -.122, p = .034) on the first step of the regression equation (R^2 change = .028, p = .025). The self-alienation × free will condition interaction entered on the second step was significant (β = -.271, p = .018; R^2 change = .021). Simple slope analyses revealed that self-alienation significantly predicted prosocial intentions in the high belief in free will condition (β = -.264, p = .001), but not in the low belief in free will condition (β = .006, p = .935). Thus, participants with greater self-alienation in the high free will condition reported less prosocial intentions compared to those with less self-alienation or in the low free will condition. Results are illustrated in Figure 3.
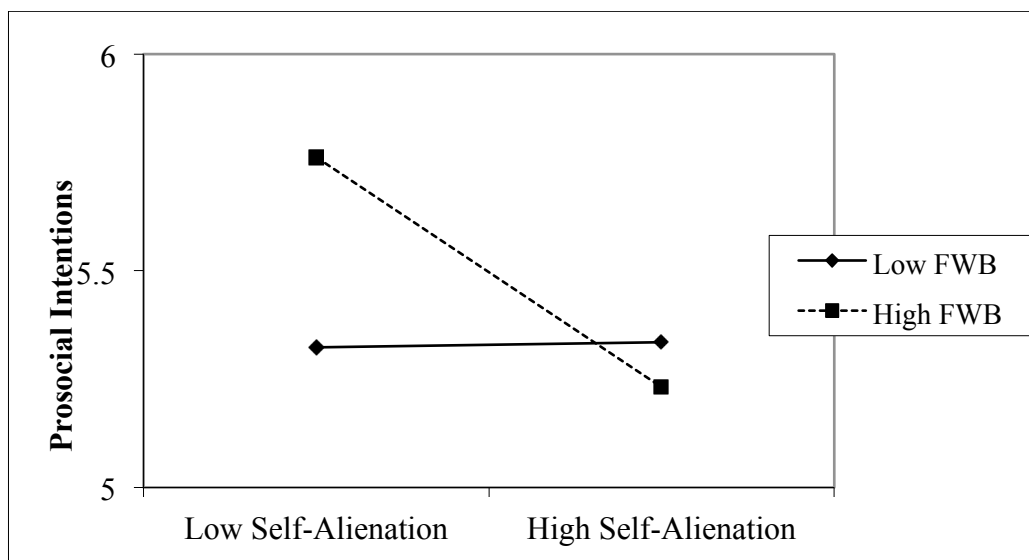

Figure 3. Prosocial intentions as a function of free will condition and self-alienation in the pilot study. Predicted values are plotted at ± 1 SD from the mean of self-alienation.

CHAPTER II

STUDY 1

The findings from the pilot study provide preliminary evidence that true self-knowledge plays an important role in the relationship between free will beliefs and moral conduct. Although the difference in prosocial intentions between conditions was not significantly mediated by self-alienation, there is initial support for the moderating role of self-alienation. Interestingly, participants with greater self-alienation in the high belief in free will condition reported less prosocial intentions compared to those with less self-alienation or in the low belief in free will condition. This suggests that greater belief in free will increases prosocial intentions only to the extent that people feel closer and more "in touch" with their true selves.

Although the pilot study offers preliminary support for true self-knowledge as a potential mechanism between belief in free will and morally relevant behaviors, it is important to note two limitations. First, the lack of traditional statistical significance for self-alienation was unexpected. In previous research, attenuating belief in free will has demonstrated a robust effect on self-alienation (see Seto & Hicks, 2016). However, the effect size for the differences in self-alienation between conditions is comparable to previous studies, suggesting that this general effect is not necessarily due to chance. Additionally, the short hypothetical stories depicting people in need may not have been the strongest measure of prosocial intentions. Although the stories were diverse and adapted from various sources of online media, some items did not provide adequate

variability in helpfulness. For instance, items such as "A person's child is a weak swimmer, and is struggling to swim back to shore" or "A person is suffering from dementia and is lost in a mall" had particularly high levels of willingness to help whereas items such as "During a snowstorm, a person is sitting in a nearby airport when they find out their scheduled flight home for the holidays has been cancelled" may be geographically-specific and subject to lower prosocial intentions. The prosocial intentions measure may also be less personally relevant than other measures. That is, the stories are relatively ambiguous and do not provide a clear indication of direct helping behavior (e.g., "giving money to a homeless person"). These limitations will be addressed in Study 1.

The goal of Study 1 was to develop a better test of the hypothesis by using a stronger measure of prosocial intentions. Specifically, participants read ostensible autobiographies of members of their local community in a situation of need. A member of the local community was chosen to make the helping scenario more potentially relevant to the participant. This is similar to helping paradigms in which participants are asked to help a fellow college student and have been used in classic studies of helping behavior (e.g., Batson et al., 1997). In addition to a new measure of prosocial intentions, Study 1 also examined whether prosocial emotions such as compassion and empathy and specifically prosocial behavior are influenced by free will beliefs and perceived true self-knowledge. Prosocial emotions can be an important indication of moral character and have not been empirically examined in previous research. Previous research has also yet to explore the effect of belief in free will on actual prosocial behavior. Finally, Study 1

tested two alternative mediators and/or moderators: self-control and personal agency. Previous research suggests that self-control (Baumeister et al., 2009) and personal agency (Alquist et al., 2011) explain the influence of disbelief in free will on moral outcomes, yet these proposed variables have never been empirically tested.

Based on the proposed mediation model, it is expected that reducing people's free will beliefs will attenuate true self-knowledge such that people report less prosocial emotions, intentions, and behavior. The moderation model will also be tested. Both models will additional assess self-control and agency as potential mediators and/or moderators of the proposed relationship between belief in free will and prosociality.

Pilot Study of Helping Scenarios

Before conducting Study 1, a pilot study was administered to ensure the helping scenarios elicit variability in helpfulness.

Participants

Twenty undergraduate research assistants were recruited from the researcher's laboratory to complete the pilot study for the prosocial dependent measures. The research assistants were unaware of the study's true purpose. They read 10 short stories about individuals in a variety of situations that potentially need help and completed measures of prosocial emotions and intentions described below (see Appendix G). Out of the 10 helping scenarios, 3 scenarios eliciting moderate levels in prosocial intentions were chosen for the study.

Materials and Procedure

Compassion. Compassion was assessed using 2 items. Participants indicated how much compassion they felt "towards [the actor] and [his or her] situation." They were also asked to "imagine that [the actor] was someone who lived in your town" and to what extent would they "offer [the actor] emotional support." Responses were made on a 7-point scale (1 = *not at all*; 4 = *moderately*; 7 = *very much*). Both items were averaged together to create a composite compassion score ($M = 5.36$, $SD = .75$, $\alpha = .90$).

Empathy. Empathy was assessed using 2 items. Participants indicated how much empathy they felt "towards [the actor] and [his or her] situation" and to what extent does "thinking about [the actor's] situation" makes them feel sad or concerned. Responses were made on a 7-point scale (1 = *not at all*; 4 = *moderately*; 7 = *very much*). Both items were averaged together to create a composite empathy score ($M = 5.26$, $SD = .88$, $\alpha = .93$).

Prosocial Intentions to Donate. Prosocial intentions to donate money were assessed using 1 item. Participants were asked to imagine they have $50 and whether they would "keep the $50" for themselves or "donate part or all of the money to [the actor]." Participants indicated the exact amount of money they were willing to donate to the actor in the scenario. Higher scores indicated greater intentions to donate money ($M = 26.73$, $SD = .87$, $\alpha = .94$).

Prosocial Intentions to Help. Prosocial intentions to help were assessed using 1 item. Participants indicated "how likely" they would be willing "to help [the actor] in this situation." Responses were made on a 7-point scale (1 = *not at all*; 4 = *moderately*; 7

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= *very much*). Higher scores indicated greater prosocial intentions to help ($M = 4.97$, *SD*

= .87, α = .83).

Prosocial Behavior. Prosocial behavior was assessed using 1 item. Participants

were asked to imagine they had "a real opportunity to help [the actor]." They were asked

if they would volunteer to help the actor and "how many hours in one week" they would

be willing to spend helping the actor. Higher scores indicated greater number of hours

volunteered ($M = 4.72$, *SD* = 2.03, α = .91).

Results

Prosocial Scenarios. To determine the scenarios used for the study, each of the

10 scenarios were ranked according to least prosocial intention to most prosocial

intention based on their mean responses. Three prosocial scenarios were adapted based

on the middle rankings: 1.) Intention to help a teacher at a school district with low

funding 2.) Intention to help the founder of a meal delivery organization maintain his

business 3.) Intention to help an individual who has suffered physical injuries and

financial difficulties from a car accident. See Table 1 for the means.

Prosocial Intention	Mean (SD)
Table 1. Items used in pilot study, ranked from least to most prosocial intention based on mean responses.	
1. Bob Houseman's local business is in danger of bankruptcy because a major corporation recently opened in his town. He keeps losing customers from the competition and is worried he will lose his business and sole source of income.	4.33 (1.24)
2. Edith Jones' house was recently broke into by burglars. All of her family's valuables were stolen including the new computers she bought for her children to use for school.	4.33 (1.74)
3. Chelsea Johnson is a single mother of three children and has recently decided to go back to college to finish her bachelor's degree. Unfortunately, she did not receive any financial aid for school and does not know how she will be able to pay for college.	4.62 (1.16)
4. Annie Davidson lost her job at a company she has been with for 25 years due to budget cuts. She was only a few years from retirement and has lost her entire pension. She is currently having difficulty finding another job.	5.05 (1.63)
5. John Matthews is a teacher at a school district with low funding. Each month, he uses a significant amount of his paycheck to pay for basic necessities such as textbooks for each of his students, but now he is running into his own financial difficulties.	5.10 (1.41)
6. Matt Taylor is the founder of an organization that delivers free meals to people in need around the community. His organization is currently low on financial resources, and he is unable to pay his drivers for their work.	5.10 (1.41)
7. George Thompson was in a car accident that left him with physical injuries as well as extensive damages to his car. His current salary is not enough to cover the costs of both the car repairs and his hospital bills.	5.14 (1.59)
8. Michael Jones' neighborhood recently suffered from massive flooding. His car has severe water damage and needs extensive repairs. Michael is the sole source of income for his family and needs the car repaired as soon as possible, so he can return to work.	5.24 (1.14)
9. Jordan Carson was diagnosed with a rare medical condition and wants to complete several medical trials to see if it would help improve her health. The medical trials are expensive, and her insurance is not able to cover the costs.	5.29 (1.27)
10. Karen Blakenship lost her home when a natural disaster hit her house unexpectedly. While she is working hard to restore the damage, Karen is having difficulty balancing the costs of staying in a hotel and paying for the repairs to her house.	5.57 (1.12)

Method

Participants

Two hundred and six participants[2] were recruited from the psychology subject pool at Texas A&M University (148 female, 3 unreported; $M_{age} = 18.62$, $SD = 1.84$).

Materials and Procedures

Participants were escorted to a private computer and were informed that they would be participating in two unrelated studies. They were told the first study examined their personality and individual beliefs, and the second study is a department wide survey assessing their perceptions about the Bryan/College Station (B/CS) community where the university is centrally located. Participants completed the measures described below and were debriefed following the completion of both studies.

Free Will Manipulation. Participants completed the same free will manipulation and general belief in free will manipulation check item ($M = 5.17$, $SD = 1.51$) described in the pilot study (Seto & Hicks, 2016). Participants completed a second manipulation check item assessing personal belief in free will ("I have complete free will.") from the Free Will and Determinism Scale (Rakos, Laurene, Skala, & Slane, 2008; see Appendix A). The second manipulation check item was administered to ensure that participants' belief in free will applies to themselves as well as others. This item used a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Higher scores indicated greater personal belief in free will ($M = 5.86$, $SD = 1.28$).

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[2] Seven participants were excluded from analyses for failing to follow instructions for completing the free will manipulation (e.g., wrote about how the statements are true instead of false in the low belief in free will condition), leaving 199 individuals in the final sample. The effect of the main analyses remains unchanged when these participants were included.

Self-Alienation. Self-alienation was assessed using the same 4-item self-alienation subscale of the Authenticity Scale (Wood et al., 2008) described in the pilot study ($M = 2.38$, $SD = 1.43$, $\alpha = .90$).

Self-Control. Self-control was assessed using the Self-Control Scale (Tangney, Baumeister, & Boone, 2004; see Appendix D). Participants indicated their agreement on 10 statements (e.g., "I refuse things that are bad for me, even if they are fun.") using a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Higher scores indicated greater self-control ($M = 4.26$, $SD = 1.01$, $\alpha = .82$).

Personal Agency. Personal agency was assessed using the Involunariness Subscale of the Sense of Agency Rating Scale (Polito, Barnier, & Woody, 2013; see Appendix E). Participants indicated their agreement on 5 statements (e.g., "My experiences and actions are under my control.") using a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Higher scores indicated greater personal agency ($M = 5.44$, $SD = .81$, $\alpha = .71$).

Prosociality. Participants were told about a new organization at their university called, "Aggies Helping Texans" (see Appendix F). This student organization offers financial aid and other forms of assistance to people living in their local community who have endured particular hardships. They are further told that Aggies Helping Texans is hoping to develop a recognized philanthropic initiative in the community and that the Psychology and Economics Departments are creating an impact report to help them acquire their local initiative. To build their impact report, participants were asked to read about three members of the local community currently in need of assistance and evaluate

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their attitudes towards these people. Participants read three short autobiographies of hardship adapted from the three scenarios chosen from the pilot study. Then, participants completed similar measures of compassion ($M = 5.40$, $SD = .92$, $\alpha = .82$), empathy ($M = 5.14$, $SD = .96$, $\alpha = .83$), prosocial intentions to donate ($M = 22.78$, $SD = 12.71$, $\alpha = .71$), and prosocial intentions to help ($M = 4.97$, $SD = 1.13$, $\alpha = .74$) described in the pilot study. The measures were averaged across all three helping scenarios and used in subsequent analyses.

After completing the measures of prosocial emotions and intentions, participants indicated whether they would be willing to provide their name and email address to volunteer to help one of the members of the community with their particular hardship. Two prosocial behavioral measures were assessed. Providing their email address for further contact served as the first behavioral dependent measure (49 participants opted to volunteer). Participants who provided their email address were also asked "how many hours" they would be willing to help their selected community member in the next week ($M = 2.49$, $SD = 1.44$, $\alpha = .99$; see Appendix H). At the end of the week, participants who provided their email address received an email from the Aggies Helping Texans organization asking for a specific favor for a community member. The second behavioral dependent measure was whether students would respond to the email indicating a commitment to volunteer at a specific time and day (see Appendix I).

Results and Discussion

Preliminary Analysis

An independent samples *t*-test revealed a significant difference in general free will beliefs ($t(197) = 2.122$, $p = .035$, 95% CI [.032, .871], $d = .307$) and personal belief in free will ($t(197) = 2.670$, $p = .008$, 95% CI [.124, .828], $d = .382$) such that participants in the high belief in free will condition reported greater general ($M = 5.35$, $SD = 1.49$) and personal free will beliefs ($M = 6.09$, $SD = 1.26$) than participants in the low belief in free will condition ($M = 4.89$, $SD = 1.51$, for general FWB; 5.61, $SD = 1.25$, for personal FWB). Thus, the manipulation of free will beliefs was successful. See Figure 4.
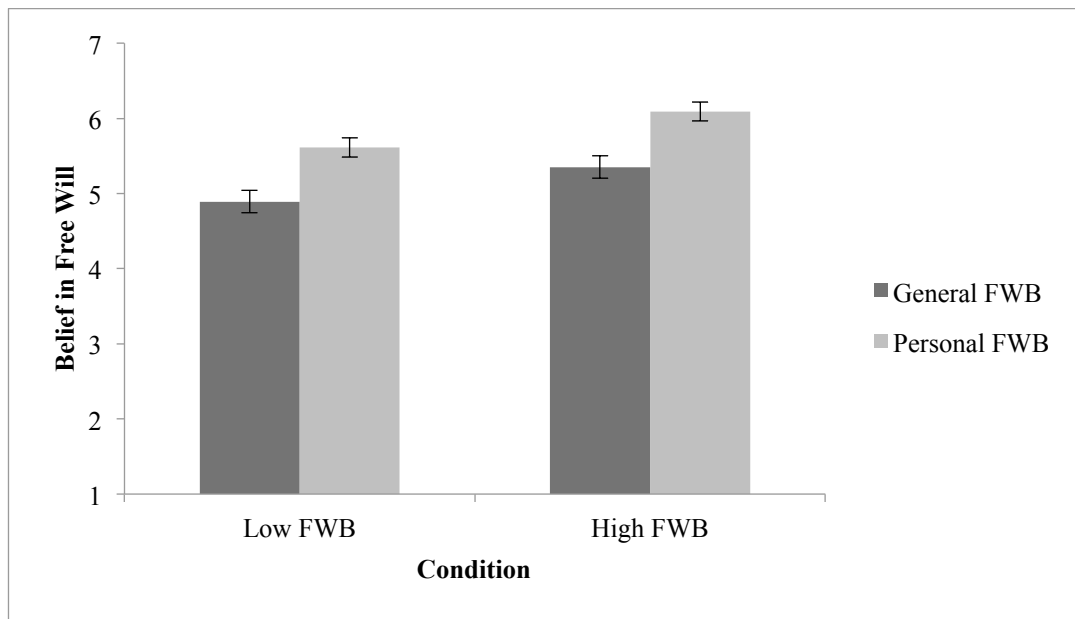

Figure 4. Manipulation check items illustrating differences in belief in free will by condition in Study 1. Standard errors are represented by the error bars.

Next, we examined differences in the proposed mediating variables between belief in free will conditions. Unexpectedly, there was no significant difference in self-

alienation between FWB conditions ($t(197) = -1.170$, $p = .243$, 95% CI [-.641, .164], $d = -.166$). However, participants in the low FWB condition reported greater self-alienation ($M = 2.54$, $SD = 1.53$) compared to participants in the high FWB condition ($M = 2.30$, $SD = 1.35$) as predicted. There was also not a significant difference with reports of self-control ($t(176) = .963$, $p = .337$, 95% CI [-.145, .423], $d = .137$; equal variances not assumed), although the findings were in the predicted direction such that participants writing about experiences with high FWB reported greater self-control ($M = 4.31$, $SD = .87$) than participants writing about experiences with lower FWB ($M = 4.18$, $SD = 1.13$). Finally, there were significant differences in agency ($t(197) = 2.362$, $p = .019$, 95% CI [.044, .492], $d = .336$) with participants in the high FWB condition reporting greater feelings of agency ($M = 5.55$, $SD = .86$) than participants in the low FWB condition ($M = 5.28$, $SD = .74$).

An independent samples t-test was conducted to examine differences in prosocial emotions, intentions, and behavior between conditions. There were no significant differences in compassion ($t(194) = -.423$, $p = .672$, 95% CI [-.313, .202], $d = -.061$), empathy ($t(194) = -.457$, $p = .648$, 95% CI [-.334, .209], $d = -.065$), prosocial intentions to donate money ($t(194) = -1.301$, $p = .195$, 95% CI [-5.938, 1.218], $d = -.186$), and prosocial intentions to help ($t(194) = -.220$, $p = .826$, 95% CI [-.355, .284], $d = -.032$). Participants reported similar feelings of compassion ($M = 5.43$, $SD = .90$) and empathy ($M = 5.17$, $SD = .90$) in the low FWB condition and the high FWB condition ($M = 5.38$, $SD = .93$, for compassion; $M = 5.11$, $SD = 1.02$, for empathy). Participants reported greater intentions to donate ($M = 24.00$, $SD = 13.46$) in the low FWB condition

compared to the high FWB condition ($M = 21.64$, $SD = 11.92$), although this difference was trending towards significance. Finally, participants reported similar intentions to help ($M = 4.99$, $SD = 1.08$) to help members of the B/CS community in the low FWB condition and the high FWB condition ($M = 4.95$, $SD = 1.18$).

After completing these measures on prosocial emotions and intentions, participants were asked if they were willing to sign-up to help the community members next week and how many hours they would be willing to volunteer for. Forty-nine participants provided their email addresses (26 in the high FWB condition and 23 in the low FWB condition). Participants in the high FWB condition reported greater willingness to volunteer more hours ($M = 2.84$, $SD = 1.67$) than participants in the low FWB condition ($M = 2.09$, $SD = 1.04$), although the difference was marginal ($t(47) = 1.868$, $p = .068$, 95% CI [-.058, 1.563], $d = .542$). These results should be interpreted with caution due to the small sample size.

Finally, a second behavioral measure of prosociality was included in which participants who provided their email address to volunteer were contacted about specific time and days they would be available to help these community members. However, due to the small sample size in response rate ($N = 1$), analyses were not conducted.

Correlations

Although there were no significant differences across condition for the primary mediator of interest and each of the prosociality measures, correlational analyses were conducted to examine the relationship between free will beliefs and each of the proposed mediators and measures of prosociality. Across conditions, there were significant

negative relationships between general and personal belief in free will and self-alienation (r(197) = -.209, p = .003, for general FWB; r(197) = -.263 p = .000, for personal FWB), suggesting the greater belief in free will, the less feeling of self-alienation. Additionally, there were significant positive associations between each of the belief in free will measures and agency (r(197) = .381, p = .000, for general FWB; r(197) = .436, p = .000, for personal FWB). This relationship suggests that greater free will beliefs are associated with greater feelings of personal agency. Importantly, there were significant positive correlations between general and personal belief in free will and compassion (r(194) = .231, p = .001, for general FWB; r(194) = .190, p = .008, for personal FWB), empathy (r(194) = .164, p = .022, for general FWB), and prosocial intentions to help (r(194) = .237, p = .001, for general FWB; r(194) = .208, p = .004, for personal FWB). These relationships suggest that greater belief in free will is associated with greater prosocial emotions and intentions. See Table 2 for correlations among all variables.

Table 2. Bivariate correlations among variables in Study 1 across conditions.

	1	2	3	4	5	6	7	8	9	10
1. General FWB	-									
2. Personal FWB	.672**	-								
3. Self-Alienation	-.209**	-.263**	-							
4. Self-Control	-.018	.041	-.459**	-						
5. Agency	.381**	.436**	-.306**	.172*	-					
6. Compassion	.231**	.190**	-.169*	.093	.222**	-				
7. Empathy	.164*	.126†	-.154*	.110	.201**	.791**	-			
8. Intention to Donate	.114	.076	-.022	.116	-.001	.488**	.440**	-		
9. Intention to Help	.237**	.208**	-.163*	.130†	.242**	.751**	.699**	.632**	-	
10. Volunteer Hours	-.104	-.009	-.002	.021	.340*	.135	.250†	.028	.187	-

Note. $^\dagger p$ < .10; $^* p$ < .05; $^{**} p$ < .01

Mediation

Although there were no traditionally significant differences in each of the prosociality measures and self-alienation between belief in free will conditions, a

meditational analysis was conducted to examine the indirect effect of condition on each of the prosociality measures through perceived self-alienation. The same bootstrapping analyses from the pilot study were conducted. Unfortunately, the 95% CI for the indirect effect contained zero for compassion [-.091, .020], empathy [-.086, .020], prosocial intentions to donate [-.537, .341], prosocial intentions to help [-.104, .025], and hours willing to volunteer to help members of the local community [-.289, .453], indicating that the indirect effect of condition on each of the prosocial measures through perceived self-alienation were not significant.

A meditational analysis was also conducted to examine the indirect effect of condition on each of the prosociality measures through self-control. The 95% CI for the indirect effect contained zero for each of these measures (95% CIs [-.053, .023] for compassion, [-.055, .023] for empathy, [-.834, .315] for prosocial intentions to donate, [-.074, .028] for prosocial intentions to help, [-.142, .212] for hours willing to volunteer, respectively). Thus, the indirect effect of condition on each of the prosocial measures through perceived self-control was not significant.

Finally, the indirect effect of condition on each of the prosociality measures through personal agency was examined. The 95% CI for the indirect effect did not contain zero for compassion [-.144, -.006], empathy [-.142, -.002], prosocial intentions to help [-.193, -.009], and hours willing to volunteer to help members of the community [-.692, -.037], suggesting that the indirect effect of the condition on prosociality through perceived agency was significant. Thus, the difference in prosocial emotions and intentions to help by condition was statistically mediated by differences in perceived

agency. The indirect effect of condition on prosocial intentions to donate money through perceived agency was not significant (95% CI [-.704, .860]).

Moderation

To examine the influence of self-alienation and free will condition on each dependent measure, the same hierarchical regression equation from the pilot study was computed. Surprisingly, the self-alienation × free will condition interaction was not significant for each of the prosociality measures (p's > .163).

To examine whether self-control moderated the relationship between belief in free will and each of the prosociality measures, a similar hierarchical regression was computed. There was a significant self-control × free will condition interaction for compassion (β = .319, p = .016; R^2 change = .030). There was also a significant self-control × free will condition interaction for empathy (β = .281, p = .044; R^2 change = .021). Simple slope analyses revealed that self-control significantly predicted compassion (β = .231, p = .015) and empathy (β = .235, p = .019) in the low belief in free will condition, but not in the high belief in free will condition (β = -.088, p = .336, for compassion; β = -.046, p = .635, for empathy). Participants with greater self-control in the low belief in free will condition reported more compassion and empathy compared to those with less self-control or in the high belief in free will condition. See Figures 5 and 6. There were no significant self-control × free will condition interactions for prosocial intentions to donate, prosocial intentions to help, and hours willing to volunteer (p's > .608).
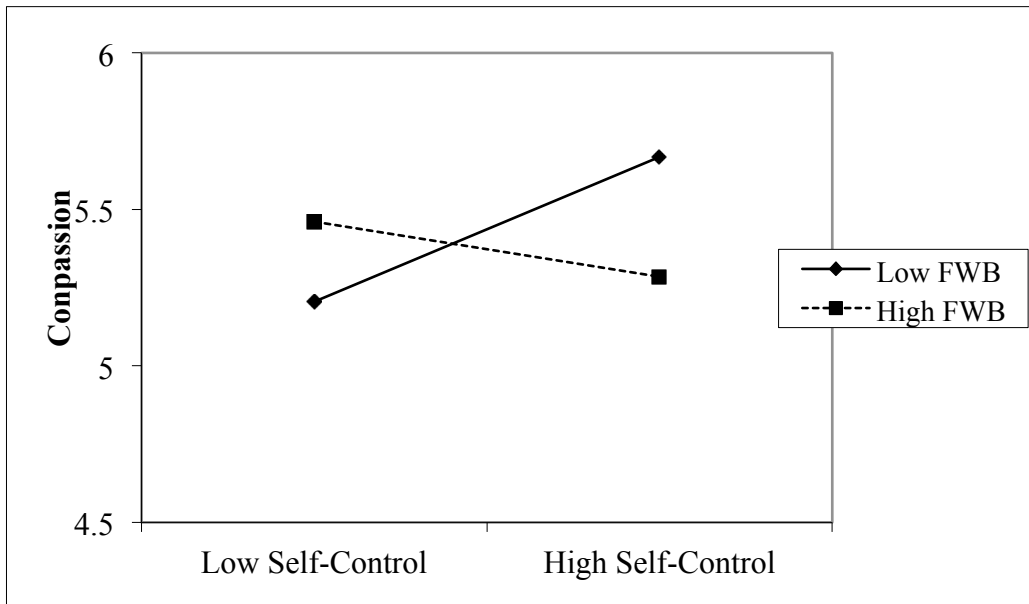
Figure 5. Compassion as a function of free will condition and self-control in Study 1.
Predicted values are plotted at ± 1 SD from the mean of self-control.
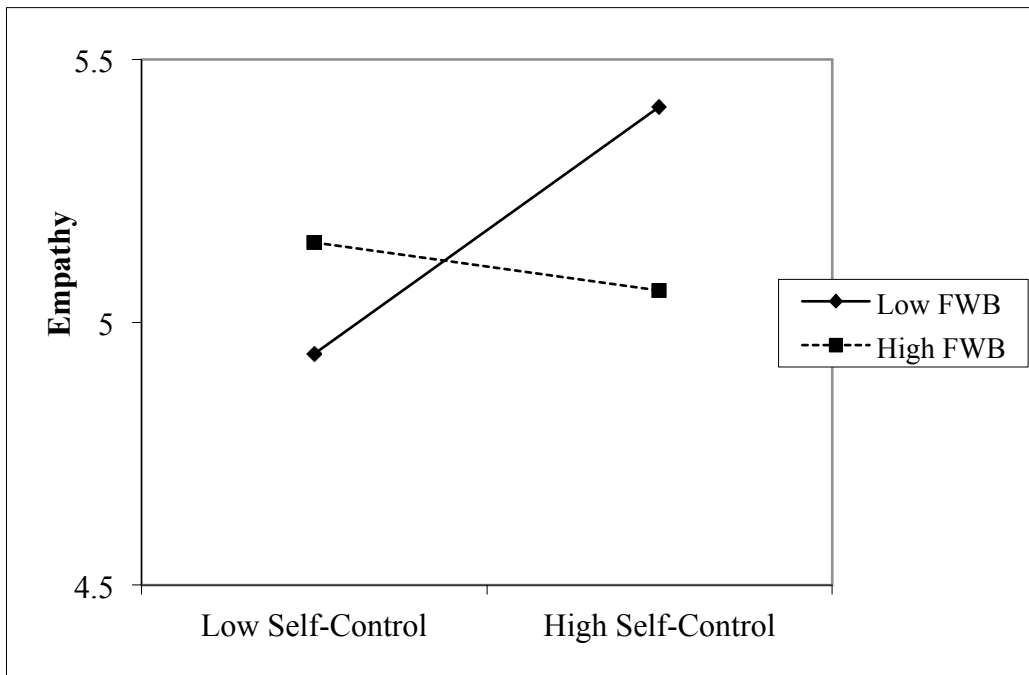
Figure 6. Empathy as a function of free will condition and self-control in Study 1.
Predicted values are plotted at ± 1 SD from the mean of self-control.

Finally, hierarchical regressions were computed to examine whether agency moderated the relationship between belief in free will and each of the prosociality measures. The agency × free will condition interaction was not significant for any of the prosociality measures (p's > .140).

CHAPTER III

STUDY 2

Although Study 1 did not provide direct evidence of a mediating or moderating

effect of true self-knowledge on the effect of belief in free will on prosociality,

correlational evidence suggests that greater belief in free will is associated with more

prosocial intentions. Notably, feeling "in touch" with one's true self is also associated

with greater willingness to help others.

Analyses of competing mediators revealed that feelings of personal agency

mediated the relationship between belief in free will and many of the prosociality

measures. This suggests that a sense of agency inherent in free will beliefs may drive

people to engage in helping behaviors. Personal agency is generally understood as the

feeling that one's actions are derived from one's self (Polito et al., 2003) and has been

implicated as the mechanism driving the influence of disbelief in free will on social

behaviors such as conformity (Alquist et al., 2011). Perhaps, it is the case that believing

that one has the ability to choose their actions and the recognition that these actions are

indeed self-generated that lead to positive moral outcomes.

Moreover, results from Study 1 also suggest that individual differences in self-

control moderated the effect of belief in free will on prosocial emotions. Specifically,

participants with high self-control experiencing low belief in free will reported greater

feelings of compassion and empathy towards others. This may be explained in part by

research suggesting that mood regulation often constitutes as acts of self-control

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(Muraven & Baumeister, 2000). It is possible that experiencing prosocial emotions involves overriding the dominant response to think about one's self. In fact, Fennis (2011) contends that perspective taking, the act of imagining the world from another's viewpoint, is an active form of self-regulation and has found that ego depletion diminishes the prosocial effects of perspective taking. It is possible that people who have a greater ability to exert self-control, yet recognize that they do not always have the ability to dictate their outcomes in life are better able to draw on their moral responsibility to think about other people's welfare. Perhaps, individual differences in self-control enhance other-focused emotions.

The primary goal of Study 2 is to augment people's belief in free will such that they feel more "in touch" with their true selves and behave in a more virtuous manner. A free will intervention was developed in which participants were asked to vividly recall specific experiences involving the use of free will in their lives. The same measure of prosocial intentions was used from Study 1. In Study 2, the measure of prosocial behavior was modified to reflect participants' commitment to helping on general volunteer opportunities as opposed to specific service projects used in Study 1. This change was made to reduce the potential floor effects of prosocial behavior from the first study. It may be the case that participants were less willing to volunteer for the specific service projects due to circumstances out of their control (e.g., no car to help with food deliveries). Thus, the volunteer opportunities were more open-ended in this study. Additionally, this study assessed short-term prosocial behavior and long-term prosocial behavior. Short-term prosocial behavior was assessed through the number of participants

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willing to provide their email addresses and the number of hours they would be available to volunteer. Similar to Study 1, this was assessed at the conclusion of the study. To measure long-term prosocial behavior, participants were contacted two weeks later to see if they would follow through with their volunteerism when a service project arose.

Study 2 also included exploratory dependent measures of conformity, gratitude, and moral identity to test the effectiveness of the free will intervention. Previous research has found that disbelief in free will increases conformity (Alquist et al., 2011) and reduces feelings of gratitude (MacKenzie et al., 2014). Using the same self-report measures of conformity and gratitude from previous studies, Study 2 explored whether augmenting free will beliefs reduces conformity and increases gratitude. True self-knowledge was assessed as the potential mechanism while self-control and personal agency were evaluated as alternative mediators and/or moderators. Finally, a measure of moral identity was included as another indication of changing self-evaluations.

Method

Participants

One-hundred and forty-two participants[3] were recruited from the psychology subject pool at Texas A&M University (94 female, 1 gender fluid, 23 unreported; M_{age} = 18.61, SD = .88).

Participants were recruited through a pre-screening process. At the beginning of the semester, participants completed a battery of questionnaires including a measure of

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[3] Twenty-six participants were excluded from the final analyses for the inability to complete the full three-day intervention, leaving 116 participants in the final sample. When analyses were conducted with the entire sample, the results remain unchanged.

belief in free will from the FAD-Plus Scale (Paulhus & Carey, 2011; see Appendix N).

Participants indicated their agreement with each statement on a 7-point scale (1 =

strongly disagree; 7 = *strongly agree*). Responses for the free will subscale (e.g., People

have complete control over the decisions they make.") were averaged across items to

produce a composite free will score. Higher scores indicated greater belief in free will

($M = 5.24$, $SD = 1.03$, α = .62). Participants who scored below the mean ($M = 5.24$) were

recruited for the study.

Materials and Procedures

Participants were informed that they would be participating in a study of memory

in which they would be asked to describe vivid memories of everyday experiences.

Participants completed the measures described below and were debriefed following the

completion of the study.

Free Will Intervention. Participants were randomly assigned to the free will

intervention or control group (see Appendix J). Participants were told researchers are

interested in studying people's memory of everyday experiences. For the next few days,

they were given writing prompts and asked to describe their memory of everyday

experiences with as much detail as possible. In the *free will intervention* condition,

participants were asked to write about specific experiences involving their demonstration

of free will in their lives. They were provided with a new writing prompt each day,

adapted from the statements used in the free will manipulation by Seto and Hicks (2016).

In the *control* condition, participants were asked to describe ordinary, everyday

experiences such as a walk.

Participants completed the intervention online each day for three consecutive days. Three days were chosen based on previous research demonstrating that expressive writing for as little as 2 minutes each day for 2 days can be effective in altering outcomes such as physical health (Burton & King, 2008). Each day, an email was sent to participants in the morning containing a link to the instructions for the day's prompt. The link remained open to participants until midnight.

On the fourth day, participants completed the free will subscale of the FAD-Plus ($M = 4.78$, $SD = .78$, $\alpha = .70$) and same measures of self-alienation ($M = 2.83$, $SD = 1.47$, $\alpha = .90$), self-control ($M = 4.17$, $SD = .94$, $\alpha = .83$), agency ($M = 5.09$, $SD = .65$, $\alpha = .58$), prosocial intentions to donate ($M = 22.51$, $SD = 12.42$, $\alpha = .86$), and prosocial intentions to help ($M = 4.65$, $SD = 1.16$, $\alpha = .74$) as Study 1. See Appendix K for the cover story.

Prosocial Behavior. A similar measure of prosocial behavior was adapted from Study 1. Participants were asked if they would be willing to help with philanthropy projects in the Bryan/College Station community. Instead of having participants sign-up for specific projects as in Study 1, participants were told they had a variety of service opportunities to choose from (see Appendix L). Participants were given an opportunity to provide their email address to be contacted about service projects (26 participants provided email addresses). This served as the short-term prosocial behavior measure. Additionally, participants who provided their emails were asked to indicate how many hours they would be willing to volunteer during the course of the semester. Responses

were made on a 20-point scale (*0 = 0 hours*; *20 = 20 hours*). Higher scores indicated more hours willing to volunteer (*M* = 8.55, *SD* = 5.46).

As a measure of long-term prosocial behavior, participants who provided their emails were contacted two weeks later informing them that two service opportunities have arisen (see Appendix M). They were given the opportunity to participate in a clothing donation drive or help host a fundraiser for two separate philanthropy organizations. Participants interested in volunteering were asked how many hours they would be willing to volunteer for these organizations in the next three weeks.

Conformity. Participants completed an 11-item measure of conformity (Mehrabian & Stefl, 1995; see Appendix O). Responses (e.g., "I don't give in to others easily.") were made on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Responses were averaged across items to produce a composite conformity score. Higher scores indicated greater conformity (*M* = 3.74, *SD* = .66, α = .65).

Gratitude. Participants completed a 6-item Gratitude Questionnaire (McCullough, Emmons, & Tsang, 2002; see Appendix P). Responses (e.g., "When I look at the world, I don't see much to be grateful for (reverse-coded).") were made on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Responses were averaged across items to produce a composite gratitude score. Higher scores indicated greater gratitude (*M* = 5.45, *SD* = .99, α = .82).

Moral Identity Internalization. Participants completed the 5-item internalization subscale of The Moral Identity Scale (Aquino & Reed, 2002; see Appendix Q). This subscale assessed the extent to which someone possesses nine moral

traits (e.g., caring, compassionate, fair). Participants indicated their agreement with each statement (e.g., "Being someone who has these characteristics is an important part of who I am.") on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Responses were averaged across items to produce a composite moral identity internalization score. Higher scores indicated greater moral identity internalization ($M = 5.45$, $SD = .51$, $\alpha = .85$).

## Results and Discussion

Pre-Intervention

An independent samples *t*-test did not indicate a significant difference in free will beliefs between the free will intervention and control group before the intervention was introduced ($t(97) = 1.458$, $p = .148$, 95% CI [-.068, .447], $d = .27$; equal variances not assumed). Participants in the free will intervention ($M = 4.35$, $SD = .81$) and control group ($M = 4.54$, $SD = .56$) reported similar baseline levels of free will beliefs at the beginning of the study. See Figure 7.

Post-Intervention

Unexpectedly, an independent samples *t*-test did not reveal a significant difference in free will beliefs after the free will intervention was introduced ($t(114) = .230$, $p = .819$, 95% CI [-.258, .325], $d = .04$). Participants reported similar levels of free will beliefs in the free will intervention ($M = 4.78$, $SD = .88$) and the control group ($M = 4.82$, $SD = .70$). See Figure 8.
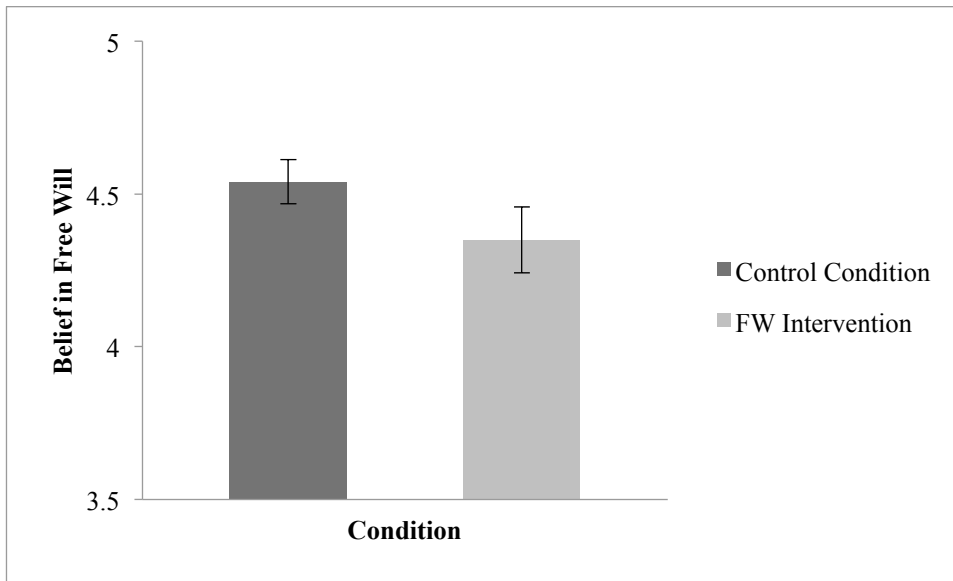
Figure 7. Differences in belief in free will by condition in Study 2 at pre-intervention. Standard errors are represented by the error bars.
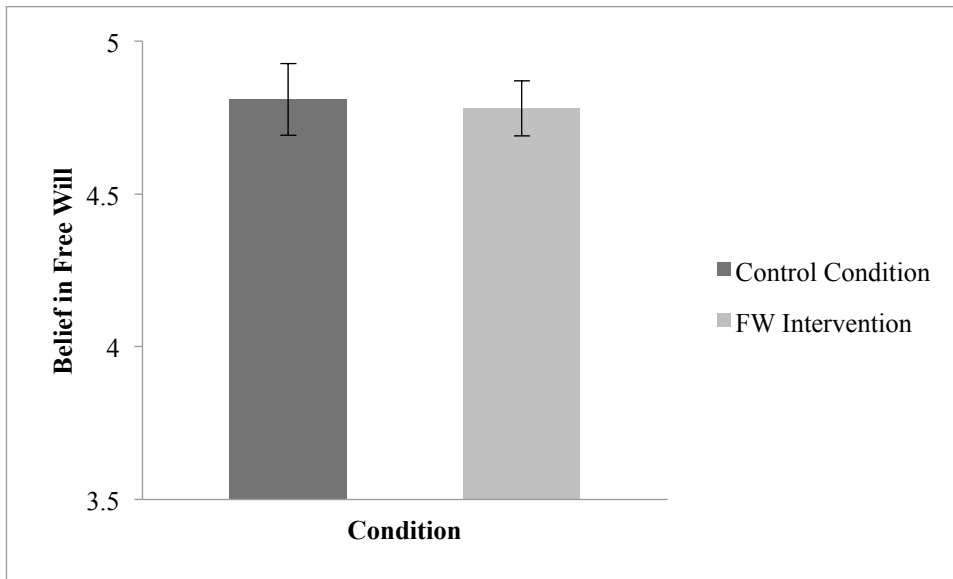
Figure 8. Differences in belief in free will by condition in Study 2 at post-intervention. Standard errors are represented by the error bars.

To determine the effectiveness of the free will intervention temporally, a dependent samples t-test examined whether free will beliefs differed before and after the intervention. The results indicated an increase in free will beliefs ($t(56) = -3.264$, $p = .002$, 95% CI [-.692, -.166], $d = .51$) such that participants reported higher free will beliefs after the free will intervention ($M = 4.78$, $SD = .88$) compared to the recruitment period ($M = 4.35$, $SD = .81$). However, there was a similar effect for participants in the control condition ($t(59) = -2.918$, $p = .005$, 95% CI [-.461, -.086], $d = .43$). Again, participants reported higher free will beliefs ($M = 4.81$, $SD = .70$) compared to the recruitment period ($M = 4.54$, $SD = .56$). Possible explanations for these findings will be considered in the general discussion.

Next, differences in the proposed mediating variables between conditions were examined. There was a marginally significant difference in self-alienation between conditions ($t(114) = -1.983$, $p = .050$, 95% CI [-1.070, -.000], $d = .37$). Participants in the free will intervention reported greater self-alienation ($M = 3.09$, $SD = 1.41$) compared to participants in the control condition ($M = 2.55$, $SD = 1.49$). There was not a significant difference with reports of self-control ($t(114) = .570$, $p = .570$, 95% CI [-.256, .463], $d = .11$) or agency ($t(114) = -1.400$, $p = .164$, 95% CI [-.402, .069], $d = .27$). Participants reported similar levels of self-control ($M = 4.12$, $SD = .91$) and agency ($M = 5.20$, $SD = .68$) in the free will intervention condition and the control condition ($M = 4.23$, $SD = 1.04$, for self-control; $M = 5.03$, $SD = .60$, for agency).

An independent samples t-test examined differences in prosocial intentions to donate money, prosocial intentions to help, and hours willing to volunteer on service

projects in the short-term. There were no significant differences in prosocial intentions to donate money (t(114) = -.501, p = .618, 95% CI [-5.907, 3.524], d = .09) or prosocial intentions to help (t(114) = -1.142, p = .256, 95% CI [-.647, .174], d = .22). Participants reported similar levels of prosocial intentions in the free will intervention condition (M = 23.71, SD = 12.41, for donations; M = 4.80, SD = 1.09, for help) and the control condition (M = 22.52, SD = 13.18, for donations; M = 4.56, SD = 1.13, for help). There were significant differences in hours willing to volunteer on service projects in the short-term (t(24) = -2.824, p = .009, 95% CI [-8.917, -1.389], d = 1.15). Participants who completed the free will intervention reported more hours willing to volunteer (M = 9.82, SD = 3.74) compared to the control group (M = 4.67, SD = 5.12). These results should be interpreted with caution due to the small sample size. It is important to note that a measure of long-term prosocial behavior was also collected. Unfortunately, due to the small response rate (N = 3), analyses were not conducted.

Finally, similar analyses were conducted on the exploratory measures of conformity, gratitude, and moral identity internalization. There were no significant differences in conformity (t(113) = .167, p = .868, 95% CI [-.221, .262], d = .03), gratitude (t(113) = .310, p = .757, 95% CI [-.310, .425], d = .14), or moral identity evaluations (t(113) = -.751, p = .454, 95% CI [-.248, .112], d = .06). Participants in the free will intervention group report similar levels of conformity (M = 3.76, SD = .65), gratitude (M = 5.44, SD = .96), and moral identity internalization (M = 5.50, SD = .52) compared to participants in the control condition (M = 3.78, SD = .65, for conformity; M = 5.50, SD = 1.02, for gratitude; M = 5.43, SD = .45, for moral identity internalization).

Correlations

Although there were no significant differences across condition for the mediators and dependent measures, correlational analyses were conducted to examine the relationship between free will beliefs and all the dependent measures. Across conditions, there were significant positive relationships between free will beliefs and self-control ($r(114) = .192$, $p = .039$), agency ($r(114) = .274$, $p = .003$), gratitude ($r(113) = .213$, $p = .023$), and moral identity internalization ($r(113) = .218$, $p = .002$). Unexpectedly, there were no significant correlations between free will beliefs and any of the prosociality measures. See Table 3 for all correlations.

Table 3. Bivariate correlations among variables in Study 2 across conditions.

	1	2	3	4	5	6	7	8	9	10
1. Free Will	-									
2. Self-Alienation	.112	-								
3. Self-Control	.192*	-.315**	-							
4. Agency	.274**	-.222*	.312**	-						
5. Intentions to Donate	-.111	-.130	.150	.123	-					
6. Intentions to Help	-.088	-.162†	.134	.108	.730**	-				
7. Volunteer Hours	-.291	.098	.104	-.265	.352†	.250	-			
8. Conformity	.057	.211*	-.252**	-.151	-.118	-.050	-.156	-		
9. Gratitude	.213*	-.482**	.167†	.380**	.225*	.284**	-.193	-.106	-	
10. Moral Internalization	.281**	-.256**	.141	.276**	.116	.202*	-.226	-.050	.421**	-

Note. $^\dagger p < .10$; $^* p < .05$; $^{**} p < .01$

Mediation

To examine whether differences in prosociality and the exploratory measures of conformity, gratitude, moral identity internalization between conditions were driven by self-alienation, the same meditational analysis was conducted as the previous studies. The bootstrapping analysis found that the 95% CI for the indirect effect contained zero, indicating that the indirect effect of the condition on prosocial intentions to donate [-1.935, .219], prosocial intentions to help [-.212, .007], hours willing to volunteer on

service projects [-1.620, .840], and conformity [-.000, .139] through perceived self-alienation was not significant. The indirect effect of condition on gratitude [-.400, -.018] and moral internalization [-.132, -.003] through perceived self-alienation was significant, suggesting that the difference in gratitude and moral identity internalization was a result of difference in perceptions of true self-knowledge.

A meditational analysis was also conducted to examine the indirect effect of condition on each of the dependent measures through self-control and agency, respectively. The 95% CI for the indirect effect contained zero for each of these measures (95% CIs [-1.215, .519] for prosocial intentions to donate, [-.108, .042] for prosocial intentions to help, [-2.096, .209] for hours willing to volunteer, [-.046, .091] for conformity, [-.095, .059] for gratitude, [-.037, .026] for moral internalization, with self-control as a mediator; [-.205, 1.708] for prosocial intentions to donate, [-.028, .125] for prosocial intentions to help, [-.488, 1.774] for hours willing to volunteer, [-.091, .012] for conformity, [-.030, .276] for gratitude, [-.011, .103] for moral internalization, with agency as a mediator). Thus, the indirect effect of condition on each of the prosocial measures through perceived self-control and agency was not significant.

Moderation

To examine the influence of self-alienation and condition on all dependent measures, a hierarchical regression equation was computed. Self-alienation was standardized, the condition was dummy-coded (0 = control condition; 1 = free will intervention), and the product of these variables was used as the interaction term (Aiken

& West, 1993). Surprisingly, the self-alienation × free will condition interaction was not significant for any of the dependent measures (p's > .420).

To examine whether self-control moderated the relationship between belief in free will and each of the dependent variables, a similar hierarchical regression was computed. The self-control × free will condition interaction was not significant for any of the dependent measures (p's > .060) except for moral identity internalization (β = -.182, p = .039; R^2 change = .037). Simple slope analyses revealed that self-control significantly predicted moral identification internalization (β = .144, p = .012) in the control condition, but not in the free will intervention condition (β = -.039, p = .564). Participants with greater self-control in the control condition reported greater moral identification internalization compared to those with less self-control or in the free will intervention condition. See Figure 9.
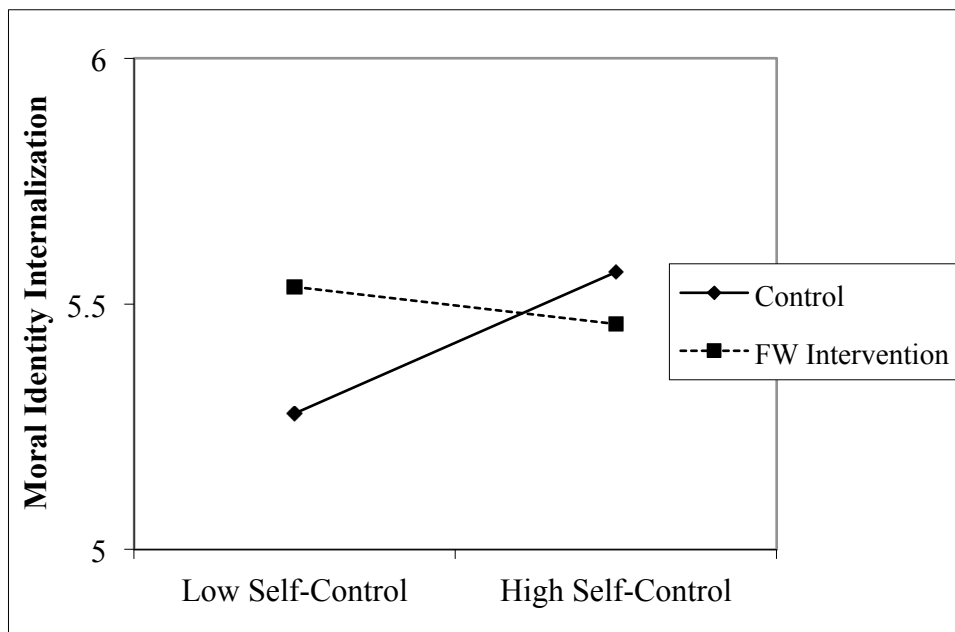

Figure 9. Moral identity internalization as a function of free will condition and self-control in Study 2. Predicted values are plotted at ± 1 SD from the mean of self-control.

Finally, hierarchical regressions were computed to examine whether agency moderated the relationship between belief in free will and each of dependent measures. The agency × free will condition interaction was not significant for any of the prosociality measures (p's > .265).

Overall, the first attempt at a free will intervention was not entirely successful in enhancing people's existing free will beliefs or in influencing any of the proposed mediators and prosociality measures. More discussion about the first attempt to develop a free will intervention can be found in the general discussion.

CHAPTER IV

GENERAL DISCUSSION AND CONCLUSION

The present research examined true self-knowledge as a potential mechanism for the relationship between belief in free will and morally relevant outcomes. Specifically, this set of studies focused on prosociality as the primary outcome of interest. Study 1 manipulated participants' belief in free will, and Study 2 was an intervention study designed to enhance participants' belief in free will over a short period of time. Across both studies, there was no evidence that true self-knowledge mediated or moderated the effect of belief in free will on prosocial emotions, intentions, and behavior.

True Self Mediation and Moderation Model

The lack of evidence for a true self-knowledge mediation and moderation model in both studies can be attributed to several sources. First, participants in Study 1 reported lower group means for belief in free will compared to similar samples from previous studies involving manipulations of free will. Further, as seen in Table 4, there is a greater disparity in the general belief in free will manipulation check item between high and low belief in free will conditions in previous studies compared to the difference observed between conditions in Study 1. This atypical pattern seen in the current research suggests that the free will manipulation may not have been as effective in lowering and amplifying free will beliefs. As such, there were no significant differences in self-alienation or any of the prosocial measures as expected.

Table 4. Belief in free will and self-alienation descriptives in comparison to previous samples				
	Study 1 (*N* = 199)	Study 2 (*N* = 115)	Previous Study 1 (*N* = 212)	Previous Study 2 (*N* = 124)
General FWB	5.13 (1.51)	4.64 (1.43)	5.33 (1.26)	5.23 (1.49)
	High FWB: 5.35 (1.49)	FW Intervention: 4.95 (1.39)	High FWB: 5.66 (1.09)	High FWB: 5.73 (1.26)
	Low FWB: 4.89 (1.51)	Control: 4.37 (1.41)	Low FWB: 5.00 (1.34)	Low FWB: 4.70 (1.53)
FAD-Plus		4.80 (.79)		
		FW Intervention: 4.78 (.88)		
		Control: 4.81 (.70)		
Self-Alienation	2.41 (1.44)	2.81 (1.47)	2.63 (1.38)	2.43 (1.22)
	High FWB: 2.30 (1.35)	FW Intervention: 3.09 (1.41)	High FWB: 2.50 (1.33)	High FWB: 2.22 (1.08)
	Low FWB: 2.54 (1.53)	Control: 2.55 (1.49)	Low FWB: 2.78 (1.42)	Low FWB: 2.64 (1.32)

Note. General FWB refers to the manipulation check item.

Additionally, in Study 2, we aimed to boost participants' belief in free will in an effort to increase feelings of true self-knowledge and subsequently enhance prosocial emotions, intentions, and behaviors towards individuals in need. For this design, only participants with low free will beliefs were recruited. It is possible that it is difficult to influence participants with generally, and perhaps chronically, low belief in free will. Moreover, the time period for the intervention was only for three days. If people have longstanding beliefs about free will and determinism, recalling one specific instance where they experienced free will may not be effective in altering their existing worldviews. Given that researchers have successfully manipulated free will beliefs in a single experimental setting, it could be the case that belief in free will is more malleable in the moment versus the short-term or long-term.

In a similar vein, the intervention in Study 2 involved a free will condition and a control condition. Prior research involving manipulations of free will has shown that belief in free will and control conditions yield similar statistical findings (see Baumeister et al., 2009; Vohs & Schooler, 2008), and decreasing belief in free will is what is pivotal in explaining changes in social behavior. The lack of statistically significant differences across the main outcome and exploratory variables can be explained in part by the use of

two very similar conditions. It is plausible that a better test of the intervention would have been to employ a free will condition and determinism condition.

Study 2 also yielded some unexpected patterns in self-alienation. Participants in the free will intervention group reported greater self-alienation than participants in the control condition, suggesting they feel less in touch with themselves after thinking about previous experiences with free will. Since participants with low free will beliefs were recruited for the intervention, it is plausible that the manipulation might have challenged their existing perceptions about free will, thereby leading to increasing feelings of self-doubt. In other words, asking participants with low belief in free will to describe in vivid detail experiences where they experienced free will may have unintentionally decreased certainty about who they really are.

Finally, it is possible that the measures of prosociality developed for these two studies are not the strongest measures of helpfulness. In designing the measures of prosocial emotions, intentions, and behavior, the aim was to develop a helping paradigm personally relevant to the participant sample. Perhaps, a more well-validated helping measure such as the "Katie Banks" helping paradigm (e.g., Batson et al., 1997; Baumeister et al., 2009; Maner et al., 2002), in which students could volunteer to help a fellow college student whose parents recently passed away, would have been more effective.

Although there was no direct evidence for the proposed mediation and moderation model in the current research, the results from these studies do lend some support for the main hypothesis. In Study 1, greater belief in free will was associated

with reduced feelings of self-alienation and greater prosocial emotions of compassion and empathy, and prosocial intentions to help others across conditions. Greater self-alienation was also associated with fewer feelings of compassion, empathy, and prosocial intentions to help others. The interrelatedness of these variables suggest that a stronger study design should be used to properly test the mediating or moderating effects of true self-knowledge (e.g., stronger free will manipulation, different helping paradigm). It is important to note that belief in free will was not associated with self-alienation or any of the prosociality measures nor was self-alienation associated with any of the prosociality measures in Study 2. However, Study 2 only recruited participants with low free will beliefs, potentially contributing to statistical issues of restrictions of range. Thus, if there was more variability in belief in free will in Study 2, perhaps similar relationships as Study 1 might have emerged.

Alternative Mediation and Moderation Models

Both studies also assessed two other potential mediators/moderators that have been implicated in previous research linking belief in free will to morally relevant behaviors: personal agency and self-control. In Study 1, personal agency was a significant mediator for the effect of condition on prosocial emotions and intentions. Previous research has found a direct relationship between belief in free will and agency (Aarts & van den Bos, 2011; Lynn et al., 2014), and other researchers have argued that belief in free will incites feelings of agency that influence social behavior (Alquist et al., 2011; Vohs & Schooler, 2008). Agency has typically been understood as an essential facet of belief in free will. After all, lay conceptualizations of free will often involve

people's sense of control over their actions (Bergner & Ramon, 2013; Mele, 2006; Monroe et al., 2014; Stillman & Baumeister, 2010). Perhaps, it is the feeling that one can indeed control certain outcomes in life above feeling in touch with one's true, moral self is what drives people to engage in positive moral behaviors.

Study 1 also found that self-control moderated the effect of condition on prosocial emotions. Researchers have argued that mood regulation often requires self-control (Muraven & Baumeister, 2000). As mentioned previously, it is possible that experiencing prosocial emotions involves overriding the dominant response to think about one's self. Self-control may allow people to become more other-focused than self-focused. In this case, self-control enabled participants experiencing low belief in free will to feel more prosocial emotions towards others. This pattern was unexpected as evidence from previous research on disbelief in free will and helpfulness (Baumeister et al., 2009) would suggest that participants experiencing low belief in free will would be less prosocial towards others. It may be the case that participants with high self-control in the low belief in free will condition experience greater moral responsibility to care about others in need precisely because they feel people have limited ability to determine their own outcomes in life. Of course, this explanation is speculative, and these findings should be replicated before conclusions can be drawn.

In Study 2, self-alienation emerged as a significant mediator for two exploratory variables: gratitude and moral identity internalization. These results suggest that belief in free will led people to feel more certain about who they are which subsequently allowed them to experience more gratitude and value their moral identity. It is possible that true

self-knowledge provides a foundation to understanding what is important to a person. As such, the experience of knowing who you are allows you to better appreciate the meaningful actions of others. Similarly, knowing one's true self perhaps makes people feel more connected to their sense of moral goodness. After all, research suggests that people perceive the true self as a moral self (Nichols et al., 2015; Strohminger & Nichols, 2014). Thus, feeling in touch with who you are makes you readily identify with positive moral characteristics.

Self-control also moderated the effect of condition on moral identity internalization in Study 2. Participants reporting higher self-control reported greater moral identity internalization in the control condition compared to participants reporting less self-control and those in the free will intervention condition. Although this pattern was unexpected, self-control involves effortful exertion over natural or desired behaviors (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven & Baumeister, 2000). Those who are better able to engage in self-control are more likely to value higher moral character, as it may require a great sense of volition to maintain a sense of moral responsibility for oneself and for others.

Limitations and Future Directions

Although the set of current studies did not find support for the hypothesis that true self-knowledge would mediate or moderate the relationship between belief in free will and prosociality, there are many avenues for future research. First, if belief in free will is pivotal in promoting moral responsibility (Clark et al., 2014; Paulhus & Carey, 2013; Shariff et al., 2014), the mechanism underlying this relationship still needs to be

identified. In Study 1, there is evidence that personal agency, not true self-knowledge, may play a crucial role in this relationship. Future research should aim to directly and conceptually replicate this effect. Once the mechanism has been identified, researchers can develop a free will model to predict social behaviors that benefit society at large.

Additionally, both studies found largely null effects for the prosociality measures. As mentioned earlier, the measures of prosocial emotions, intentions, and behaviors were tailored towards the specific participant sample. Future research should use a more well-validated helping paradigm (e.g., helping college student, "Katie Banks"; Batson et al., 1997) to determine if the specific measures of helpfulness used in the current research is responsible for the null findings. It is important to note that prosociality was chosen as the primary outcome variable because previous research has found that disbelief in free will reduces helpfulness (Baumeister et al., 2009). If future research is unable to replicate this effect, then researchers need to reconsider whether manipulating free will beliefs influences actually influences prosocial intentions. It is possible that the observed correlations between belief in free will and many of the prosocial measures are spurious relationships. Alternatively, it may be the case that a specific facet of free will, rather than general belief in free will, is driving moral behavior. (See below for more discussion on this possibility).

Although the intervention aimed to augment people's belief in free will was not successful, future research should continue to develop a stronger free will intervention. To this researcher's knowledge, this is the first study designed to enhance people's free will beliefs. In developing a new intervention, it is important to consider the boundary

conditions for inducing changes in free will beliefs. For instance, bolstering free will

beliefs may only be possible for people who already endorse belief in free will or for

people who consider themselves compatibilists (i.e., those endorsing both free will and

deterministic beliefs; Bergner & Ramon, 2013). In Study 2, only participants who

reported low free will beliefs were recruited. It may be difficult to change people who

have a deeply ingrained worldview.

In a similar vein, an alternative perspective to consider is the particular time

period of the intervention. Participants in Study 2 were all college students, presumably

with a developed understanding of causality. Perhaps, a free will intervention would be

more appropriate at an earlier stage in life where they are still exploring their own

understanding of the world. For instance, researchers studying implicit theories of

intelligence and personality have conducted interventions during adolescence, as this

developmental period is often filled with changes in social roles, peer relationships, and

other forms of adversity (Blackwell, Trzesniewski, & Dweck, 2007; Yeager, Johnson,

Spitzer, Trzesniewski, Powers, & Dweck, 2014; Yeager, Trzesniewski, & Dweck, 2013).

They contend that adolescence is an ideal transitional period to intervene on implicit

beliefs since people are often facing unique challenges in self-understanding. Perhaps, a

specific development period such as adolescence to young adulthood would be more

fruitful for a motivational free will intervention.

Moreover, while the current intervention utilized a brief writing paradigm, future

research might consider a new intervention design. For instance, adapting an

implementation intention paradigm in which participants are required to engage in small

acts of free will (e.g., decide on a healthy or unhealthy snack) may be more effective in changing free will beliefs. Research has shown that people believe they are able to change their personality by engaging in behavioral intentions (e.g., "If I feel stressed, then I will call my mom to talk about it" to increase emotional stability; Hudson & Fraley, 2015). Perhaps, the daily experiences of free will can strengthen people's perception that free will exists.

It is important to note that an interesting pattern emerged in Study 2, in which participants across both conditions reported greater free will beliefs after the three-day writing paradigm. While this pattern was unexpected, it might be the case that people's belief in free will becomes generally stronger over time. Future research should explore how free will beliefs changes across time longitudinally and if there are profound differences between people with high baseline free will beliefs and people with low baseline free will beliefs.

Finally, recent research has emerged calling into question whether belief in free will truly influences moral judgments and behavior. Monroe, Brady, and Malle (2017) found evidence suggesting that general free will beliefs do not influence moral behavior, judgments of blame, and punishment for wrongdoing. Furthermore, they found that people's perception of choice in an agent's actions dictates blame and punishment. While ample evidence suggests that belief in free will indeed influences morally relevant behavior (e.g. Baumeister et al., 2009; Mackenzie et al., 2014; Vohs & Schooler, 2008), future research should reassess whether threatening belief in free will or a person's sense of choice is more critical to moral actions. Moreover, if choice capacity is in fact

influencing moral judgments and behavior, more research should be conducted to formally operationalize the definition of free will. It is important to distinguish whether free will is simply a matter of agentic choice or if there are other components of free will that are critical in influencing moral behaviors.

Conclusion

The current research provides an initial investigation of the potential mechanism driving the effect of belief in free will on morally relevant behaviors. Although there was no direct evidence for true self-knowledge mediating or moderating the relationship between belief in free will and prosocial emotions, intentions, and behavior, this research highlights the need to identify potential mediators in the future. Importantly, this research was potentially the first study to develop an intervention aimed at augmenting people's belief in free will. This preliminary study lays the foundation for considering different approaches to motivational interventions in future research. Overall, these set of studies contribute to the growing literature on how belief in free will influences moral action and provides directions for researchers interested in boosting people's belief in free will to produce positive psychological outcomes and behaviors.

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Free Will Manipulation (Seto & Hicks, 2016)

High Belief in Free Will Manipulation

Free will is defined as the ability to make our own choices and to determine our own outcomes. Most people believe in free will, and recent research supports this belief. For instance, even though some people still believe that their actions are greatly determined by outside influences (e.g., social pressures), behavioral economists at Stanford and Texas A&M University have published studies showing that most of our behavior is determined by personal choices (Baumeister et al., 2011).

Below are some statements that reflect beliefs about free will. Please read each statement carefully and take a moment to think about why these statements are true based on your own experiences. In the following pages, you will be asked to select a statement from the list below and write about how the selected statement is true based on your own experiences. You will be asked to complete this same task for a total of three different times. To begin, please select 1 statement from the list below that has proven especially true in your life.

- ❍ I demonstrate my free will every day when I make decisions. (1)
- ❍ I take personal pride in good decisions I have made in the past because I know that, at the time, I had the freedom to and could have made a bad decision. (2)
- ❍ I am able to override the genetic and environmental factors that sometimes influence my behavior. (3)
- ❍ Avoiding temptation requires that I exert my free will. (4)
- ❍ Ultimately people cannot blame their own actions on anything other than themselves. (5)
- ❍ I have free will to control my actions and ultimately to control my destiny in life. (6)
- ❍ People are responsible for their behaviors because they have free will to control their actions. (7)
- ❍ Our actions and thoughts are not simply the result of prior experiences. (8)
- ❍ By exerting their free will, people can and do overcome the negative effects of a dysfunctional environment. (9)
- ❍ Given that I have had personal experiences that science cannot explain, I also know that I have free will even if science cannot explain it. (10)

This is one [another] statement about free will that you selected as being true based on your own experiences:

In the space below, please take a few minutes to describe how this statement about free will is true based on one of your personal experiences. Think about one specific example from your life and provide as much detail as possible.

<u>Low Belief in Free Will Condition</u>

Free will is defined as the ability to make our own choices and to determine our own outcomes. Most people do not believe our behavior is completely determined by free will, and recent research supports this belief. For instance, many
people believe that their actions are often determined by outside influences (e.g., social pressures). In fact, behavioral economists at Stanford and Texas A&M University have even published studies showing that most of our behavior is determined by situational factors (Baumeister et al., 2011).

Below are some statements that reflect beliefs about free will. Please read each statement carefully and take a moment to think about why these statements are false based on your own experiences (e.g., when an outside factor influenced your behavior). In the following pages, you will be asked to select a statement from the list below and write about how the selected statement is false based on your own experiences. You will be asked to complete this same task for a total of three different times. To begin, please select 1 statement from the list below that has proven especially false in your life.

❍ I demonstrate my free will every day when I make decisions. (1)
❍ I take personal pride in good decisions I have made in the past because I know that, at the time, I had the freedom to and could have made a bad decision. (2)
❍ I am able to override the genetic and environmental factors that sometimes influence my behavior. (3)
❍ Avoiding temptation requires that I exert my free will. (4)
❍ Ultimately people cannot blame their own actions on anything other than themselves. (5)
❍ I have free will to control my actions and ultimately to control my destiny in life. (6)
❍ People are responsible for their behaviors because they have free will to control their actions. (7)
❍ Our actions and thoughts are not simply the result of prior experiences. (8)
❍ By exerting their free will, people can and do overcome the negative effects of a dysfunctional environment. (9)
❍ Given that I have had personal experiences that science cannot explain, I also know that I have free will even if science cannot explain it. (10)

This is one [another] statement about free will that you selected as being false based on your own experiences:

In the space below, please take a few minutes to describe how this statement about free will is false based on one of your personal experiences. Think about one specific example from your life and provide as much detail as possible.

General Belief in Free Will, Item 1 (FAD-Plus; Paulhus & Carey, 2011)
Personal Belief in Free Will, Item 2 (Belief in Free Will; Rakos, Laurene, Skala, & Slane, 2008)

Manipulation Check

Please indicate your agreement with each of the following statements using the scale provided.

Strongly Disagree			Neither Disagree or Agree			Strongly Agree
1	2	3	4	5	6	7

1. People have complete free will.
2. I have complete free will.

Self-Alienation Subscale (Authenticity Inventory; Wood, Linley, Maltby, Baliousis, & Joseph, 2008)

Please indicate how well each of the following statements describes you on the following scale.

Does not describe me at all			Somewhat descriptive of me			Describes me very well
1	2	3	4	5	6	7

1. I don't know how I really feel inside.
2. I feel as if I don't know myself very well.
3. I feel out of touch with the "real me."
4. I feel alienated from myself.

Prosocial Intentions (Gaesser & Schacter, 2014)

How likely would you be to help in this situation?

Not at all			Moderately Willing			Very Willing
1	2	3	4	5	6	7

1. This person just finished eating at a restaurant and is feeling ill.
2. This flower delivery person, who usually uses their own car for deliveries, finds out their car was stolen the day before Valentine's Day.
3. In the city, a bike was just stolen from this person, even though it was locked.
4. This person's dog has not returned home in the last 24 hours.
5. Even after attempting to make friends, this person has been sitting alone in the dining hall during meals for the last week.
6. This person is suffering from dementia and is lost in a mall
7. This person's friend bailed on them after saying they would help them move their furniture into their new apartment.
8. After coming home from work, this person discovered their apartment has a rat problem.
9. This person was stung by a bee; their hand hurts and is swelling up.
10. This new driver wrecked their parents' car in a snowstorm.
11. After returning from the beach, this person realized they're missing the watch their grandfather gave them.
12. This person doesn't have money for a ticket and is about to miss the last commuter rail of the day home.
13. An earthquake just struck this person's town, and several buildings have suffered severe damage.
14. This person's neighbor accidentally shot off fireworks into their garage, which may catch on fire.
15. This person's child is a weak swimmer, and is struggling to swim back to shore.
16. The red cross is having a blood drive, and this person is working hard to get people to participate, but everyone is passing them by.
17. This person is locked out of their house.
18. Normally this person would deliver meals to the elderly, but they can't make their deliveries tonight.
19. During an argument, this person's housemate began breaking things.
20. The date is approaching for this person's birthday party, but it is looking like most people won't be able to make it.

21. This person ate some food that caused them to have a strong allergic reaction.
22. Driving to their wedding, this person's car broke down on the highway.
23. This person just received a call informing them that their brother has been in a serious car crash.
24. After organizing a fundraising dinner, this person became ill and cannot work in the kitchen.
25. On the way home from school, this person just got into a car accident.
26. While riding the train, this person is harassed by other passengers
27. This person's 8-year old child has been running a fever for several days.
28. This person lost their voice the day they are supposed to run a charity auction.
29. This person has just come home to find their apartment has been broken into.
30. During a snowstorm, this person is sitting in a nearby airport when they find out their scheduled flight home for the holidays has been cancelled.

APPENDIX D

Self-Control Scale (Tangney, Baumeister, & Boone, 2004)

Please indicate your agreement with following statements using the scale below.

Strongly Disagree			Neither Disagree or Agree			Strongly Agree
1	2	3	4	5	6	7

1. I have a hard time breaking bad habits.
2. I get distracted easily.
3. I say inappropriate things.
4. I refuse things that are bad for me, even if they are fun.
5. I'm good at resisting temptation.
6. People would say that I have very strong self-discipline.
7. Pleasure and fun sometimes keep me from getting work done.
8. I do things that feel good in the moment but regret later on.
9. Sometimes I can't stop myself from doing something, even if I know it is wrong.
10. I often act without thinking through all the alternatives.

Involuntariness Subscale (Sense of Agency Rating Scale; Polito, Barnier, & Woody, 2013)

Please indicate your agreement with following statements using the scale below.

Strongly Disagree			Neither Disagree or Agree			Strongly Agree
1	2	3	4	5	6	7

1. I choose how to respond.
2. My experiences and actions are under my control.
3. I feel that my experiences and actions are not caused by me. (R)
4. My experiences and actions feel self generated.
5. My responses are involuntary. (R)

Study 1 Helping Cover Story

The Department of Psychology and Department of Economics are working with a new student organization on campus called, "Aggies Helping Texans." Aggies Helping Texans is devoted to offering financial aid and other forms of assistance to people who have endured particularly difficult hardships. The student organization is providing philanthropy within the local Bryan/College Station community, and with enough support, hopes to develop a local initiative officially recognized by the cities of Bryan and College Station.   In order for Aggies Helping Texans to develop their local initiative, the cities of Bryan and College Station need an "impact report" detailing fiscal costs, staff maintenance, initiative sustainability, and quality of life estimates. The Department of Psychology is specifically assisting Aggies Helping Texans compose their impact report by collecting data on the interest and feasibility of their project.   This month Aggies Helping Texans is offering aid to three local members of the community. On the next few pages, you will find their short autobiographies. We would like you to evaluate each person's autobiography on a variety of dimensions. Please be as honest as possible in your responses, as your responses will be used in the impact report to develop the local initiative.

<u>Autobiography 1</u>: Howdy Aggies! My name is George Thompson, and I was recently in a car accident that left me with several physical injuries as well as extensive damages to my car. As you can imagine, it is pretty difficult to be mobile or active after such an experience. (I have difficulty just getting down the stairs of my house!) Not only has it been difficult to adjust to my daily life with these injuries, I have also been struggling to pay for my car repairs as well as my hospital bills. This car accident has been particularly strenuous on my life.

Compassion:

Not at All			Moderately			Very Much
1	2	3	4	5	6	7

1. I feel compassionate towards George and his situation.
2. Imagine that George was someone who lived close to you. To what extent would you offer emotional support to George?

Empathy:

Not at All			Moderately			Very Much
1	2	3	4	5	6	7

1. I feel empathy towards George and his situation.
2. To what extent does thinking about George and his situation make you feel sad or concerned?

Prosocial Intentions to Donate:

Imagine that you have $50.00. Would you keep the money for yourself or would you donate all or part of the money to help George with his current financial situation? Please indicate exactly how much of the $50.00 you would give to George.

_____ How much of the $50.00 would you give to George?

Prosocial Intentions to Help:

Not at All Willing			Moderately Willing			Very Much Willing
1	2	3	4	5	6	7

How likely would you help George in this situation?

Autobiography 2: Howdy y'all! My name is Matt Taylor, and I have always had strong passion to end world hunger. I believe my lofty goal can begin right here in my local community, so I founded an organization in B/CS that delivers free meals to people in need. My organization has been pretty successful thus far, but at this moment, we are running low on financial resources. I have been unable to pay my drivers for their services, and as you might have guessed, making food deliveries is half the work. I am doing my best to keep my organization alive, but it has been a battle.

Autobiography 3: Howdy everyone! My name is John Schwartz, and I teach math and science at a school in town. The school district I work for has made several budget cuts, and unfortunately, the students at my school are lacking basic necessities such as textbooks and other school supplies. I have been using a significant portion of my paycheck to make sure my students have the resources they need to complete their school work, but I do not make as much money as people in other professions. I wish I had more financial resources to help my students or the school district could do more to reallocate their funds.

Aggies Helping Texans is currently seeking volunteers to help their student organization, and they need individuals willing to provide assistance George, Matt, and John with their particular hardships. Below, you can read about how Aggies Helping Texans is providing assistance to these members of the B/CS community next week.

If you're interested in working with Aggies Helping Texans to provide aid to George, Matt, or John, please provide your email address under the name and description of the community member you would like to offer assistance to. Please enter your email for just one community member. You will be contacted by a member of Aggies Helping Texans within a few days for more details about the volunteering opportunity.

You may also choose to opt out of volunteering for Aggies Helping Texans by simply clicking "next."

George: Because George has physical injuries from his car accident, he has had difficulty managing the upkeep of his home required by the "Home Owner's Association." Aggies Helping Texans is looking for volunteers to help George do some yardwork at his house the following week. If you would like to volunteer to help George, please provide your email address below.

> You indicated that you would volunteer to help George next week. How many hours would you be willing to help George with his yardwork?
>
> _____ How many hours can you help George next week?

Matt: Matt is in need of volunteer drivers to help him deliver free meals to people around the community. Aggies Helping Texans is looking for volunteers to help Matt deliver meals to community members next week. If you would like to volunteer to help Matt, please provide your email address below.

> You indicated that you would volunteer to help Matt next week. How many hours would you be willing to help Matt with food deliveries?
>
> _____ How many hours can you help Matt next week?

John: To help raise funds for students at his school, John is organizing a fundraiser phone bank next week. Aggies Helping Texans is looking for volunteers to help John make calls to local businesses asking for donations. If you would like to volunteer to help John, please provide your email address below.

You indicated that you would volunteer to help John next week. How many hours would you be willing to help John with fundraiser calls?

_____ How many hours can you help John next week?

APPENDIX I

Aggies Helping Texans Email and Volunteer Confirmation

Howdy Fellow Aggie!

Thank you for volunteering to help a local member of the B/CS community next week with Aggies Helping Texans. We are currently in the process of organizing the volunteer schedule for the project. Below is a link to a survey where you can indicate the exact days and times of your availability. If you're unavailable to volunteer next week, we will have another volunteer opportunity the following week. The survey will also include days for this alternative volunteer project if this works better with your schedule.

Please try to get back to us within a week with your response. Thank you for your time and consideration!

-Aggies Helping Texans

Follow this link to the Survey:
Take the survey

Follow the link to opt out of future emails:
Click here to unsubscribe

Thank you for volunteering to help one of the local B/CS community members with Aggies Helping Texans next week! In order to make proper arrangements for this volunteer project, please select the day(s) you are available to volunteer and indicate in the text box the specific times of your availability. Our organization will be in touch with you about the details of the project as soon as we organize our schedule.

○ Monday, October 3 _____
○ Tuesday, October 4 _____
○ Wednesday, October 5 _____
○ Thursday, October 6 _____
○ Friday, October 7 _____
○ Saturday, October 8 _____
○ Sunday, October 9 _____

If you are unable to volunteer next week, Aggies Helping Texans will have another volunteer opportunity the following week. Please select the day(s) you are available to

volunteer for a new project and indicate in the text box the specific times of your availability.

○ Monday, October 10 _____
○ Tuesday, October 11 _____
○ Wednesday, October 12 _____
○ Thursday, October 13 _____
○ Friday, October 14 _____
○ Saturday, October 15 _____
○ Sunday, October 16 _____

If you are unable to volunteer during either of these weeks, please select the option below.
○ I cannot volunteer during this two-week period.

Study 2 Intervention Cover Story and Intervention

<u>Memory Study</u>: Thank you for your interest in participating in this study. This is a two-part study of how people vividly recall different types of experiences in their lives. In this study, we are interested in the relationship between memory processes and personality.

<u>Free Will Intervention</u>

People often self-report that they are able to vividly recall many types of experiences in their lives. For instance, many people vividly remember significant events during their lifetime such as walking across the stage at a graduation or starting their first day at a new job. Surprisingly, it is unclear how people's memory works for everyday behaviors. We are not sure if there is a bias in responding or if people simply do not pay as much attention to their everyday experiences.

In this study, we are interested in learning about vivid memories of people's everyday experiences. For the next few days (including today), you will receive a writing prompt asking you to describe your memory of a particular experience. Please take the time to think about the prompt and then describe the particular experience, providing as much visual and perceptual detail as possible. Please try to write about 1 page and be as clear as possible in your writing.

> <u>Day 1 Free Will Writing Prompt</u>: Please describe a time you demonstrated your free will to make a decision.
>
> For today's writing assignment, you will write about a time when you have demonstrated your free will to make a decision. Please provide a specific, concrete example. Don't worry about spelling or grammar; just really "get into" the task and provide as much vivid detail as possible. We do ask that you try to write about 1 page and be as clear as possible in your writing.
>
> <u>Day 2 Free Will Writing Prompt</u>: Please describe a time you were able to override the genetic and environmental factors that sometimes influence your behavior.
>
> For today's writing assignment, you will write about a time when you overcame genetic and environmental factors that influenced your behavior. Please provide a specific, concrete example. Don't worry about spelling or grammar; just really "get into" the task and provide as much vivid detail as possible. We ask that you please try to write about 1 page.

<u>Day 3 Free Will Writing Prompt</u>: Please describe a time you were able to avoid temptation using your free will.

For today's writing assignment, you will write about a time when you used your free will to avoid temptation. Please provide a specific, concrete example. Don't worry about spelling or grammar; just really "get into" the task and provide as much vivid detail as possible. We do ask that you try to write about 1 page and be as clear as possible in your writing.

Control Condition

People often self-report that they are able to vividly recall many types of experiences in their lives. For instance, many people vividly remember significant events during their lifetime such as walking across the stage at a graduation or starting their first day at a new job. Surprisingly, it is unclear how people's memory works for everyday behaviors. We are not sure if there is a bias in responding or if people simply do not pay as much attention to their everyday experiences.

In this study, we are interested in learning about vivid memories of people's everyday experiences. For the next few days (including today), you will receive a writing prompt asking you to describe your memory of a particular experience. Please take the time to think about the prompt and then describe the particular experience, providing as much visual and perceptual detail as possible. Please try to write about 1 page and be as clear as possible in your writing.

> Day 1 Control Writing Prompt: Please describe a typical walking route you take from one class to the next.
>
> For today's writing assignment, you will write about a typical walking route to one of your classes on campus. Please provide a specific, concrete example. Don't worry about spelling or grammar; just really "get into" the task and provide as much vivid detail as possible. We ask that you please try to write about 1 page.
>
> Day 2 Control Writing Prompt: Please describe the last time you drove in a car for more than 1 hour.
>
> For today's writing assignment, you will write about a car trip that lasted more than 1 hour. Please provide a specific, concrete example. Don't worry about spelling or grammar; just really "get into" the task and provide as much vivid detail as possible. We ask that you please try to write about 1 page.
>
> Day 3 Control Writing Prompt: Please describe the last movie you saw in the theater.
>
> For today's writing assignment, you will write about the last movie you saw in theaters. Please provide a specific, concrete example. Don't worry about spelling or grammar; just really "get into" the task and provide as much vivid detail as possible. We do ask that you try to write about 1 page and be as clear as possible in your writing.

APPENDIX K

Study 2 Helping Cover Story

For this next part of the study, our research lab is working on a special project for the Psychology Department and Economics Department at Texas A&M. In short, we're interested in gathering some data on college students' perspectives on service or philanthropy projects around the B/CS community.

The Department of Psychology and Department of Economics are interested in assessing philanthropy initiatives within the local Bryan/College Station community. They are developing an "impact report" detailing fiscal costs, staff maintenance, initiative sustainability, and quality of life estimates. To develop their impact report, the Department of Psychology is specifically collecting data on the interest and feasibility of various projects. On the next few pages, you will find short autobiographies of three local members of the B/CS community. These individuals, among others, are part of service projects that local philanthropy organizations are personally assisting with. We would like you to evaluate each person's autobiography on a variety of dimensions. These evaluations will help the departments determine what types of philanthropy initiatives draw the most interest. Please be as honest as possible in your responses, as your responses will be used in the impact report.

Study 2 Short-Term Helping Behavior

Thank you for evaluating some of the autobiographies! They will be helpful in assisting the Psychology and Economics Departments develop an impact report about philanthropy initiatives.

George, Matt, John, and many others are part of service projects that local philanthropy organizations are currently assisting with. These local organizations are currently seeking volunteers for their service projects. There are many opportunities to volunteer in the B/CS community with these local philanthropy organizations in the coming weeks. If you're interested in volunteering to help some of our community members, please provide your email address below. Note: They will have a wide variety of options for you to choose from (e.g., helping with fundraisers, delivering meals, etc.). If you decide to volunteer, a member of the organization will contact you with more details about a volunteering opportunity when one arises.

You may also choose to opt out of volunteering by simply clicking "next."

Email: Please provide your email below if you're interested in volunteering on service projects for people in the B/CS community.

Hours: You indicated that you would be willing to volunteer for service projects around the B/CS community. How many hours would you be willing to volunteer for during this semester?
- ❍ 0 hours
- ❍ 1 hour
- ❍ 2 hours
- ❍ 3 hours
- ❍ 4 hours
- ❍ 5 hours
- ❍ 6 hours
- ❍ 7 hours
- ❍ 8 hours
- ❍ 9 hours
- ❍ 10 hours
- ❍ 11 hours
- ❍ 12 hours
- ❍ 13 hours
- ❍ 14 hours

❍ 15 hours
❍ 16 hours
❍ 17 hours
❍ 18 hours
❍ 19 hours
❍ 20 hours

Study 2 Long-Term Prosocial Behavior

Several weeks ago, you completed a survey on behalf of the Psychology and Economics Departments about your perspectives on philanthropy projects in the B/CS community. When you completed the survey, you indicated an interest in volunteering to help your local B/CS community members.

<u>Donation Drive</u> One of the local philanthropy organizations, "B/CS Cares," is hosting a service project within the next couple of weeks in which volunteers will be asked to help with a food and clothing donation drive. If you are interested in this service opportunity, please indicate below how many hours you would be willing to volunteer for in the next three weeks. Based on your availability, a member of this organization will be in touch with you about the details of the project as soon as they organize their schedule.

- ❍ 0 hours
- ❍ 1 hour
- ❍ 2 hours
- ❍ 3 hours
- ❍ 4 hours
- ❍ 5 hours
- ❍ 6 hours
- ❍ 7 hours
- ❍ 8 hours
- ❍ 9 hours
- ❍ 10 hours
- ❍ 11 hours
- ❍ 12 hours
- ❍ 13 hours
- ❍ 14 hours
- ❍ 15 hours
- ❍ 16 hours
- ❍ 17 hours
- ❍ 18 hours
- ❍ 19 hours
- ❍ 20 hours

<u>Fundraiser</u> "One Community," another philanthropy organization, is hosting a fundraiser in which they need volunteers to make phone calls to local businesses asking for donations on behalf of various B/CS community members. If you are interested in this service opportunity, please indicate below how many hours you would be willing to volunteer for in the next three weeks. Based on your availability, a member of this

organization will be in touch with you about the details of the project as soon as they organize their schedule.

APPENDIX N

FAD-Plus: Free Will and Determinism Scale, Free Will Subscale is in italics (Paulhus & Carey, 2011)

Please indicate your agreement with each of the following statements using the scale provided.

Strongly Disagree			Neither Disagree or Agree			Strongly Agree
1	2	3	4	5	6	7

1. I believe that the future has already been determined by fate.
2. People's biological makeup determines their talents and personality.
3. Chance events seem to be the major cause of human history.
4. *People have complete control over the decisions they make.*
5. No matter how hard you try, you can't change your destiny.
6. Psychologists and psychiatrists will eventually figure out all human behavior.
7. No one can predict what will happen in this world.
8. *People must take full responsibility for any bad choices they make.*
9. Fate already has a plan for everyone.
10. Your genes determine your future.
11. Life seems unpredictable—just like throwing dice or flipping a coin.
12. *People can overcome any obstacles if they truly want to.*
13. Whatever will be, will be—there's not much you can do about it.
14. Science has shown how your past environment created your current intelligence and personality.
15. People are unpredictable.
16. *Criminals are totally responsible for the bad things they do.*
17. Whether people like it or not, mysterious forces seem to move their lives.
18. As with other animals, human behavior always follows the laws of nature.
19. Life is hard to predict because it is almost totally random.
20. Luck plays a big role in people's lives.
21. *People have complete free will.*
22. Parents' character will determine the character of their children.
23. *People are always at fault for their bad behavior.*
24. Childhood environment will determine your success as an adult.
25. What happens to people is a matter of chance.
26. *Strength of mind can always overcome the body's desires.*
27. People's futures cannot be predicted.

Conformity Scale (Mehrabian & Stefl, 1995)

Please indicate your agreement with each of the following statements using the scale provided.

Strongly Disagree			Neither Disagree or Agree			Strongly Agree
1	2	3	4	5	6	7

1. I often rely on, and act upon, the advice of others.
2. I would be the last one to change my opinion in a heated argument on a controversial topic.
3. Generally, I'd rather give in and go along for the sake of peace than struggle to have my way.
4. I tend to follow family tradition in making political decisions.
5. Basically, my friends are the ones who decide what we do together.
6. A charismatic and eloquent speaker can easily influence and change my ideas.
7. I am more independent than conforming in my ways.
8. If someone is very persuasive, I tend to change my opinion and go along with them.
9. I don't give in to others easily.
10. I tend to rely on others when I have to make an important decision quickly.
11. I prefer to make my own way in life rather than find a group I can follow.

The Gratitude Questionnaire (McCullogh, Emmons, & Tsang, 2002)

Please indicate your agreement with each of the following statements using the scale provided.

Strongly Disagree			Neither Disagree or Agree			Strongly Agree
1	2	3	4	5	6	7

1. I have so much in life to be thankful for.
2. If I had to list everything that I felt grateful for, it would be a very long list.
3. When I look at the world, I don't see much to be grateful for.
4. I am grateful to a wide variety of people.
5. As I get older I find myself more able to appreciate the people, events, and situations that have been part of my life history.
6. Long amounts of time can go by before I feel grateful to something or someone.

Moral Identity Scale (Aquino & Reed, 2002)

Listed below are some characteristics that may describe a person:

Caring, Compassionate, Fair, Friendly, Generous, Hardworking, Helpful, Honest, Kind

Please indicate your agreement with each of the following statements using the scale provided.

Strongly Disagree			Neither Disagree or Agree			Strongly Agree
1	2	3	4	5	6	7

Internalization
1. It would make me feel good to be a person who has these characteristics.
2. Being someone who has these characteristics is an important part of who I am.
3. I would be ashamed to be a person who has these characteristics.
4. Having these characteristics is not really important to me.
5. I strongly desire to have these characteristics.

APPENDIX R

Probes and Demographics

1. In your own words, what was the purpose of the experiment?

2. Have you been in any other experiment that was similar to this experiment? If YES, please describe.

3. Please indicate your gender.
       Female (1)
       Female to Male Transgender (2)
       Male (3)
       Male to Female Transgender (4)
       Not Sure (5)
       Other (Please Specify): (6) _____

4. Please indicate your age. _____

5. What race best describes you?
       American Indian/Alaska Native (1)
       Asian (2)
       Indian (3)
       Native Hawaiian or Other Pacific Islander (4)
       White (5)
       Black or African-American (6)
       More than one race (7)
       Other (please specify) (8) _____

6. Are you Hispanic/Latino?
       Yes (1)
       No (2)

7. Is English your native language?
       Yes (1)
       No (2)

8. Approximately how much total combined money did all members of your HOUSEHOLD earn last year? This includes money from jobs; net income from business, farm, or rent; pensions; dividends; interest; social security payments; and any other money income received by members of your HOUSEHOLD that are EIGHTEEN 18 years of age or older. Please report the total amount of money earned - do not subtract the amount you paid in taxes or any deductions listed on your tax return.

Less than $20,000 (1)
$20,000 to $34, 999 (2)
$35,000 to $49,999 (3)
$50,000 to $74,999 (4)
$75,000 to $ 99,999 (5)
$100,000 to $149,999 (6)
$150,000 or More (7)

9. Please mark the point on the scale that best indicates your political orientation.

	very liberal (1)	liberal (2)	slightly liberal (3)	moderate (4)	slightly conservative (5)	conservative (6)	very conservative (7)
I am... (1)							

10. Please mark the point on the scale that best describes your political party preference.

	Strong Democrat (1)	Weak Democrat (2)	Independent / Lean Democrat (3)	Independent (4)	Independent / Lean Republican (5)	Weak Republican (6)	Strong Republican (7)
What is your political party preference? (1)							

11. Please indicate how religious you are using the following scale.

	not religious at all (1)	(2)	(3)	(4)	(5)	(6)	very religious (7)
How religious are you? (1)							

12. Which of the following best describes your religious beliefs?
Jewish (1)
Protestant (2)
Hindu (3)
Catholic (4)
Buddhist (5)
Muslim (6)
Spiritual but Not Religious (7)
Atheist/Agnostic (8)
Other (please specify) (9) _____

13. On average, how often do you participate in volunteer activities or services to help your community?

Not Often At All			Moderately Often			Extremely Often
1	2	3	4	5	6	7

14. How important is volunteering or giving back to the community to you?

Not Important At All			Moderately Important			Extremely Important
1	2	3	4	5	6	7