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Are Forgiving People Less Likely to Experience Cognitive Dissonance?

Jordan Barthel

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## Abstract

People differ in the degree to which they are able and willing to forgive themselves after they have committed a transgression against another person (Thompson et al., 2005). The purpose of the current study was to see if individuals with lower levels of dispositional forgiveness would experience more attitude change toward a boring task than those who have higher levels of dispositional forgiveness, as a result of cognitive dissonance being induced. Participants completed a boring task that involved moving beads back and forth on an abacus, and then were either asked or told to mislead the next participant by telling them that the task was enjoyable in order to induce cognitive dissonance in the participant. They were then asked to complete a questionnaire designed to measure their attitudes toward the abacus task. It was predicted that the participants with lower levels of dispositional forgiveness would end with more positive attitudes toward the abacus task than those with higher levels of dispositional forgiveness. The study did not yield any statistically significant results. The limitations of the study will be discussed.

### Are Forgiving People Less Likely to Experience Cognitive Dissonance?

A cigarette smoker decides that she is going to quit smoking because she knows how bad cigarettes are for her health. After one week of not smoking she relapses and smokes a cigarette. As a result of smoking the cigarette after deciding that she would quit because of the negative health effects, she experiences an uncomfortable emotional state. She experiences this uncomfortable emotional state is experienced because her behavior of smoking the cigarette is inconsistent with her belief that smoking cigarettes are bad for her. In order to get rid of this uncomfortable state she rationalizes her behavior by shifting her attitude toward the behavior of smoking cigarettes. She rationalizes her behavior by telling herself, "Well I exercise every day, so smoking cigarettes doesn't really matter." As a result of this rationalization she ends up with a more positive attitude toward smoking cigarettes as a result of this rationalization.

The process that was just described is the process of cognitive dissonance. Cognitive dissonance occurs when people behave in a way that is inconsistent with their attitudes. When this inconsistency occurs, people have a tendency to rationalize their inconsistent behavior by shifting their attitudes in order to restore consistency. Once shifted, these attitudes tend to be persistent over time, meaning that they do not return back to the previously held attitudes (Gibbons, Eggleston, & Benthin, 1997). The persistence of the shifted attitudes over time is one of the reasons that researching the role that dispositional forgiveness levels play in the dissonance process is so important to research.

It is possible that forgiving people may experience benefits by protecting themselves from the potentially negative effects of the need to shift their attitudes if they behave inconsistently. To understand how dispositional forgiveness levels could allow people to avoid experiencing cognitive dissonance, consider this example. A cigarette smoker with high levels

of dispositional forgiveness relapses after a week of committing to quitting smoking cigarettes. She is able to simply forgive herself for her inconsistent behavior and therefore she does not need to rationalize her inconsistent behavior by shifting her attitude toward smoking cigarettes, and avoids the dissonance process altogether. If being high in dispositional forgiveness allows people to simply forgive themselves like this, the negative attitude toward smoking cigarettes would remain. Keeping that negative attitude toward smoking cigarettes means that she will be likely to continue to try to quit in the future. A person with low levels of dispositional forgiveness would end with a more positive attitude toward the behavior of smoking cigarettes and as a result, will be less likely to continue trying to quit in the future. Cognitive dissonance reduction has long been thought of as a psychological process that results in positive outcomes because dissonance is being resolved. However, the dissonance reduction process could be detrimental to individuals in ways that have not been discussed in previous dissonance research.

Research has established that dispositional forgiveness is related to an array of benefits. It raises the question whether forgiving people could experience benefits that we are not currently aware of based on current research, such as maintaining more negative feelings toward behaviors that have negative impacts. The current study was done to see if dispositional forgiveness levels are related to the cognitive dissonance process.

### **Dispositional Forgiveness**

Forgiveness is defined as a positive change in thoughts, emotions, motivations, or behaviors toward a transgression and transgressor (Thompson et al., 2005). The transgressor refers to another person, multiple persons, or to oneself (Thompson et al., 2005). Previous research regarding forgiveness has established that it can be conceptualized in one of two ways: as a dispositional trait or as a situational response dependent upon the specific transgression

(McCullough & Witvliet, 2002). Forgiveness it is typically thought of as the action of forgiving others, but it also includes forgiving oneself and situations. The act of forgiving others involves at a minimum, bringing one's feelings toward a transgressor to a neutral point where negative feelings toward the transgressor are no longer harbored. When people do not forgive others, they continue thinking about the transgression and hold on to the negative feelings that were evoked after being transgressed against. Being unforgiving has been found to correlate with signs of stress and psychopathology, but a causal relationship has not been established (Thompson et al., 2005). Some people are more quickly and easily able to excuse their transgressions, while others take much longer to "get over" the indiscretion and seem to "punish themselves more severely. These differences in ability to forgive oneself and the attitudes that result after an individual behaves inconsistently, will be investigated with the current study.

The ability of people to forgive others is related to their ability to forgive themselves (Macaskill, 2007; Thompson et al., 2005). Forgiving others and oneself is associated with psychological well-being and relationship satisfaction (Thompson et al., 2005). Just as when people forgive others, the rumination and negative affect regarding the transgression is reduced, the same happens when people forgive themselves. Kachadourain, Fincham, and Davila (2005) found that those who have lower levels of dispositional forgiveness experience longer durations of rumination following a transgression of another person, or themselves, than those who have higher levels of dispositional forgiveness. Thompson et al. (2005) found that the degree of dispositional forgiveness influenced the type of affect that was present in the responses of people who either were victims of a transgression, committed a transgression themselves, or were victims of a situation that was out of their control. For example, an individual high in dispositional forgiveness who has been stolen from, tends to have more a positive affect after

they were victimized than a person with lower levels of dispositional forgiveness. Research also suggests that people with certain personality traits that make them more likely to experience guilt or shame such as depression or low-emotional stability, are likely to experience specific problems after a transgression that include punishing themselves for the transgression (Fisher & Exline, 2006). All of these research findings considered together give support for the idea that the level of dispositional forgiveness may account for the variance in length of rumination, degree of negative affect, and amount of punishment of the self that occurs after a transgression, which could influence the cognitive dissonance process.

### **Cognitive Dissonance**

Cognitive dissonance theory states that when people behave in a way that is inconsistent with their ideas, attitudes, beliefs, or opinions, they experience an aversive emotional state as a result of this disagreement (Festinger, 1957). Being in this aversive emotional state is uncomfortable and because of this, people are motivated to bring their cognitions and behaviors back into alignment with one another. Attitude change is experienced because it is much easier for people to rationalize their inconsistent behavior by changing how they feel toward something than to change their past behavior. For example, Alice decides that she is going to begin eating healthier and exercising more. Her initial attitude toward ice cream is that it is, in general, a bad food to consume. Her friend Jane offers her ice cream. She eats it and feels guilty. However, instead of continuing to feel bad about her actions, she quickly justifies her behavior by telling herself that ice cream contains lots of calcium and therefore is not that bad to eat. Due to this shift in Alice's attitude toward the healthiness of ice cream, the uncomfortable emotional state of inconsistency is resolved, dissonance is reduced, and she is left with a more positive attitude toward eating ice cream.

Festinger and Carlsmith (1959) conducted an experiment that provided significant empirical support for cognitive dissonance, and is viewed as the classic cognitive dissonance study. In this experiment, each participant completed a purposely tedious and boring 20-30 minute task that involved repeatedly turning pegs on a board while the experimenter timed the participant. After the participant completed the task, the experimenter asked the participant if he or she could stand in for a confederate that failed to show up. The participant was then told that he or she would have to inform another participant (who was actually a confederate), who was waiting to do the peg turning task, that the task was interesting and fun. The participant's attitude toward the peg turning task was then measured to estimate the amount of attitude change that was experienced. In the control condition the participant was offered nothing as compensation and did not interact with the confederate as the participants in the other conditions did.

In the second condition, the participant was offered \$1 in exchange for telling the confederate the task was interesting, and in the third condition the participant was offered \$20 as compensation for speaking with the other participant. The group that had been given \$1 as compensation experienced more attitude change, meaning that they felt more positive toward the peg turning task, than those in the group that had been given \$20 as compensation. Festinger and Carlsmith (1959) argued that this is because the participants who received \$20 were able to reason that they behaved in a way that was inconsistent with their attitudes (by telling participants that the task was fun when they really thought that the task was boring and tedious) because they were paid to do so. The large payment provided sufficient justification for their behavior and so they did not experience a state of dissonance.



The group that was given \$1 as compensation was unable to justify why they misled the next participant, meaning that they did not have sufficient external justification for their behavior. The reason that participants in this condition had positive attitudes toward the peg-turning task is because in order to reduce the aversive emotional state they had to shift their attitudes to realign them with their previous behavior. The participants in the control condition and the participants in the \$20 compensation condition having similar negative attitudes toward the task suggest that attitude change was experienced by the participants in the \$1 condition but not by the participants in the \$20 condition (Festinger & Carlsmith, 1959).

There are a number of situational factors that influence the likelihood that people will experience dissonance that results in attitude change toward the inconsistent behavior that they had performed. In order for cognitive dissonance arousal to occur, people must feel personal responsibility for the inconsistency between their attitudes or beliefs and their behavior (Cooper, 1971). For example, a man shopping for a television wants the best one that he can get for the lowest price, so he buys the TV that is on sale even though he has a bad feeling about the quality of the product. When he gets home the TV doesn't work and on the receipt it says that the store does not accept returns on electronics. This man will experience dissonance because he wanted the best TV but because of his choice he now has a TV that doesn't work.

Now say the same man went into the store and found that they only had one TV for sale. He buys the TV and when he gets home he realizes that it does not work. Now, because he did not have a choice of buying any different types of televisions, he is able to justify his purchase because there were no other alternatives that he could have chosen. This results in no dissonance being experienced. Also, given the role choice plays in the dissonance process, it makes sense that the more a person is pressured to behave in a certain way, the less attitude change will take

place (Cooper, 1971). In other words, the more a person perceives that they chose to act in an inconsistent way, the higher the degree of attitude change will be.

In the study conducted by Murray, Wood and Lilienfeld, (2012) participants were told to perform the tedious task of moving beads back and forth on an abacus. After the participant completed the task, the experimenter implemented the experimental manipulation. The participant was randomly assigned to either the high perceived choice condition or the low perceived choice condition. As the cover story, the experimenter told the participant that the true purpose of the study was to see if positive emotional attitude affected the performance on the abacus task. According to the condition that the participant had previously been assigned to, the experimenter either asked them or told them to tell the next participant that the task was fun and enjoyable. In this study the perceived choice of the participants were used to give the participants in the low perceived choice condition sufficient external justification for lying to the next participant. The perceived choice manipulation was also used to make the participants in the high perceived choice condition feel as though they did not have sufficient justification for lying to the participant.

Additionally, the attribution of physiological arousal to the individual's behavior is essential in order for cognitive dissonance to be experienced (Pittman, 1975). For example, research has shown that when people take medicine that makes them feel physiologically aroused, such as increasing their heart rate and making them sweat, they are much less likely to experience attitude change after behaving inconsistently (Zanna & Cooper, 1974). This is due to the fact that they attribute their arousal to taking the medicine, rather than to their behavior. Not feeling physiologically aroused because of their inconsistent behavior means that they will not

feel the need to restore consistency because in their mind, what they are feeling is not a result of their inconsistent behavior.

Another situational factor that must occur in order for attitude change to happen as a result of cognitive dissonance, is the possibility of having negative, undesired consequences to performance of the inconsistent behavior (Cooper & Worchel, 1970; Jastrebske, 1976). For example, if someone writes a pro-tobacco essay and is then told that it will be used by tobacco companies to encourage teens to smoke cigarettes, this would likely result in cognitive dissonance. This is because exposing teenagers to the pro-smoking essay has negative consequences, which would be publicly advocating the use of cigarettes, and the speaker would shift his or her attitude in favor of cigarette use in order to justify writing an essay that will be used to encourage teens to smoke cigarettes. On the other hand, if someone is asked to privately write down reasons why smoking is not harmful to one's health, and then is told that the essay will be shredded and no one will ever read what the individual wrote, there will not be any dissonance experienced because there were no negative consequences for behaving inconsistently. There is no dissonance experienced and so the participant would not shift his or her attitude because he or she does not need to restore consistency. Also important to note is the role of unintended consequences in studies during which the participants must lie to a confederate. A study in which the participant has to lie to a confederate is an example of unintended consequences. While he or she is lying to the confederate, he or she may begin to realize that these actions may harm the confederate, and as a result he or she would likely experience cognitive dissonance.

The most popular and supported theory as to why attitude change occurs is that when people act in ways that are inconsistent with their attitudes, this threatens their self-concept. The

threat occurs because most people think of themselves as decent human beings (Aronson & Carlsmith, 1962; Cialdini & Schroeder, 1976). So, to protect their self-concept, they rationalize their inconsistent behavior by shifting their attitudes in order to bring them back into alignment with their behavior so they do not continue to experience an aversive emotional state and feel negatively about themselves. This explanation of cognitive dissonance led researchers to wonder if individual differences influence the dissonance process. More specifically, researchers focused on whether individuals' trait levels of self-esteem might relate to how people respond to dissonance-inducing situations. Research shows that when individuals have high self-esteem they will exert more effort to reduce dissonance than people with average self-esteem, which results in a higher degree of attitude change to restore consistency in those with high self-esteem. When those with high self-esteem experience dissonance they feel more threatened than those with low self-esteem because they feel good about themselves and believe that they would not act in a way that is contrary to what they believe in (Gibbons et al., 1997). Feeling threatened by the inconsistency between their attitudes and behavior, people with high self-esteem want to restore consistency between the two, which results in a stronger degree of attitude change to reduce the dissonance experienced (Peterson, Haynes, & Olson, 2008).

Other individual differences, such as extraversion, have been studied to examine the extent of the relationship between individual differences and cognitive dissonance process. Matz, Hofstedt, and Wood (2008) found that introverted individuals demonstrated a higher degree of attitude change after experiencing dissonance than extraverted individuals. This could be due to the fact that introverts could be more likely than extraverts to internally reflect on their inconsistent behavior and therefore have a stronger need to shift their attitudes in order to reduce dissonance. These studies show that individual differences are related to the degree of attitude

change that is observed after dissonance reduction. Thus, to fully understand cognitive dissonance, one needs to know not only about the situation, but also about people's individual traits, which may influence the cognitive dissonance process.

Dispositional forgiveness is an important factor to consider when examining individual differences that influence the cognitive dissonance process. High dispositional forgiveness levels could allow individuals to avoid experiencing cognitive dissonance by allowing them to forgive themselves for their inconsistent behavior and elude the aversive emotional state that those with lower dispositional forgiveness levels would experience after behaving inconsistently. The person with low levels of dispositional forgiveness would be subject to negative effects of shifting their attitudes, whereas the person with high levels of dispositional forgiveness would not.

To see if dispositional forgiveness levels influences the cognitive dissonance process an atypical dissonance-inducing method was used in the current study. The typical way of experimentally inducing dissonance in people is to have them write a counter-attitudinal essay or compose a counter-attitudinal speech. This evokes feelings of inconsistency in the participants because they behave in a way that did not align with their attitudes. As mentioned before, Festinger and Carlsmith (1959) induced dissonance with the classic peg-turning task. The current experiment is a modern twist on the classic Festinger and Carlsmith (1959) peg-turning task. The current experiment used a procedure that involves moving beads back and forth on an abacus instead of turning pegs.

Although a counter-attitudinal essay or speech has been the most popular way to induce dissonance in the past, the abacus task seems to be a better way to evoke as much dissonance as possible. The difference between the abacus and peg-turning task is that the abacus task does not

include using money as the high choice or low choice manipulation as was done in the classic cognitive dissonance study conducted by Festinger and Carlsmith (1959). In the classic dissonance study participants were given either a small amount of money (\$1) which acted as the high choice condition manipulation, or were given a larger amount of money (\$20) which acted as the low choice condition manipulation. The abacus task instead manipulates the way in which the participant is requested to tell a confederate that the boring task was actually fun. The participants in the high choice condition were *asked* to tell the next participant that the abacus task was fun and enjoyable, whereas those in the low choice condition were *told* to tell the next participant that the abacus task was fun and enjoyable.

Research has demonstrated the significant role that individual differences play in the cognitive dissonance process. Given the possible role that dispositional forgiveness plays in the process as well, the current experiment will be done to see if forgiveness does in fact play a part. The abacus task will be used as the dissonance-inducing method in the current study due to the fact that this method does not require participants to write essays or speeches and argue a point of view that they do not agree with.

### **Cognitive Dissonance and Forgiveness**

The level of dispositional forgiveness that different people have is one of the individual differences that could be relevant to the cognitive dissonance process. Perhaps a person with low dispositional forgiveness would feel especially upset or uncomfortable if he or she noticed inconsistency in their own behavior. This could lead them to be more likely to experience cognitive dissonance than those with high dispositional forgiveness. Perhaps a person with high dispositional forgiveness would also feel upset, but would then forgive themselves for the

inconsistent behavior, which would eliminate the need to shift their attitudes in order to restore consistency.

The previously established relationship between low dispositional forgiveness and intensified negative affect, self-punishment, and the extended length of rumination after a transgression, indicates that these same outcomes could likely happen after a person acts in an inconsistent way (Thompson et al., 2005). Increased negative affect, length of rumination and self-punishment are predicted to interfere with the ability of a person to forgive themselves, and this suggests that dispositional forgiveness levels would likely play a role in the cognitive dissonance process. This raises the question of whether the tendency of individuals to forgive is related to the attitudes that people have after they behave in a way that is inconsistent with their beliefs.

### **The Current Study**

The purpose of this study was to see if dispositional forgiveness level is associated with attitude change. It was predicted that the lower a person's dispositional forgiveness level, the more positive their attitude would be toward the inconsistent behavior that was performed. Having reduced their aversive emotional state by forgiving themselves for their behavior, it was expected that those with higher levels of dispositional forgiveness would not need to shift their attitudes. It was also expected that those with lower levels of dispositional forgiveness would end with more positive attitudes toward the boring abacus task. This is because we predicted that those with lower dispositional forgiveness levels would be less likely to forgive themselves for behaving inconsistently, so attitude shifting would be necessary in order to restore consistency and reduce the aversive emotional state.

Past studies that have been conducted regarding the influence of situational factors on the cognitive dissonance process have been abundant, but the influence of individual differences, such as the ability and willingness to forgive, on dissonance, has been neglected. Shining light on the influence of individual differences on the cognitive dissonance process could provide much needed attention to the questions surrounding the factors that are associated with attitude change, and the implications of these findings.

In the current study, participants took a dispositional forgiveness measure and were then randomly assigned to one of two conditions: low choice or high choice. The participant first completed a task that involved moving beads back and forth on an abacus for 20 minutes in order to evoke boredom. Then the participant was asked by the experimenter to stand in for a research assistant because the assistant was unable to make it. The experimenter either asked or told the participant to tell the next participant, who was sitting in the waiting area, that the abacus task was fun and enjoyable. The participants in the low choice condition were *told* to tell the waiting student that the task was fun, while those in the high choice were *asked* to comply with this request. The abacus task was extremely boring, so telling the next participant that it was fun should have caused participants to experience cognitive dissonance as it did in Murray et al., (2012) that served as the model for the current study.

**Hypothesis 1:** We hypothesized that participants in the high choice condition would have a more positive attitude toward the boring abacus task than participants in the low choice condition, regardless of their level of dispositional forgiveness.

It was predicted that after performing the dissonance-inducing task, the individuals who were *told* to mislead the next participant (low choice condition) would have more negative feelings toward the task, while the participants who were simply *asked* to mislead the next



participant (high choice condition) would have more positive feelings toward the task. Those in the low choice condition were expected to not feel responsible for misleading the next participant because they were told to do so. They were told to lie to the next participant, which means that they would have had sufficient external justification for doing so, which is why we predicted that they would not experience cognitive dissonance. The reason that those in the high choice condition were expected to have a positive attitude toward the task was because the participants in this condition are expected to feel responsible for misleading the next participant because they were simply asked to do so. Due to the fact that they were asked to lie to the next participant, and they chose to do it, they did not have sufficient external justification for doing so, so they would experience cognitive dissonance. The participants in the high choice condition were expected to feel responsibility for behaving in a way that was inconsistent with their attitude toward the abacus task.

In order to restore consistency and reduce the aversive emotional state, the participants in the high choice condition were expected to react as participants in past dissonance research have, and shift their attitudes so that they would realign with their previous behavior. The shift in attitude was predicted to be reflected by the type of attitude that the participants had toward the abacus task. For example, the more positive the attitude of participants, the more attitude change that had been experienced in order for their attitude to be consistent with what they told the confederate about the enjoyable nature of the task.

**Hypothesis 2:** We hypothesized that when considering only participants in the high choice condition, the lower their dispositional forgiveness levels, the greater their positive attitude toward the boring abacus task would be.

I hypothesized that after performing the dissonance-inducing task, individuals with lower dispositional forgiveness levels would have found the task more enjoyable than those with a higher levels of dispositional forgiveness. The reason that those with lower dispositional forgiveness levels were expected to have more positive attitudes toward the boring abacus task than those with higher dispositional forgiveness levels is because the with lower dispositional forgiveness levels were expected to have a more difficult time forgiving themselves for behaving inconsistently than those with higher dispositional forgiveness levels. This means that in order to restore consistency and reduce the aversive emotional state, the participants the with lower dispositional forgiveness levels should have shifted their attitudes by rationalizing that the task was enjoyable in order to bring their attitudes back into alignment with their behavior in which they told the confederate the task was fun. Those with higher dispositional forgiveness levels were predicted to find the task less enjoyable than those low in dispositional forgiveness. Those with higher dispositional forgiveness levels were predicted to be able to forgive themselves for performing a behavior that contradicted their attitudes and thus eliminate the need to rationalize their by behavior by changing their attitudes. Once they forgave themselves, they no longer needed to rationalize that the task was enjoyable, causing their attitude toward the task to remain negative.

## **Method**

### **Participants**

Participants were 50 female undergraduate college students attending a private Midwestern liberal arts institution. They were recruited through Introductory Psychology courses and received partial lab credit for participation. Participants were between the ages of 18 and 22, with an average age of 18.

Participants were either randomly assigned to the high choice or low choice condition; those in the low choice condition ( $n = 26$ ) were *told* to deceive the next participant, those in the high choice condition ( $n = 24$ ) were *asked* to mislead the waiting participant. This was done to make sure that those in the high choice condition felt that they had a choice in whether or not they lied to the confederate and those in the low choice condition would feel they had low choice about lying to the confederate.

Seven participants were excluded from data analysis because they failed to follow directions or they were suspicious (see Table 1). Two of the excluded participants (one in the low choice condition and one in the high choice condition) told the confederate about the task but did not say that it would be fun or enjoyable. Another of the excluded participants in the low choice condition told the confederate that she, “thought the task was fun, but it may just be a personal preference, but it was good.” Another excluded participant (high choice condition) told the confederate that the task was fun, but also said that she was told to say this. Another participant in the high choice condition was excluded from analysis because after she told the confederate that the task was fun, she said, “it wasn’t that great.” Two confederates caught on to the fact that talking to the confederate was part of the study. One of these participants was in the low choice condition and one was in the high choice condition. Also, important to mention is the fact that the three participants that had to be prompted by the confederate to talk about the study were all in the high choice condition, and were not excluded from data analysis. After excluding participants, the study had 43 participants: 20 participants in the high choice condition and 23 participants in the low choice condition.

## Materials

**Abacus.** A wooden abacus, with different colored beads on each row of wire, was used in the dissonance-inducing task. The abacus has ten rows of beads and the colors of the rows repeat twice in the following order: blue, red, white, green, and yellow. The abacus measures approximately 1.5 feet tall by 1 foot wide.

**Stopwatch.** A standard stopwatch was used by the experimenter during the abacus task to make the cover story more convincing by pretending to time the participant. It was also used to make sure that all participants spent the same amount of time on the abacus task; 10 minutes with each hand.

**Forgiveness.** The Heartland Forgiveness Scale (HFS; Thompson et al., 2005; see Appendix A) is an 18-item, self-report questionnaire that measures a person's dispositional forgiveness of the self, others, and situations. Each type of forgiveness is captured in a separate subscale that includes six items. The HFS has participants answer items by rating themselves on a seven-point Likert scale, ranging from 1 (*Almost always false of me*) to 7 (*Almost always true of me*). The Forgiveness of Self subscale indicates how forgiving a person is toward themselves and includes items such as "Although I feel bad at first when I mess up, over time I can give myself some slack." The Forgiveness of Others subscale indicates how forgiving a person is toward others and includes items such as "If others mistreat me, I continue to think badly of them." The Forgiveness of Situations subscales indicates how forgiving a person is toward situations that are out of their control and includes items such as "I eventually make peace with bad situations in my life." Scores range from 6-42 on each subscale (i.e., self, others, situations), and from 18-126 on the whole scale. Higher scores on these subscales indicate higher levels of forgiveness, and lower scores indicate lower levels of forgiveness for that category. Lower

scores on the entire HFS indicate lower overall dispositional forgiveness, and higher scores on the HFS indicate higher overall dispositional forgiveness.

The HFS scale has been used in many studies and demonstrates good reliability, with  $\alpha = 0.87$  (Barber, Maltby, & Macaskill, 2005; Thompson et al., 2005). The Forgiveness of Self subscale had an average  $\alpha = 0.74$ , the Forgiveness of Others subscale had an average  $\alpha = 0.79$ , and the Forgiveness of Situations subscale had an average  $\alpha = 0.79$ , all of these indicate adequate internal consistency of the subscales and the entire scale itself (Thompson et al., 2005). In another study, the Forgiveness of Self subscale had an average  $\alpha = 0.74$ , the Forgiveness of Others subscale had an average  $\alpha = 0.79$ , and the Forgiveness of Situations subscale had an average  $\alpha = 0.72$  (Macaskill, 2007). The reliability of the HFS in the current study was strong, with  $\alpha = 0.86$ . In the current study the Forgiveness of Self subscale had an average  $\alpha = 0.81$ , the Forgiveness of Others subscale had an average  $\alpha = 0.72$ , and the Forgiveness of Situations subscale had an average  $\alpha = 0.86$ , all of these indicate strong internal consistency of the subscales and the entire scale itself. The test-retest reliability of the HFS scale, and the Forgiveness of Self, Forgiveness of Others, Forgiveness of Situations subscales had correlations between two test administrations that were, respectively 0.83, 0.72, 0.73, and 0.77.

The HFS demonstrates good predictive validity of romantic relationship duration and reactivity to stress-related illnesses such as psoriasis (Kashdan, Julian, Merritt, & Uswatte, 2006). Concurrent validity has also been established with different forgiveness scales such as Transgression-Related Interpersonal Motivations Inventory, Enright Forgiveness Inventory, and the IRRS (Macaskill, 2007). Factor analysis was done and the forgiveness subscales were significantly correlated (self and other  $r = 0.31$ , self and situation  $r = 0.78$ , and other and situation  $r = 0.54$ ), this supports the idea that forgiveness scales are strongly related, which is

why the entire HFS score will be used to see if there is an interaction between dispositional forgiveness levels and attitude toward the abacus task (Thompson et al., 2005). The residual variances and factor loadings for the self, others, and situations subscales were equal for both the forgiveness and forgiveness factors that the HFS consists of (Thompson et al., 2005).

**Self-esteem.** The Rosenberg Self-esteem Scale (RSE; Rosenberg, 1965; see Appendix B) is a 10-item survey that assesses a participant's feelings of self-worth. The RSE consists of a four-point scale and has participants rate themselves from 0 (*strongly disagree*) to 3 (*strongly agree*). This scale includes items such as "I feel that I have a number of good qualities" and "I feel I do not have much to be proud of." Possible scores range from 10-40, with higher scores indicating higher feelings of self-worth. The RSE is widely used in past research and demonstrates good reliability, with  $\alpha = 0.90$ , which indicates strong internal consistency (Geng & Jiang, 2013). This self-esteem scale in the current study demonstrated a comparable reliability of,  $\alpha = 0.87$ . The RSE was used to see if there is a relationship between self-esteem and the degree of attitude change as there has been in previous research.

**Cover story item.** Participants were asked to indicate which hand is their dominant hand. This item was used to strengthen the cover story.

**Attitude toward the task.** The Post-experimental Questionnaire, designed by Murray et al., (2012), was used to determine the attitudes of the participants toward the abacus task (see Appendix C). This eight-item survey includes items such as "The task in this experiment was enjoyable." Ratings for the items consist of a seven-point Likert scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). The purpose of this survey was to measure the feelings that the participants had toward the abacus task after they lied to the confederate about the task's qualities.

The first four items on this questionnaire were combined to create a composite score which is the sum of these four items, and is labeled “Total Attitude toward Abacus Task.” Given that Cronbach’s alpha was 0.80, the following four items were combined to become the only variable: (1) “The task in this experiment was enjoyable,” (2) “I feel that I learned a lot from this experiment,” (3) “I feel that the results of this study will have scientific value,” (4) “I would enjoy participating in future experiments similar to this one.” In order to minimize confusion when interpreting results, the 7-point scale was reverse scored so high scores would mean more positive attitudes toward the task. After reversing these four items, the scale now ranges from 1 (*strongly disagree*) to 7 (*strongly agree*). This composite score indicated the participants’ overall attitudes toward the abacus task, with higher scores indicating more positive attitudes, and lower scores indicating more negative attitudes.

**Age Questionnaire.** The age questionnaire asked participants to provide their age. The survey was used to gather information about the participants (see Appendix D).

**Manipulation check.** The manipulation check for the participants included items such as “The experimenter gave me a choice in whether or not I told the next participant that the abacus task was fun and enjoyable” and the responses ranged from 1 (*strongly agree*) to 4 (*strongly disagree*). In order to minimize confusion when interpreting results, 1 (*strongly agree*) and 2 (*agree*) were grouped into the category of (*agree*). For the same purpose 3 (*disagree*) and 4 (*strongly disagree*) were grouped into the category of (*disagree*). This check was used to gauge how the participant perceived their role in the experiment (see Appendix E). A value of 1 means that the participant perceived choice was high, and a value of 2 means that the participant perceived choice was low.

**Confederate feedback.** The confederate verification form allowed the confederate to indicate whether or not the participant complied with the directions to tell the next participant that the task was fun and/or enjoyable. The form included the following items: “The participant told me that the task was fun/enjoyable,” “The participant did not tell me anything about the experiment,” “The participant told me that the task would be fun/enjoyable BUT also told me they had to tell me it was enjoyable,” “The participant told me that the task would be boring,” “The participant told me about the task BUT did NOT tell me it would be fun/enjoyable,” “The participant did not talk to me at all,” and “The participant told me that the task would be fun BUT only after being prompted by me.” Given that only one of these situations could have happened, the confederate was directed to check whichever box that corresponded with the behavior of the participant. This check was used to collect information regarding the conversation to make sure that the data included is only from the participants who followed through and told the confederate the task was fun or enjoyable (see Appendix F).

## **Procedure**

Participants signed up for the study through a research participation program for students in the introductory psychology course. All introductory psychology students completed prescreening measures, including the HFS when they logged in to the subject pool system. Participants were run individually. When the participant arrived she was first asked to wait in the waiting area briefly, before being directed to come into the testing room. The participant was seated at a desk in the testing room, and was then asked to read and sign the informed consent form. The participants were told that the purpose of the current experiment was to look at the relationship between self-esteem and task performance. They were then asked to complete the self-esteem measure, and when finished to put the form inside the manila envelope provided.



The participant was then informed of the task they were going to perform, which was to move the beads back-and-forth on the abacus for 20 minutes, 10 minutes per hand, while the experimenter timed the task with a stopwatch. As in the previous research using the abacus task, the task was designed to elicit feelings of boredom in the participant.

Half of the participants were randomly assigned to either the low choice or high choice condition. The participants who were randomly assigned to the low choice condition were told: “Thank you for your participation in this task. I’d like to explain what this has been all about so you have some idea of why you were doing this task. There are actually 2 groups in the experiment. In one group, the group you were just in, we bring the participant in and give him or her no introduction to the experiment. That is, all we tell them is what they need to know to do the task, and they have no idea what the experiment is really about or what they will have to do. But the other group, before they begin the task, we tell them what the experiment is going to be about and that it is going to be fun and enjoyable. We do this because we want to see if having a positive attitude about the task before you begin will affect your ability on the task. So normally we have another student who works for us, and what I do is take her into the room that you were just in and introduce her as though he had just finished the experiment. This paid student then starts a conversation with the next participant and tells her about the experiment and how interesting and fun it was. What we are interested in, of course, is comparing the performance of people who know nothing about the experiment, such as yourself, with those people who expect the task to be interesting and exciting.

The student that we have hired to talk to the next participant about the study couldn't make it today. She just called a few minutes ago. My advisor told me to just have one of my actual participants do it. So, what you will have to do is to tell the next participant who is now in

the waiting room, that this task is fun and enjoyable. I'll take you into the waiting room, introduce you to the next participant, and then give you about 1 minutes to begin your conversation and tell her that this experimental task will be fun. Are you ready?" (Murray, personal correspondence, June 28, 2015). This difference in the experimenter's script was meant to lessen the participant's perceived choice in the matter and therefore reduce the feelings of responsibility the participant had about lying to the confederate. The experimenter then led the participant into the waiting area and instructed the participant to wait with the confederate.

The participants that were assigned to the high choice condition were told: "Thank you for your participation in this task. I'd like to explain what this has been all about so you have some idea of why you were doing this task. There are actually 2 groups in the experiment. In one group, the group you were just in, we bring the participant in and give him or her no introduction to the experiment. That is, all we tell them is what they need to know to do the task, and they have no idea what the experiment is really about or what they will have to do. But the other group, before they begin the task, we tell them what the experiment is going to be about and that it is going to be fun and enjoyable. We do this because we want to see if having a positive attitude about the task before you begin will affect your ability on the task. So normally we have another student who works for us, and what I do is take her into the room that you were just in and introduce her as though he had just finished the experiment. This paid student then starts a conversation with the next participant and tells her about the experiment and how interesting and fun it was. What we are interested in, of course, is comparing the performance of people who know nothing about the experiment, such as yourself, with those people who expect the task to be interesting and exciting.

The student that we have hired to talk to the next participant about the study couldn't make it today. She just called a few minutes ago. My advisor told me to ask one of my actual participants to do it. You don't have to, but if you would be willing to do this for me, all I would ask you to do is to tell the next participant who is now in the waiting room, that this task is fun and enjoyable. So, I'd take you into the waiting room, introduce you to the next person, and then give you about 1 minute to begin your conversation and tell him or her that this experimental task will be fun. It's up to you of course, but do you think you could help me out by doing this for me?" (Murray, personal correspondence, June 28, 2015). After the participant agreed to tell the confederate that the task was enjoyable, she followed the experimenter into the waiting area and was left there with the confederate for two minutes.

From this point forward, the procedure was the same for both low choice and high choice conditions. The confederate was always female, to make sure that gender was held constant. The confederate was always one of four students who volunteered to pose as the next waiting participant. If the participant did not need prompting to tell the confederate that the task was going to be enjoyable, the confederate thanked the participant to purposefully maximize the dissonance felt by the participant: "Great, I'm really glad to hear that this is a fun experiment because all of the other experiments I have had so far have really been boring. Thanks for telling me." If the participant did not say that the task was enjoyable, the confederate prompted the participant by asking, "So how was it?" The confederate then thanked the participant as previously stated (Murray, personal correspondence, 2015). Once the participant left the room the confederate then filled out a confederate verification form to record if the participant said that the task was fun and enjoyable, whether they needed prompting by the confederate or not, and any extra information that was said by the participant.

Following the participant deceiving the confederate, the participants in both low and high choice conditions were given the Post-experimental Questionnaire. To avoid the chance that the participant became suspicious of the hypotheses and changed her responses accordingly, the participant was told that the Psychology Department was surveying students who were participating in research. After the participant finished that Post-experimental Questionnaire, she was also given a manipulation check and an age questionnaire to complete. After the participant placed the completed manipulation check in the manila envelope, the experimenter then began debriefing them by reading the debriefing script (see Appendix G).

## Results

Descriptive statistics for each scale are provided in Table 2. A correlation matrix including the correlations between each subscale of the HFS, the HFS total, Self-Esteem, and total attitude toward the abacus task is provided in Table 3.

### Manipulation Check

The participants were given a manipulation check to assess how well perceived choice was induced. A Chi-Square analysis was conducted in order to see if there was a statistically significant relationship between choice condition and participant perceived choice (see Table 4). The prediction that the choice condition would be correlated with the participants' perceived choice was supported,  $\chi^2 (N = 43) = 5.73, p = .02$ . This statistically significant chi square value indicates that choice condition and perceived choice are associated. This means that 95% of participants in the high choice condition perceived that they had more choice than those in the low choice condition had perceived they had. Even though choice condition and perceived choice are associated, 65% of the participants in the low choice condition reported feeling as

though they had high perceived choice, which indicates that there were still problems with inducing the perceived choice that was intended.

### **Hypotheses**

Hypothesis 1 predicted that participants in the high choice condition would have had a more positive attitude toward the boring abacus task than participants in the low choice condition, regardless of their level of dispositional forgiveness. To test the first hypothesis an independent groups *t*-test was conducted. The results did not show a statistically significant difference between the mean attitudes toward the abacus task,  $t(41) = -0.96, p = .34, d = .29$ . This indicates that the attitudes of participants in the low choice ( $M = 18.83, SD = 3.97$ ) and the high choice condition ( $M = 17.65, SD = 4.06$ ) were the same

To see if eliminating the participants in the low choice condition who reported feeling they had a high perceived choice would change the results, another independent groups *t*-test was performed. This independent groups *t*-test analysis yielded a non-statistically significant difference between the mean attitudes toward the abacus task,  $t() = . p = ..$  This indicates that even after excluding the participants who did not reporting feeling the perceived choice that was intended for them to feel, that there was no difference between dispositional forgiveness levels and total attitudes toward the abacus task.

Hypothesis 2 predicted that when considering only participants in the high choice condition, the lower their dispositional forgiveness levels, the greater their positive attitude toward the boring abacus task would be. To test the second hypothesis a correlation was performed between dispositional forgiveness level and total attitude toward the abacus task, using only the participants in the high choice condition, and a scatterplot of the results was

created (see Figure 1). Dispositional forgiveness level and total attitudes toward the abacus task were not significantly correlated,  $r(20) = .18, p = .56$  (see Table 6). Neither hypotheses were supported. To see if the dispositional forgiveness scores on the HFS subscales correlated with the total attitudes toward the abacus task a correlation was performed. Using the subscales of the HFS resulted in statistics that were equally uninformative.

### Discussion

The current study examined the role of dispositional forgiveness levels in relationship with the amount of attitude change experienced. Unfortunately, neither of the hypotheses were supported which conflicts with the results of the study that served as the model for the current study. Hypothesis 1 predicted that participants in the high choice condition would have a more positive attitude toward the abacus task than participants in the low choice condition, regardless of their level of dispositional forgiveness. For individuals in the high perceived choice condition, more positive attitudes toward the abacus task were predicted. For those in the low perceived choice condition, more negative attitudes toward the abacus task were predicted. The results showed that there were no differences in the attitudes toward the abacus task between the high and low choice conditions, as we predicted there would be.

These results are especially troubling because the model study, Murray et al. (2012), which obtained statistically significant differences between the high and low choice conditions. In Murray et al. (2012) the high choice condition ended with more negative attitudes toward the abacus task, and the low choice condition ended with the more positive attitudes toward the abacus task, supporting this hypothesis. Also, important to note is the fact that the chi square analysis was significant, however, there were still many participants (65%) who reported that they felt that they had choice when it was intended for them to feel that they did not have a

choice. We replicated the model studies' procedure, so the fact that there were no differences between the attitudes toward the abacus task of those in the high and low condition, could be due to the low power of the study because of the small sample size. However, this in an atypical dissonance inducing procedure. The results could be due to the way in which dissonance was induced, which was by choice condition instead of payment as was used in Festinger and Carlsmith (1959). It is possible that having the participants lie to the confederates did not induce dissonance because of the fact that participants simply did not feel bad for doing so, or the abacus task could be so boring that the participants could not rationalize their behavior by shifting their attitudes.

In the model study, Murray et al. (2012), participants in the low choice condition felt that they had less choice than those in the high choice condition as intended. Murray et al. (2012) also successfully induced dissonance in participants as illustrated by those in the low choice condition reporting more negative attitudes toward the abacus task than those in the high choice condition. It has been established that individuals must feel that they had a choice in whether or not they performed a counter-attitudinal behavior in order for dissonance to be induced (Festinger & Carlsmith, 1959). Perhaps the process of either asking or telling the participants to lie to the confederate did not induce the amount of perceived choice that it was intended to induce, and this is why many participants in the low choice condition reported that they had more choice than they should have felt that they had. This could have been caused by the fact that at the start of the experiment the participants were reminded verbally and in the informed consent form that they always had the right to quit participating in the experiment at any point in time. Being that this was fresh in their mind, this could have interfered with the perceived choice that we tried to induce in participants. Another possibility that would explain these

results is that the abacus task could be so boring that the participants were unable to rationalize their inconsistent behavior by telling themselves that the task was interesting.

Rather than using the abacus task plus lying to a confederate, one of the typical ways of inducing cognitive dissonance with counter-attitudinal essays and speeches could have been used and possibly could have yielded better results. However, the counter-attitudinal essay and speech methods of inducing dissonance were decided against because of the problems associated with these methods. The topics of the essays and speeches involved participants arguing points that they didn't actually believe or agree with. Because these were not their actual opinions or attitudes, it is likely that it would be a struggle to develop legitimate arguments for the usual topics such as raising tuition or endorsing smoking cigarettes. The abacus task was assumed to be less likely to have these problems because the task is clearly boring and the participants only have to lie in order to induce dissonance instead of formulating an argument in essay or speech form.

Hypothesis 2 predicted that when considering only participants in the high choice condition, the lower their dispositional forgiveness levels, the greater their positive attitude toward the boring abacus task would be. This would have suggested that those who have higher levels of dispositional forgiveness are more willing and able to forgive themselves for acting in an inconsistent way, than those who have lower levels of dispositional forgiveness who need to rationalize their behavior by changing their attitudes. The results did not show a strong relationship between dispositional forgiveness levels and total attitudes toward the abacus task. However, this does not indicate that an individual's dispositional forgiveness levels do not play a role in the cognitive dissonance process because of the fact that we cannot be confident that cognitive dissonance was in fact induced in participants. This is especially true because of the



fact that Murray et al. (2012) did induce dissonance in participants. Given that the previous use of this same task induced dissonance in participants, the current results should not be used as evidence to rule out dispositional forgiveness as having an influence in the dissonance process because of the fact that we cannot conclude dissonance was induced in the current study.

### **Limitations**

When the participant was given the attitude toward the task survey and the manipulation she was told that the Psychology Department was administering a survey to evaluate the research that was being conducted. Hearing this may have caused participants to change their responses of perceived choice on the manipulation check. Participants could have feared that responding by saying they felt that they did not have choice would reflect negatively on the experimenter and that they may face consequences for this. This could explain the large number of participants in the low choice condition who reported feeling that they had a high perceived choice in whether they lied to the next participant.

A major limitation to this study is the small sample size. Given that only 43 participants' data could be included in the analyses, the power of this current study is very low. Murray et al. (2012) had 164 participants included in their study, and this could explain why their study obtained statistically significant results and the current study did not. The small effect size of the difference between the mean attitudes toward the abacus task ( $d = .29$ ), means that in order to detect a statistically significant difference between the two choice conditions, more participants would be necessary. It was the initial goal of the current study to obtain a larger number of participants, but we had to delay data collection until the spring semester and because of this there were fewer students available to participate. We attempted to enhance the power of the current study by recruiting low and high forgiveness individuals, but due to time constraints and

the difficulty that was encountered when recruiting participants, we had to allow all participants on the dispositional forgiveness score spectrum to participate in the study. Considering the low power of the current study, the chances of a Type II error are extremely high. Conducting this study again with a larger number of participants would reduce the chances of a Type II error. Perhaps having 60 participants per condition as Murray et al. (2012) did would result in statistically significant differences in the attitudes toward the abacus task between the low and high dispositional forgiveness levels.

Another potential limitation to the current study is the number of confederates that were involved in the dissonance-inducing process. These confederates were all female, so gender was held constant. However, having four different confederates decreased the control over other potential confounding variables. The attractiveness of the confederates may have made a difference in the degree of dissonance induced in participants. A more attractive confederate could have induced stronger feelings of guilt or responsibility in the participants when telling the confederate that the task was fun. Related to the attractiveness of the confederate, the likability of a confederate may have also made a difference in the degree of guilt or responsibility that the participant felt when lying to the confederate.

Also, when training the confederates as to what their role was, I did not explicitly tell them if they should continue the conversation between themselves and the participant after the participant told her that the task was fun or enjoyable. This means that the conversations that the confederates and participants had were not controlled, and could have influenced the level of guilt or responsibility that the participants felt as a result of lying to the confederate. I noticed that certain confederates seemed to always be chatting with the participant when I re-entered the

room, and other confederates seemed to be sitting in silence. The amount of conversation and the pleasantness of the encounter could have influenced whether dissonance was induced or not.

### **Future Directions**

Unfortunately, the current study does not allow us to conclude that choice was manipulated in such a way that cognitive dissonance was induced. To fix this problem in future studies, pilot studies would be conducted to see dissonance manipulation methods work the best, and which methods are most successful in inducing dissonance in participants. The method that results in the largest amount of dissonance induced would be the method that I would use to replicate the current experiment examining the influence of dispositional forgiveness on the cognitive dissonance process. In a future study I would use the same paradigm of having the participant lie to the confederate based on the success that the model study, Murray et al. (2012), had inducing cognitive dissonance with the abacus task. However, I would also consider using a counter-attitudinal speech to induce dissonance in participants because I believe that by introducing the presence of an audience any cognitive dissonance that is induced by acting inconsistently may be enhanced.

High levels of dispositional forgiveness could result in benefits that are currently unknown to us, such as continuing to pursue something that is beneficial to their health, even after experiencing setbacks such as relapsing after committing to quitting smoking cigarettes. The same benefits could possibly be found in regards to exercise, due to being able to forgive oneself for not following an exercise regime. By being able to forgive oneself for this stumble in the process of establishing an exercise routine, one resolves the need to shift their attitudes toward exercise in order to restore consistency. This would result in the continued effort to establish an exercise routine. In the future, correlational studies could be done to see if there is a

relationship between the dispositional forgiveness levels of individuals and their attitudes toward things such as smoking cigarettes, and exercising. If a correlation was found between forgiveness levels and attitudes toward these types of behaviors, this would provide researchers with evidence to support further investigation into the influence dispositional forgiveness has on the cognitive dissonance process and the implications of this influence.

Understanding the individual differences that influence the cognitive dissonance process has practical applications. Cognitive dissonance-based psychotherapies are used as clinical interventions in order to change the attitudes and beliefs of the patient in hopes to change future behaviors. Some examples of uses of dissonance-based interventions are when psychologists treat eating disorders and help clients change their body-image (Stice, Rohde, Butryn, Menke, & Marti, 2015). For those who begin with a negative body image, they will experience inconsistency between their currently held attitudes and their behavior of supporting positive body image. This means that in order for them to restore consistency, they will shift their body image to become more positive in order to reduce cognitive dissonance (Halliwel & Diedrichs, 2014; Matusek, Wendt, & Wiseman, 2004). Cognitive dissonance interventions are used for purposes other than just clinical therapy, it is also used for changing problematic behaviors that plague society such as the stigma that surrounds obesity or to address academic cheating in high school students (Ciao & Latner, 2011). This is done by testing people on the stigmas they have about obesity, and then informing them that their scores on the Antifat Attitudes Test did not agree with their values. By doing this, they are inclined to bring the two into alignment, and this results in more positive feelings toward obesity and those who suffer from it (Ciao & Latner, 2011).

When trying to change a person's attitudes during any intervention, but most importantly during a clinical intervention, knowing how individual differences relate to the cognitive dissonance process is essential if the optimal treatment is to be chosen. If certain individual differences facilitate positive progression toward the desired outcome, while others hinder improvement, it is important for therapists to be aware of them so that the patient receives the best possible treatment they can. For example, if those who have lower levels of dispositional forgiveness are more susceptible to experiencing attitude change after cognitive dissonance, then these would be the people that dissonance therapies would be the most beneficial to. Therefore, conducting a study in a therapeutic setting to see if people with low forgiveness levels are more likely to benefit from such therapies would be a practical next step.

Overall, the study did not provide us with results that would allow us to understand or make conclusions about the relationship between dispositional forgiveness levels and the cognitive dissonance process. Due to the fact that dissonance was not induced in the high choice condition, it is unclear if dispositional forgiveness is an important individual difference that influences the cognitive dissonance process. It is possible that forgiving people may experience benefits that less forgiving people do not that result from protecting oneself by not changing one's attitudes in a way that would harm oneself in order to restore consistency. The answer to this question is certainly worth pursuing in the future.

### References

- Aronson, E., & Carlsmith, J.M. (1962). Performance expectancy as a determinant of actual performance. *The Journal of Abnormal and Social Psychology, 65*, 178-182. doi: 10.1037/h0042291
- Barber, L., Maltby, J., & Macaskill, A. (2005). Angry memories and thoughts of revenge: The relationship between forgiveness and anger rumination. *Personality and Individual Differences, 39*, 253-262. doi: 10.1016/j.paid.2005.01.006
- Brown, R. P. (2003). Measuring individual differences in the tendency to forgive: Construct validity and links with depression. *Personality and Social Psychology Bulletin, 29*, 759-771. doi: 10.1177/0146167203029006008
- Cialdini, R., & Schroeder, D. (1976). Increasing compliance by legitimizing paltry contributions: When even a penny helps. *Journal of Personality and Social Psychology, 34*, 599-604. doi: 10.1037/0022-3514.34.4.599
- Ciao, A. C., & Latner, J. D. (2011). Reducing obesity stigma: The effectiveness of cognitive dissonance and social consensus interventions. *Obesity, 19*, 1768-1774. doi:10.1038/oby.2011.106
- Cooper, J. (1971). Personal responsibility and dissonance: The role of foreseen consequences. *Journal of Personality and Social Psychology, 18*, 354-363. doi: 10.1037/h0030995
- Cooper, J., & Worchel, S. (1970). Role of undesired consequences in arousing cognitive dissonance. *Journal of Personality and Social Psychology, 16*, 199-206. doi: 10.1037/h0029830
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *The Journal of Abnormal and Social Psychology, 58*, 203-210. doi: 10.1037/h0041593

- Fisher, M. L., & Exline, J. J. (2006). Self-Forgiveness versus Excusing: The Roles of Remorse, Effort, and Acceptance of Responsibility. *Self and Identity*, 5, 127-146. doi: 10.1080/15298860600586123
- Gibbons, F.X., Eggleston, T.J., & Benthin, A.C. (1997). Cognitive reactions to smoking relapse: The reciprocal relation between dissonance and self-esteem. *Journal of Personality and Social Psychology*, 72, 184-195. doi: 10.1037/0022-3514.72.1.184
- Halliwell, E., & Diedrichs, P. C. (2014). Testing a dissonance body image intervention among young girls. *Health Psychology*, 33, 201-204. doi: 10.1037/a0032585
- Jastrebske, E. M. (1976). Dissonance, social consequences and methods of conflict resolution. *Social Behavior and Personality*, 4, 81-90. doi: 10.2224/sbp.1976.4.1.81
- Kachadourian, L.K., Fincham, F., & Davila, J. (2005). Attitudinal ambivalence, rumination, and forgiveness of partner transgressions in marriage. *Personality and Social Psychology Bulletin*, 31, 334 – 342. doi. 10.1177/0146167204271595
- Kashdan, T. B., Julian, T., Merritt, K., & Uswatte, G. (2006). Social anxiety and posttraumatic stress in combat veterans: Relations to well-being and character strengths. *Behaviour Research and Therapy*, 44, 561-583. doi:10.1016/j.brat.2005.03.010
- Macaskill, A. (2007). Exploring religious involvement, forgiveness, trust, and cynicism. *Mental Health, Religion & Culture*, 10, 203-218. doi: 10.1080/13694670600616092
- Matusek, J. A., Wendt, S. J., & Wiseman, C. V. (2004). Dissonance thin-ideal and didactic healthy behavior eating disorder prevention programs: Results from a controlled trial. *International Journal of Eating Disorders*, 36, 376–388. doi:10.1002/eat.20059

- Matz, D. C., Hofstede, P. M., & Wood, W. (2008). Extraversion as a moderator of the cognitive dissonance associated with disagreement. *Personality and Individual Differences, 45*, 401-405. doi: 10.1016/j.paid.2008.05.014
- McCullough, M. E., & Witvliet, C. V. (2002). The psychology of forgiveness. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology*. (pp. 446-458). New York, NY, US: Oxford University Press.
- Murray, A. A., Wood, J. M., & Lilienfeld, S. O. (2012). Psychopathic personality traits and cognitive dissonance: Individual differences in attitude change. *Journal of Research in Personality, 46*, 525-536. doi: 10.1016/j.jrp.2012.05.011
- Peterson, A. A., Haynes, G. A., & Olson, J. M. (2008). Self-esteem differences in the effects of hypocrisy induction on behavioral intentions in the health domain. *Journal of Personality, 76*, 305-322. doi: 10.1111/j.1467-6494.2007.00487.x
- Pittman, T. S. (1975). Attribution of arousal as a mediator in dissonance reduction. *Journal of Experimental Social Psychology, 11*, 53-63. doi: 10.1016/S0022-1031(75)80009-6
- Rosenberg, M. (1965). *Society and the adolescent self-image (rev. ed.)*. Middletown, CT, England: Wesleyan University Press.
- Stice, E., Rohde, P., Butryn, M., Menke, K.S., & Marti, C.N. (2015). Randomized controlled pilot trial of a novel dissonance-based group treatment for eating disorders. *Behavior and Therapy, 65*, 67-75. doi: 10.1016/j.brat.2014.12.012
- Tangney, J. P., Boone, A. L., Fee, R., & Reinsmith, C. (1999). *Multidimensional Forgiveness Scale*. George Mason University, Fairfax, VA.
- Thompson, L. Y., Snyder, C. R., Hoffman, L., Michael, S. T., Rasmussen, H. N., Billings, L. S., Heinze, L., Neufeld, J. E., Shorey, H. S., Roberts, J. C., & Roberts, D. E. (2005).



Dispositional Forgiveness of Self, Others, and Situations. *Journal of Personality*, 73, 313-359. doi: 10.1111/j.1467-6494.2005.00311.x

Zanna, M.P., & Cooper, J. (1974). Dissonance and the pill: An attribution approach to studying the arousal properties of dissonance. *Journal of Personality and Social Psychology*, 29, 703-709. doi: 10.1037/h0036651

Table 1

*Excluded Participants*

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	<u>High Choice Condition</u>	<u>Low Choice Condition</u>
Due to Suspicion	1	1
Failure to follow directions	3	2

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Table 2

*Descriptive Statistics*

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<u>Measure</u>	<u>Mean</u>	<u>Standard Deviation</u>
Self-Esteem Scale	21.02	3.62
HFS	87.33	12.66
TAAT	18.28	4.01

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*Note.* HFS = Heartland Forgiveness Scale. TAAT = Total Attitude toward Abacus Task.

Table 3

*Correlation Matrix*

	1.	2.	3.	4.	5.	6.
1. HFS Total	--					
2. HFS Self	.70**	--				
3. HFS Others	.79**	.35*	--			
4. HFS Situations	.76**	.37*	.47**	--		
5. SES Total	.43**	.46**	.19	.30	--	
6. TAAT	.00	-.20	.12	.13	-.17	--

*Note.* HFS = Heartland Forgiveness Scale. HFS Self = Heartland Forgiveness of Self subscale. HFS Others = Heartland Forgiveness of Others subscale. HFS Situations = Heartland Forgiveness of Situations subscale. SES Total = Self-Esteem. TAAT = Total Attitude toward Abacus Task. \* $p < .05$ . \*\* $p < .01$ .

Table 4

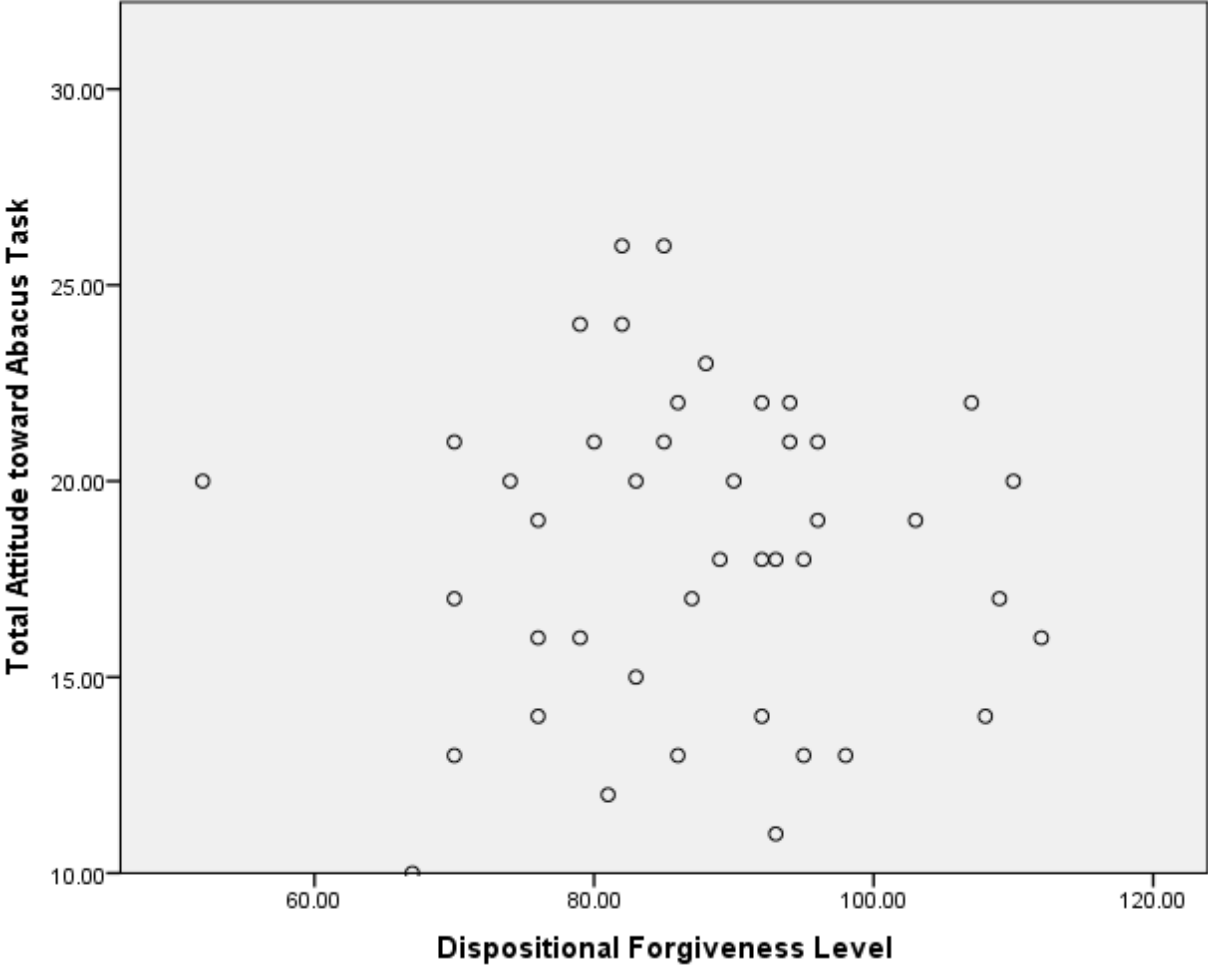
*Participants' Perceived Choice as a Function of Condition*

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<u>Condition</u>	<u>Low Perceived Choice</u>	<u>High Perceived Choice</u>
Low Choice	35% (8)	65% (15)
High Choice	5% (1)	95% (19)

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Figure 1. Scatterplot of Correlation between Dispositional Forgiveness Level and Total Attitudes toward Abacus Task



### Appendix A: Heartland Forgiveness Scale

#### Directions:

In the course of our lives negative things may occur because of our own actions, the actions of others, or circumstances beyond our control. For some time after these events, we may have negative thoughts or feelings about ourselves, others, or the situation. Think about how you **typically** respond to such negative events. For each item select the number (from the 7-point scale below) that best describes how you **typically** respond to the type of negative situation described. There are no right or wrong answers. Please be as open as possible in your answers.

#### *Forgiveness of Self*

1. Although I feel bad at first when I mess up, over time I can give myself some slack.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

2. I hold grudges against myself for negative things I've done.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

3. Learning from bad things that I've done helps me get over them.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

4. It is really hard for me to accept myself once I've messed up.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

5. With time I am understanding of myself for mistakes I've made.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

6. I don't stop criticizing myself for negative things I've felt, thought, said, or done.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

### *Forgiveness of Others*

7. I continue to punish a person who has done something that I think is wrong.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

8. With time I am understanding of others for the mistakes they've made.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always



False Of Me

False of Me

True of Me

True of Me

9. I continue to be hard on others who have hurt me.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

10. Although others have hurt me in the past, I have eventually been able to see them as good people.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

11. If others mistreat me, I continue to think badly of them.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

12. When someone disappoints me, I can eventually move past it.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

*Forgiveness of Situations*

13. When things go wrong for reasons that can't be controlled, I get stuck in negative thoughts about it.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

14. With time I can be understanding of bad circumstances in my life.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

15. If I am disappointed by uncontrollable circumstances in my life, I continue to think negatively about them.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

16. I eventually make peace with bad situations in my life.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

17. It's really hard for me to accept negative situations that aren't anybody's fault.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

18. Eventually I let go of negative thoughts about bad circumstances that are beyond anyone's control.

1	2	3	4	5	6	7
Almost Always		More Often		More Often		Almost Always
False Of Me		False of Me		True of Me		True of Me

### Appendix B: Rosenberg Self-esteem Scale

**Directions:**

Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle Strongly Agree. If you agree with the statement, circle Agree. If you disagree, circle Disagree. If you strongly disagree, circle Strongly Disagree.

1. On the whole, I am satisfied with myself.

**Strongly Agree      Agree      Disagree      Strongly Disagree**

2. At times I think I am no good at all.

**Strongly Agree      Agree      Disagree      Strongly Disagree**

3. I feel that I have a number of good qualities.

**Strongly Agree      Agree      Disagree      Strongly Disagree**

4. I am able to do things as well as most other people.

**Strongly Agree      Agree      Disagree      Strongly Disagree**

5. I feel I do not have much to be proud of.

**Strongly Agree      Agree      Disagree      Strongly Disagree**

6. I certainly feel useless at times.

**Strongly Agree      Agree      Disagree      Strongly Disagree**

7. I feel that I'm a person of worth, at least on an equal plane with others.

**Strongly Agree      Agree      Disagree      Strongly Disagree**

8. I wish I could have more respect for myself.

**Strongly Agree      Agree      Disagree      Strongly Disagree**

9. All in all, I am inclined to feel that I am a failure.

**Strongly Agree      Agree      Disagree      Strongly Disagree**

10. I take a positive attitude toward myself.

**Strongly Agree**

**Agree**

**Disagree**

**Strongly Disagree**

**Appendix C: Post Experiment Evaluation Form**

College of Saint Benedict/St. John's University

Post Experiment Evaluation Form

This form is to be completed immediately following participation in a CSB/SJU Psychology experiment. The Department is evaluating the research that is currently being conducted, and would like your reactions to the experiment you just participated in. Please take the time to fill out this brief survey. Please circle the answer that best describes your feelings about the experiment you just participated in. Once you have completed the survey, place it in the envelope provided for you and seal the envelope.

The following items are about the experiment you just participated in. **Please circle how much you agree with the following statement:**

1. The task in this experiment was enjoyable.

1	2	3	4	5	6	7
Strongly Agree	Agree Slightly		Disagree Slightly		Strongly Disagree	

2. I feel that I learned a lot from this experiment.

1	2	3	4	5	6	7
Strongly Agree	Agree Slightly		Disagree Slightly		Strongly Disagree	

3. I feel that the results of this study will have scientific value.

1	2	3	4	5	6	7
Strongly Agree	Agree Slightly		Disagree Slightly		Strongly Disagree	

4. I would enjoy participating in future experiments similar to this one.

1	2	3	4	5	6	7
Strongly Agree	Agree Slightly		Disagree Slightly		Strongly Disagree	

5. I felt guilty during this experiment.

1	2	3	4	5	6	7
Strongly Agree		Agree Slightly		Disagree Slightly		Strongly Disagree

6. I felt comfortable at all times during this study.

1	2	3	4	5	6	7
Strongly Agree		Agree Slightly		Disagree Slightly		Strongly Disagree

7. I felt that I had free will at all times during this study.

1	2	3	4	5	6	7
Strongly Agree		Agree Slightly		Disagree Slightly		Strongly Disagree

8. I felt pressured by the experimenter during this study.

1	2	3	4	5	6	7
Strongly Agree		Agree Slightly		Disagree Slightly		Strongly Disagree

**Appendix D: Demographic Survey**

1. Age:



**Appendix E: Participant Manipulation Survey****Directions:**

This survey contains questions regarding your experiences with this study. Read each statement carefully, and answer honestly.

1. The experimenter gave me a choice in whether or not I told the next participant that the abacus was fun and enjoyable.

**Strongly Agree****Agree****Disagree****Strongly Disagree**

2. I feel that I was informed that there I could choose not to tell the next participant that the abacus task was fun and enjoyable.

**Strongly Agree****Agree****Disagree****Strongly Disagree**

**Appendix F: Confederate Verification Form**

I \_\_\_\_\_, who acted as a confederate for the current study verify that:

- The participant told me that the task would be fun / enjoyable
- The participant told me that the task would be fun / enjoyable BUT also told me they had to tell me it was enjoyable
- The participant told me that the task would be boring
- The participant told me about the task BUT did NOT tell me it would be fun / enjoyable
- The participant did not tell me anything about the experiment
- The participant did not talk to me at all
- The participant told me that the task would be fun BUT only after being prompted by me

Participant # \_\_\_\_\_

### **Appendix G: Debriefing Script**

“Thank you for participating in this study. At this time I want to explain the study to you. As you will recall, after completing the task where you moved balls back and forth on an abacus you were asked to tell the next waiting participant that the task he or she was about to complete would be enjoyable. Your conversation with that waiting participant was actually one of the main points of the experiment. The reason why that conversation was important is because we are interested in how the ability and willingness forgive the self, others, and situations influence the way individuals respond to experiencing cognitive dissonance. Cognitive Dissonance occurs when a person behaves in a way that is inconsistent with the beliefs and attitudes that the person holds. Today, we tried to induce dissonance by having you tell the next waiting participant that they would enjoy the abacus task. By telling the confederate that the task was in fact fun, you were behaving in a way that was inconsistent with your true opinion about the task, which was that it was boring. The most important purpose of the current experiment is to see if dispositional forgiveness levels influence the way in which people resolve the aversive emotional state that is experienced after acting in a way that is inconsistent with their beliefs. Studying how those with high and low dispositional forgiveness deal with the aversive emotional state is important to psychology research because it can help us identify the cognitive processes that people with differing personality characteristics use when they experience dissonance. This is an important aspect of human behavior to study and we apologize that in order to examine the cognitive dissonance process, we had to briefly mislead you today.

At this time we would like to explain that the person you spoke to, and told that the abacus task was going to be enjoyable, was actually my research assistant and was only pretending to be a future participant. She was not affected in any negative way by what you said to her, and did not have to perform the abacus task. It was necessary that you think that my research assistant was a future participant in the study so that your reactions would be genuine for the study to get honest and accurate results.

You should not feel bad for agreeing to tell my assistant that the task would be fun. Psychologists have been doing this kind of experiment for 50 years and nearly everyone agrees to say that the experiment is more enjoyable than it really is. You reacted in the same way that the majority of participants in these kinds of experiments do.

Again I would like to remind you that all of your answers, and everything you did here today for this experiment, will remain confidential and anonymous. Only I will have access to the data collected here today, and you are not identified in any way in the data collected.

Finally, it is EXTREMELY important that other students do not find out about the purpose of this experiment. If they do, we will not be able to run this research anymore. Students must come into our lab with no idea about what the study is actually about. Please do not speak to any other students about this study, especially psychology students. We will be running this study for about a year, so please do not talk to other students about this experiment.

Do you understand everything I have said to you? Do you have any questions?

Again, thank you for participating in this study today.”