

University of Nevada, Reno

**Dissonance and Memory:
Are Chosen Behaviors Remembered as Less Free if the Outcome is Negative?**

A dissertation submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy in Social Psychology

by

Peter O. Rerick

Dr. Deborah Davis/Dissertation Advisor

May, 2021



THE GRADUATE SCHOOL

We recommend that the dissertation
prepared under our supervision by

entitled

be accepted in partial fulfillment of the
requirements for the degree of

Advisor

Committee Member

Committee Member

Committee Member

Graduate School Representative

David W. Zeh, Ph.D., Dean
Graduate School

Abstract

Cognitive dissonance theory posits that people will change their attitudes, beliefs, and evaluations to maintain consistency between their behaviors and self-concept. One underexplored method of reducing cognitive dissonance created through self-concept violations is the distortion of memory. Many aspects of memory accuracy are important, but memory for coercive behavior stands out as having considerable legal importance. Two studies test the hypothesis that, when people choose a social interaction partner who turns out to behave badly, they will experience dissonance resulting from the inconsistency between their belief in their ability to accurately judge others and their apparently failure in choosing a partner who behaves badly. Consequently, dissonance might be reduced by recalling having had less freedom in choosing a bad than a good partner. In both studies, participants played a version of the ultimatum game with the task of splitting up 10 raffle tickets that entered them into a drawing for a \$100 Amazon gift card. Participants were either assigned to or induced to choose a partner that they believed was another person, but who was actually a Qualtrics program. That “partner” played the decider role, and either offered the participant a fair (positive consequence) or strongly unfair split (negative consequence) of the hypothetical raffle tickets. Results did not support predictions, in that the valence of the outcome did not affect memory for degree of choice of a partner in either study. However, in Study 2 the exploratory dependent measures indicated that participants might have shifted blame for the poor outcome of their choice to their imaginary partner rather than the experimenter as initially hypothesized. Reasons for the lack of hypothesized results and possible resolutions to these problems are discussed.

Acknowledgements

There are many people I need to thank for making my experience at UNR so enjoyable. Thank you to the Bilinski Foundation, the graduate school, and my undergraduate research assistants for providing the time, funding, and help I needed to complete this project on time.

My dissertation committee, composed of Deborah Davis, Markus Kimmelmeier, Yueran Yang, Tony Papa, and Mariah Evans, was flexible and understanding throughout an unusual time. Their assistance in designing a difficult product was helpful, but what really makes this committee memorable is their understanding and adapting to a very unique situation. Not many committees have to supervise the redesigning of the entire project on the fly after the prospectus defense, and this one handled it well. This process might have been much more difficult than it was had I chosen a different committee. Your contributions and adaptability did not go unnoticed.

It was always comforting to know that if I ever had a program related question, I could come to Markus and he would have the answer. If he didn't, he would work tirelessly to find it. He taught me so much about so many different things and was always a great sport when something strange showed up in his mailbox. I was also fortunate to begin my career at UNR at the same time as Yueran. We were dealing with different obstacles from different positions, but I always valued the camaraderie that beginning our careers together seemed to bring us, and I am glad to have worked with her over the years in different capacities and made a friend along the way.

Of course, there is no one else like Debbie. As an incoming student there is never a guarantee that you will get along with your advisor, let alone develop a close

friendship. Beyond everything Debbie taught about me about psychology, she taught me about the type of relationship I want to have with my own students one day. Having big dinners with everyone at her house and at any local Mexican restaurant we wanted made lasting memories for me, and I am grateful.

One of my greatest experiences has been developing the amazing friendships I found during my time at UNR. I was so fortunate to enter the program during the same year as Tyler Livingston, because I was gifted an incredibly talented colleague on top of a best friend. I am certain in the 54 years of the program's existence nobody has had more fun than us. Through chance I met Jonathan Singer and came to love his boundless energy and ideas for all of us to have fun together. You can choose where you to go to school, but you can't choose who goes with you. I got so lucky to meet such great people, including several other students who I do not have space to mention here.

My parents did so much to put me on the right path from the beginning. They always encouraged me and believed I could do anything, and they instilled that same confidence in me. I firmly believe I would not have succeeded without the belief in myself that came from them. They have always taken a genuine interest in whatever I was doing, from when I was five years old playing soccer to now beginning my career, and that has made me so happy. As proud as they tell me they are of me, I am even prouder to have brought them joy.

Most importantly, thank you to my fiancé Leah. She moved away from our family and friends to go on this adventure with me, and I cannot imagine having done it alone. She has done so much to support me, and I am forever grateful for her.

Table of Contents

Contents	
Abstract	i
Acknowledgements.....	ii
Table of Contents	iv
List of Tables	vii
List of Figures	viii
Chapter 1: Overview	1
Dissonance Theory	2
Dissonance and Memory Distortion	3
Chapter 2: Motivated Memory	10
Chapter 3: Self-Protection	14
Consistency Motivated Memory Distortion	19
<i>Memory distortion for responsibility</i>	19
Memory Distortion or a Change in Judgment?	24
Chapter 4: Knowledge of the Consequences of Choice	28
Chapter 5: Overview and Methodology	34
Power Analysis	35
Hypotheses	35
Chapter 6: Study 1 Method	37
Participants	37
Procedure	38
Materials	41
<i>Personalizing statement</i>	41
<i>Main dependent measures</i>	42
<i>Exploratory dependent measures</i>	42
<i>Filler items</i>	42
<i>Demographic questions</i>	43
<i>Suspicion check</i>	43
<i>Debriefing script</i>	43
<i>Session grid</i>	44

Results	44
<i>Participant choice</i>	45
<i>Experimenter influence</i>	45
<i>Liking of partner</i>	45
<i>Fairness of partner</i>	46
Discussion	46
Chapter 7: Study 2 Method	49
Participants	49
<i>Timing metrics</i>	50
Results	50
<i>Participant choice</i>	50
<i>Experimenter influence</i>	51
<i>Liking of partner</i>	51
<i>Fairness of partner</i>	52
Discussion	52
Chapter 8: General Discussion	55
Limitations and Future Directions	57
Conclusion	59
References	60
Table 1	73
Table 2	74
Table 3	75
Table 4	76
Table 5	77
Figure 1	78
Figure 2	79
Appendix A	80
Appendix B	82
Appendix C	83
Appendix D	84
Appendix E	86

Appendix F..... 88
Appendix G..... 89

List of Tables

Table 1 Means and standard deviations of each dependent measure by group Study 1	69
Table 2 Correlations between all dependent measures for Study 1	70
Table 3 Timing metrics for instruction pages Study 2	71
Table 4 Means and standard deviations of each dependent measure by group Study 2	72
Table 5 Correlations between all dependent measures for Study 1	73

List of Figures

Figure 1 Marginal interaction of partner and consequences on liking Study 2	74
Figure 2 Significant interaction of partner and consequences on fairness Study 2	75

Chapter 1: Overview

Humans engage in many kinds of social interactions in which memory for who did and said what is very important. Memory for the proceedings of a sexual interaction stands out as having high importance due to the importance of the details of consent-related communications for investigations of rape, sexual assault, and Title IX claims. Memory for these interactions becomes of the utmost importance when both parties agree that some sexual activity occurred but disagree on whether the activity was consensual or coercive, a common dispute in cases of alleged acquaintance rape (Villalobos et al., 2016). Frequently, the two sexually involved parties are the only witnesses to the event and are unable to provide evidence for their case beyond what they can report from memory.

One of the chief memory concerns for both parties in cases of disputed consent is whether they can accurately remember being coerced (or coercive) to engage in sexual activity. Many commonly cited factors stand to impair memory for unfamiliar sexual situations in general, such as alcohol and intense emotion (Loewenstein, 1996), but one mostly unexplored avenue of memory distortion for coercion is the reduction of cognitive dissonance.

An accusation of sexual misconduct creates several motivations in both parties: both are likely concerned with defending their interpretation of what happened, why they behaved in the manner they did, and the social and legal consequences for those interpretations (Davis & Loftus, 2015). Memory can also be distorted by motivation (Sedikides, 2000), or by the need for self-justification or for self-esteem maintenance (Tavris & Aronson, 2007). Feelings of shame, the sexual act being one of infidelity, or taking place

with a somehow undesirable partner all pose a potential threat to one's self-concept (Davis & Loftus, 2015). Dissonance reduction could result in distorted memory for the level of coercion present: if someone attributes somehow undesirable sexual contact to coercion rather than choice, there is no contradiction between self-concept and actions.

Although the inspiration for this hypothesis is situations in which one party claims sexual coercion occurred when the other party claims consent occurred, for obvious ethical reasons it is not possible to experimentally study sexual coercion directly. Instead, the current research investigates the connections between dissonance and the recollection of coercion for making a social choice that ends in a desirable versus undesirable social interaction.

Dissonance Theory

Cognitive dissonance manifests as a psychological discomfort people experience when they find themselves in a contradiction, such as when their attitudes, beliefs, or actions are not all in agreement (Festinger, 1957). Dissonance effects are most pronounced when dissonance threatens the self-concept: that is, when the person behaves in a way that seems inconsistent with their view of themselves as competent, moral, wise, or otherwise good (e.g., Aronson, 2007). According to the theory, when people experience discomfort due to dissonance, they will work to try to reduce it by aligning their beliefs, attitudes, and actions to reduce the inconsistency. Further research has indicated that cognitive dissonance can produce memory distortion for past attitudes (Bem & McConnell, 1970; Rodriguez & Strange, 2014), favorability of decisions (Rodriguez & Strange, 2015), and statements made by a liked or disliked other (Berthold & Blank, 2016) that would otherwise pose inconsistencies.

Dissonance and Memory Distortion

Although considerable research has shown that people remember the past as consistent with the present (e.g., Goethals & Reckman, 1973), and selectively recall and forget information advantageously (e.g., Ross et al., 1983), memory distortion specifically attributable to dissonance is understudied. As Rodriguez and Strange (2015) explain, the relationship between dissonance and memory distortion has sometimes been assumed to have been demonstrated several times, but methodological limitations often preclude us from ruling out alternative explanations.

For example, Goethals and Reckman (1973) studied distortions in memory for past attitudes using a pretest post-test method. The researchers pretested 74 participants' favorability towards 30 social and political statements, one of which was bussing ("bussing should be used to achieve racial balance in our nation's schools"). Using this pretest, the researchers created discussion groups (2-4 participants per group) of participants that either all agreed with the bussing statement (Experimental Pro condition), or all disagreed with the statement (Experimental Anti condition). They also created a control condition session where opinions were evenly mixed between those who agreed and disagreed with the bussing statement

The experimenter in each session explained they wanted to hear arguments for and against a random issue, which was always the bussing statement, unbeknownst to participants. The experimenter called on what they said was the first name on their list, but was actually always a confederate who had prepared persuasive arguments and counterarguments for and against the bussing statement with the help of the experimenters. The confederate expressed whatever opinion was opposite of the rest of

the group's opinion, which the confederate knew in advance.¹ The conversation and debate in each session lasted between six and twenty minutes. After each conversation and debate period, the experimenter passed out a questionnaire which contained two segments. The first segment asked participants to write the statement they were discussing and to report their agreement with the statement. The researchers would use this measure to assess whether attitudes changed due to the group discussion. The second segment asked participants to re-answer eight of the original attitude statement questions, including the bussing statement. The experimenter requested that participants attempt to answer each question the same way they did the first time they saw these questions during the pretest, and framed this second questionnaire as a test of how closely participants thought about each question the first time they answered it.

Results indicated that participants in both the Experimental-Pro and Experimental-Anti conditions reported their attitudes as less in favor of their original position. That is, those in originally favor of the bussing statement reported being less in favor of it, and those opposed to the bussing statement reported being less opposed to it. Additionally, analysis of the second segment of the final questionnaire indicated those in the Experimental-Pro condition remembered their initial attitudes towards the bussing statement as significantly more negative than they truly were. Similarly, those in the Experimental-Anti condition remembered their initial attitudes as significantly more positive towards the bussing statement than they truly were. Control participants did not distort their memories of their attitudes towards the bussing statement.

¹ The researchers do not specify if a confederate was present in the control condition session or what argument the confederate presented in that session.

Generally, participant's memories did shift toward misremembering their past attitudes as consistent with their present attitudes. However, the researchers use of a persuasion technique presented an alternative explanations of the results. Using the minority influence technique (having the confederate be the only person pro or anti-bussing and expressing a strongly supported minority viewpoint) could have shifted participants' attitudes through means other than a perceived self-inconsistency, such as a persuasive opposing argument. If participants' memory change is not specifically attributable to self-inconsistency, then dissonance is only a possible explanation for the results, not the only explanation.

Scheier and Carver (1980) have also been cited as an example of dissonance induced memory distortion. The authors used the widely employed "induced compliance" technique whereby participants are either assigned to a particular action by the experimenter or presented with a request from the experimenter that is framed as a free choice, but told the requested action would be a favor to the experimenter or the research team. For example, "We already have many essays against a tuition increase, so it would be more helpful to us if you wrote an essay in favor of a tuition increase, but the choice is up to you" (Cooper et al., 1978; Leippe & Eisenstadt, 1994).

The authors found that participants who chose to write a counter-attitudinal essay remembered their arguments as less opposed to student control over university curriculum than those who were forced to write the essay. However, the researchers did not ensure that there were no actual differences in the content of the essays. Without evaluating the actual content of the essays, the researchers cannot ensure the difference in

reported opposition to student control was due to memory distortion and not legitimate differences in essay content.

The first persuasive demonstration of dissonance induced memory distortion came from Bem and McConnell (1970). The researchers asked participants to attend two experimental sessions that were one week apart. At the first session, students filled out an attitude measure about relevant campus issues, one of which was the amount of control students should have over the courses offered at the university. At the second session, participants were informed the university was gathering more data on the issue and needed arguments for and against giving students some control over the courses offered. Half the participants were assigned to write the counter-attitudinal arguments and half “chose” to do so using induced compliance techniques (i.e., We have many arguments for student control already, so we would appreciate an argument against student control). Participants were then asked to recall the attitudes they had expressed in the first session of the experiment, and subsequently reported their final attitudes on the issue. Regardless of whether they had been assigned to the pro or con arguments condition, participants in both conditions recalled attitudes that were much more similar to their final attitudes than their initial attitudes, even though their attitudes had changed. However, this difference was larger in the choice condition compared to the no-choice condition, indicating that the act of choosing to write a counter-attitudinal essay created dissonance. Lastly, most participants (37 out of 51) who exhibited attitude change reported perceiving no change in their attitudes at all, indicating they simply did not remember their initial attitudes being different from their final ones. Since then, researchers have conducted only a few studies on memory distortion using a dissonance paradigm.

Rodriguez and Strange (2014) used another common paradigm in dissonance research known as the “free choice” method. Participants in such studies are asked to first rate, and then choose between products. The difficulty of the choice is manipulated, such that the products are very close in attractiveness (difficult choice) or very different (easy choice) based on participants original ratings. After a delay, participants are asked to rerate the chosen and non-chosen alternatives. Dissonance theory suggests that the attractive features of the nonchosen alternative, and the unattractive features of the chosen alternative, will be inconsistent (dissonant) with the choice, thereby motivating the person to reduce dissonance by derogating the non-chosen alternative and enhancing their attitudes toward the chosen alternative. Thus, the ratings of the chosen and nonchosen alternatives are expected to become more discrepant to reduce dissonance. This will occur more strongly in the difficult choice condition, as there are more attractive features of non-chosen alternatives.

Accordingly, Rodriguez & Strange (2014) asked participants to rate cell phones on various quality dimensions. Following these ratings, participants either had to make an easy choice (choosing between an undesirable cell phone and desirable one) or a difficult choice (choosing between two desirable cell phones) and rated the difficulty of their decision. After some filler tasks, participants were asked to recall how they rated their decision difficulty and their cell phone options at the time they made the original rating. Results indicated the difficulty manipulation was successful. More importantly, when participants made a difficult choice, there was a significant discrepancy in participants recall of their original ratings and their true original ratings, but no significant discrepancy when participants made an easy choice. Participants remembered their

original ratings of their rejected choice as worse and their original ratings of their accepted choice as better, but only when they made a dissonance inducing difficult choice.

Similarly, using the induced compliance paradigm, Rodriguez and Strange (2015) had participants write counter-attitudinal essays under conditions of either high or low choice. Participants completed a pre-screen survey about their attitudes towards a tuition increase (the topic of the counter-attitudinal essay) and then completed the experimental procedure (writing the counter-attitudinal essay under conditions of high or low choice). Then participants answered the same questions from the pre-screening a second time. In this experiment, the researchers specifically directed participants to answer the questions exactly the same as they had answered them on the pre-screen instead of asking them what their initial ratings were. Still, participants who had high choice had a significant discrepancy in memory, remembering their attitudes towards a tuition increase as more favorable than what they originally reported.

Lastly, Berthold and Blank (2016) pretested participants on their opinion on the topic of national pride. Then, participants reported liking ratings (attractiveness, pleasantness, etc.) for 16 communicators based only on pictures of them from the shoulders up. Afterwards, participants listened to a series of communicators make statements that were either pro or anti-national pride. After a filler task, participants were asked to report liking ratings of the communicators again as well as recognize statements made by each of the communicators in the video. Participants were able to resolve their dissonance by either increasing or decreasing liking for communicators that made statements counter to their own opinions on national pride, depending on their initial

evaluations. Participants who were pro-national pride decreased liking for communicators who expressed anti-national pride sentiments, and increased liking for those who expressed pro-national pride sentiments. The inverse was true for participants who anti-national pride. More relevantly, participants were also able to resolve their dissonance by either failing to recognize counter-attitudinal statements from liked communicators (something the communicators did say, but the participants forgot), or by incorrectly recalling counter-attitudinal statements from liked communicators (something the communicator did not say, but the participant remembered them saying). The researchers interpreted these specific results as evidence that people can resolve dissonance by selectively forgetting negative information that contradicts their positive initial evaluation of someone. Additionally, people can also maintain consistency by inventing negative memories about someone who they initially evaluated as unfavorable.

Chapter 2: Motivated Memory

Motivated forgetting or motivated memory has been demonstrated numerous times in a variety of settings such as free recall of words (Bjork & Woodward, 1973) and decision supportive source monitoring errors (Mather & Johnson, 2000). One motivated memory model, the mnemonic neglect model (Sedikides & Gregg, 2003) makes particularly relevant predictions about memory. According to the mnemonic neglect model, self-relevant information is automatically associated with prior self-knowledge (Krueger, 2003; Sedikides, 2003). The mnemonic neglect model makes a distinction between two types of information. The first type is negative information that is inconsistent with the self-concept. This type of information tends to be perceived as threatening. The second type is positive information consistent with the self-concept. This type of information is perceived as self-enhancing.

Additionally, the model assumes that self-relevant feedback that takes the form of behavioral information undergoes two stages of processing, a shallow first stage and a more elaborative second stage. When behavioral information is self-threatening (e.g., “Am I really a dishonest person?”), it is restricted to the first stage of processing. When behavior is self-enhancing (e.g., “Am I generous with my time?”), it advances past the first stage of processing into the more elaborate phases of processing. As a result, self-threatening feedback is recalled more poorly than self-enhancing feedback, because self-enhancing feedback can be compared to relevant episodic self-knowledge in the deeper second stage of processing. The model also distinguishes between peripheral and central self-relevant information. Central information is considered very important to the self-concept, while peripheral information is relevant to the self, but considered less important

than central information. As a result, central information is processed in the more elaborate second stage while peripheral information is processed in the shallower first stage.

Tests of the mnemonic neglect model include comparisons between self-relevant and nonself-relevant information. Sedikides and Green (2000) asked participants to imagine that someone who knows them well provided a list of 32 behaviors they were likely to perform. In another experimental condition, participants were given the same story, but the behaviors were about another person. In both conditions, some behaviors were negative, and some were positive. After all 32 behaviors had been presented, participants were asked without warning to recall each behavior of each target. The researchers found that participants had more trouble recalling negative behaviors, but only when they were self-relevant. Another test in a more realistic setting used a similar procedure, but participants were told the behavioral feedback they had received about either themselves or “Chris” had come from a computer model that considered a personality inventory they (or Chris) had completed earlier (Sedikides & Green, 2000). The results manifested in the same pattern: participants had more difficulty in remembering negative behaviors about themselves compared to positive behaviors about themselves or negative and positive behaviors about “Chris.”

The mnemonic neglect model makes predictions about memory that closely resemble predictions based on dissonance theory. The model predicts people should distort their memory to maintain a consistent and positive self-image. However, the mnemonic neglect model does not predict memory difficulty with information that is positive but simultaneously inconsistent. To disentangle the roles of information

expectancy and information valence, Sedikides and Green (2004) conducted two experiments using methodology similar to Sedikides and Green (2000). The first experiment required participants to recall positive and negative behaviors from four possible referents: Themselves, a friend, Chris, and super Chris (Chris described glowingly with a short vignette that created very positive behavior expectancies, as evidenced by a pretest). Despite having very positive expectancies for super Chris, participants still displayed the highest level of mnemonic neglect for themselves.

A second experiment attempted to identify whether information inconsistency or information negativity was the source of mnemonic neglect. In a pretest of 490 people, participants answered questions about their own trustworthiness and kindness with endpoints of 1 (*occasionally untrustworthy* or *occasionally unkind*) and 15 (*never untrustworthy* or *never unkind*). Participants also responded to questions regarding how important it was for them to be trustworthy or kind, and how negative it was to be untrustworthy or unkind. The researchers selected 50 participants who rated themselves below the midpoint of either the initial trustworthiness or kindness questions and designated them as self-negative. They also selected 53 participants who were above the midpoint on the trustworthiness or kindness questions and designated them as self-positive. Self-positive participants rated being trustworthy and being kind as more important than self-negative participants. Self-positive participants also rated being untrustworthy and being unkind as more negative than self-negative participants. Using similar procedures as the first experiment, the researchers found that both self-negative and self-positive participants remembered the same number of positive behaviors about themselves and Chris, but remembered fewer negative behaviors about themselves than

Chris. The researchers interpreted the results as evidence that memory distorts towards positivity about the self, regardless of whether participants have positive or negative self-views.

The mnemonic neglect model is notable because it suggests that people might have difficulty recalling a behavior that resulted in a mistake. However, tests of the model have included a memory test for only a hypothetical behavior, not for a past behavior that measurably occurred. The mnemonic neglect model makes predictions about memory that are similar to what dissonance theory would predict regarding self-enhancement. The key prediction that people's positive expectancies for themselves will distort memory for negative feedback is consistent between the two theoretical models. However, the self-protection formulation of dissonance theory, addressed in the following chapter, makes slightly different predictions.

Chapter 3: Self-Protection

The self-protection view of dissonance theory stems from Aronson's (1968) self-consistency formulation of dissonance theory and assumes that the motivation to protect self-consistency is one of our strongest psychological motives. Thoughts about the self are the most difficult and resistant to change, so people will almost always change their attitudes, behavior, or beliefs to align with their self-concept, whether it is positive or negative. This is where the predictions of self-protection view of dissonance theory differ from those of mnemonic neglect model, which predicts people will self-enhance regardless of whether they have a positive or negative self-view.

Aronson and Carlsmith (1962) were among the first to explore self-protection as a motive stronger than pure self-enhancement in dissonance production and reduction. In their study, the researchers attempted to first establish a high or low initial self-concept, then examine reactions to behavior inconsistent with that self-concept. They first had women complete a supposed measure of social sensitivity that involved viewing sets of three pictures of people and predicting which of them would develop schizophrenia later in life. Participants were told the measure was highly valid and reliable. During the first four sets, participants received feedback that either indicated they were performing well and thus socially sensitive, or that they were performing poorly and were not socially sensitive. After receiving this feedback, participants performed the final trial and then received feedback that was either consistent with the initial feedback they had gotten, or inconsistent. Finally, all participants repeated the final trial a second time.

The researchers reasoned that participants would be motivated to protect the self-concept established in the initial four trials. If their score on the final round had been

inconsistent with that initial self-concept, participants were expected to alter their answers to produce a score more in line with the initial self-concept, even if it were negative. Results confirmed this expectation. Participants who received low performance feedback initially but high performance feedback on the final trial changed more of their answers on their repeat of the final trial in an attempt to bring their final trial feedback in line with their initial trial feedback. That is, participants who were told their answers were mostly correct changed their correct answers to incorrect answers when they had initially been given low performance feedback more often than those initially given high performance feedback. The researchers interpreted the results of the initial low performance feedback group as an indication that protecting one's self-concept, rather than enhancing it, is a powerful motive aroused by dissonance.

As Stone and Focella (2011) explain, these findings were initially met with several failures to replicate (Dipboye, 1977; Jones, 1973; Shrauger, 1975), and the appropriate skepticism. However, Stone (1994, described in Stone, 2009) conducted a meta-analysis on 25 attempted replications of Aronson and Carlsmith (1962) and argued that deviations from key elements of the procedure used in the original research were likely responsible for the null findings of 14 of 25 studies, with 9 of the studies reaffirming Aronson and Carlsmith's (1962) original predictions. Stone and Focella (2011) argue that people are highly motivated to protect a self-view, even a negative one, when these self-views are highly certain or important. The authors point out one of the key characteristics that Aronson and Carlsmith's (1962) study shared with all nine successful replication attempts was that participants were told the novel psychological test they were taking was highly valid and reliable. These novel psychological traits (e.g.,

social sensitivity) might not have been important to participants given they were just introduced minutes before the test. However, participants did believe the tests were highly reliable and valid, so the self-view was highly certain. This certainty helps to shift focus away from self-enhancement motives and on to self-protection motives (See also North & Swann 2009; Swann, 1990).

Though some self-views can be negative and prompt mechanisms to protect them, for most people there are also many positive self-views that likewise motivate protective mechanisms. Aronson and colleagues suggested that viewing oneself as behaving both competently and morally is a highly important and common self-view which can arouse self-protective motivations (Thibodeau & Aronson, 1992), so people should be particularly motivated to protect these self-views. When people perceive a discrepancy between these personal standards and a questionable choice (Stone, 2011; Stone & Cooper, 2001), self-protection motives are likely to be aroused.

Although not conducted from a dissonance perspective, research on moral forgetting strongly suggests that the self-views of competence and morality can motivate memory distortion. One way that researchers study the contradiction of competent and moral self-views and immoral behavior or thinking is through the lens of moral disengagement. Because people desire to be seen as moral by themselves and others, deviating from moral norms results in negative feelings and discomfort (e.g., Klass, 1978), a prediction shared by dissonance theory (see Aronson, 1992 for a review on how most inconsistency based theories make the same predictions as dissonance theory). One way to reduce these negative feelings is moral disengagement, through which people can reconstrue their morally questionable behavior as ethically acceptable (Bandura, 1990).

In four studies, Shu and colleagues (2011) demonstrated that merely considering a hypothetical act of one's own dishonesty can increase moral disengagement and motivate forgetting of moral rules, but the same does not happen when considering a hypothetical act of dishonesty from another person. In the first two studies, participants were given a hypothetical testing scenario and asked to imagine that they or another person either cheated or did not cheat. Moral disengagement was measured via a composite of six moral disengagement items (e.g., "Cheating is appropriate behavior because no one gets hurt", "Rules should be flexible enough to be adapted to different situations") which were pretested and validated in previous research. In both studies, participants exhibited moral disengagement only when they imagined themselves cheating, but not when they imagined another person cheating, another person not cheating, or themselves not cheating.

In a third study, Shu and colleagues (2011) manipulated the opportunity to cheat (present versus absent) by tying a financial reward to self-reported performance on a problem-solving task. In this study, the researchers did not record whether participants took this opportunity to cheat when presented with it. Instead, they used the mean difference between self-reported performance scores on the problem-solving task between those with no chance to cheat and those who did have a chance to cheat as proxy for cheating. The researchers also manipulated awareness of honesty standards by either presenting or not presenting participants with an academic honor code (e.g., "An instance of dishonesty hurts the entire community") before the opportunity (or lack of) to cheat in the problem-solving task. Afterwards, participants who were presented with the honor

code were asked a few questions about the honor code they saw (e.g., “Who is hurt by an instance of academic dishonesty?”).

Results indicated that participants who were given the opportunity to cheat did report greater performance on the problem solving task than those who were not given the opportunity to cheat, suggesting cheating behavior did occur. Participants who were merely given the opportunity to engage in dishonest behavior by over-reporting their success on the problem-solving task also morally disengaged more (measured in the same way as the first two studies) and were more likely to forget the contents of the honor code than those who were given no opportunity to cheat. A final study using similar methodology distinguished between those who actually took the opportunity to cheat and those who did not cheat at the individual level indicated that actually cheating further reduced memory for moral rules compared to merely having the opportunity to cheat, but not doing so.

Shu and Gino (2012) reported four more studies using similar procedures as Shu et al. (2011). Experiment 1 replicated the moral forgetting after cheating findings, but also indicated that cheaters and noncheaters were equally likely to remember irrelevant non-moral information, suggesting forgetting is focused on protecting oneself. Experiments 2 and 3 demonstrated that among cheaters, forgetting occurs only after cheating, but not before, and that even financial incentive to recall moral rules does not enhance memory for them. Finally, Experiment 4 indicated forgetting appears to be a result of decreased access to memories of moral rules after cheating. These convenient mechanisms of forgetting are likely responsible for people’s positive moral self-views, even in the face of the contrary evidence people accumulate throughout their lives

(Kouchaki, & Gino, 2016; Stanley & De Brigard, 2019). Perhaps the most important take away from the moral forgetting research is that people will forget information conveniently and in situations with real world consequences.

Consistency Motivated Memory Distortion

Several models of memory have incorporated a motivation component for self-consistency (Conway, 2005; Hirt, 1990; Ross, 1989) or desired self-view (Sanitioso et al., 1990). These models imply that people could distort, or completely invent prior events and attitudes to create consistency with the current self. Several studies have shown that distortion occurs in the direction of consistency with current self in memory for emotion (Levine, 1997), past attitudes (Goethals & Reckman, 1973), past behavior (Ross et al., 1981), the quality of an assigned option (Benney & Henkel, 2006), and evaluations of others, others' behavior, and relationships with those others (McFarland & Ross, 1987).

Memory distortion for responsibility

The closest correlate to memory for coercion within any previously published research is work on the denial of responsibility. Gosling and colleagues (2006) demonstrated that denial of responsibility for a dissonance-inducing action functions as a medium of dissonance reduction independent of trivialization (trivializing a dissonant action to reduce the implication of self-inconsistency). In Study 1, participants were randomly assigned to a condition in a 2 (choice vs. no choice) X 2 (order: attitude measures first vs. responsibility measures first) between-subjects design. The experimenter gave participants instructions explaining that the researchers already had a lot of essays against requiring an application procedure to attend the university, so

participants needed to write an essay in support of requiring an application procedure.² Participants in the choice conditions were told they were free to accept or refuse these circumstances. While participants wrote their essays, the experimenter passed out a booklet to each of them that contained attitude and responsibility dependent measures. The attitude measure asked participants their level of agreement with requiring an application procedure to attend the university. The three responsibility measures asked participants how responsible they felt for what they had done, what they had written, and having participated in the experiment. The researchers used a composite measure of the responsibility questions to define responsibility.

In the attitude first condition, the attitude measure was presented first and the inverse was true in the responsibility first conditions. Participants who had a choice in writing their counter-attitudinal essay reported feeling less responsible than participants who were in the no choice conditions, but only when the responsibility measures were presented first. When the attitude measure was presented first, there was no difference between the choice and no conditions on the responsibility measures. These results indicated that people can deny responsibility for a counter-attitudinal behavior to reduce the dissonance associated with the behavior. However, if people are given the opportunity to change their attitudes in advance of denying responsibility, this alternative method of dissonance reduction eliminates the need to deny responsibility.

Study 2 attempted to replicate these findings using trivialization (rather than

²The researchers pretested the idea of requiring an application procedure to get accepted into the university and found it was both a very unfavorable and a very important issue to their student sample.

attitude change) as an alternative dissonance reduction method to denial of responsibility. Study 2 repeated the procedure from Study 1, but substituted the one item measuring attitude change for four items to measure trivialization (e.g., “What importance do you give to the fact of defending a position that you do not agree with?”) The questions used scale points ranging from 1 (*no importance*) to 11 (*much importance*). The researchers used a composite measure of all four items and considered lower scores to indicate greater trivialization. Study 2 utilized the same responsibility measures as Study 1. Again, when participants chose to write the counter-attitudinal essay, they reported less responsibility than those who were assigned to do so. However, this time the difference appeared in both the responsibility first conditions and the trivialization first conditions, though it was larger in the responsibility first conditions. Additionally, participants in the choice condition reported greater trivialization in the choice conditions compared to the no choice conditions, but when the trivialization measures were presented before the responsibility measures. These results closely resemble those of Study 1, and establish denial of responsibility as a mechanism of dissonance reduction separate from trivialization of a dissonant act.

In Study 3, the researchers employed the same procedure as the first two studies, but this time using a measurement of psychological discomfort (measured by positive affect, negative affect, and self-directed negative affect) in place of attitude or trivialization measures. Participants reported more psychological discomfort when they answered the discomfort questions before the responsibility questions compared to the reverse presentation order, but only in the choice conditions. The researchers concluded that participants used denial of responsibility to reduce psychological discomfort created

by choosing a dissonant action, but only when it is the first available mechanism to resolve dissonance.

Although these three studies establish the idea that people will use available cognitive means to reduce their responsibility for a counter-attitudinal action, this research did not attempt to demonstrate memory distortion in the recollection of responsibility. The only test of responsibility related memory distortion using a dissonance paradigm comes from Rodriguez and Strange (2015). Participants in this study were either assigned (low-choice) or induced to choose (high-choice) to write a counter-attitudinal essay in support of a tuition increase. Participants received these instructions verbally from the experimenter at beginning of the study. Before writing their essays, participants signed a statement reaffirming the instructions they received from the experimenter. Afterwards, participants answered three questions related to their feelings of personal responsibility for writing their essay. Participants then responded to a memory questionnaire, which included two forced choice items regarding what instructions (choice or no choice) they received. One item asked about the content of what the experimenter said to them verbally, and the other item asked about the content of the statement they signed. For both questions, participants could only respond that the experimenter/statement said they were randomly assigned to write the essay or that they voluntarily wrote the essay.

Results indicated that participants in the high-choice condition were more likely to incorrectly recall verbally receiving responsibility absolving instructions for writing their essay than participants in the low-choice condition were to incorrectly recall verbally receiving high choice instructions. That is, participants who were induced to

choose to write their essay were much more likely to misremember the experimenter assigning them to write their essay than participants who were assigned to write their essay were to misremember the experimenter giving them a choice. However, participants in this study did not differentially recall the item asking about the content of the statement they signed at the beginning of the study. The authors note that, if anything, participants should have misremembered the more self-implicating action of signing an instruction sheet, but instead misremembered the experimenter's instructions to them. In sum, the support for dissonance driven memory distortion for personal responsibility is somewhat weak. However, participants' misremembering of the experimenter's behavior rather than their own strengthens the argument to examine memory for coercion, as it indicates participants' memory failures can target someone other than themselves.

Distinction between coercion and responsibility. The distinction between distorting memory for personal responsibility and distorting memory for the coerciveness of another person is important. By simply misremembering personal responsibility, someone does not shift the blame for a dissonance inducing action to another source, but simply away from themselves. By falsely remembering someone being coercive, one explicitly designates fault to another target.

Self-protection's connection to rape and sexual assault. Although research on rape and sexual assault has not focused on dissonance theory specifically, some research does allude to the potential that people might remember a very serious event differently because of these same self-protective motivations. First, there is a sizeable discrepancy between what women self-label as rape and the legal definition of rape (e.g., Schwartz & Leggett, 1999). One study indicated that just over half of female rape victims did not

acknowledge their experience as rape (Wilson & Miller, 2016), opting to label it more mundanely as something like “bad sex.” This discrepancy in what women report as rape and what researchers and the law define as rape might partly depend on motivational and perceptual factors. Some research suggests that women’s labeling of their nonconsensual sexual experiences as rape or not rape depends partly on whether the event matched their rape script, but also partially on their motivation to avoid self-blame or trauma (Peterson & Muehlenhard, 2004, 2011). Peterson and Muehlenhard (2011) specifically identify avoidance of seeing the perpetrator as a rapist, escaping self-blame, and maintaining feelings of control as motivations for women to remember their experiences as something other than rape. These motivations align with other research indicating that acknowledged rape victims tend to blame themselves most, followed by the situation they were in, and assign the least blame to the perpetrator (Donde, 2017). Although none of this research explicitly connects to memory processes, it does begin to demonstrate that victims of rape or sexual assault might experience, remember, and even attribute blame differentially depending on individual differences in attitudes or motivations.

Memory Distortion or a Change in Judgment?

Some might suggest dissonance is not actually influencing what someone remembers, but rather the judgment people make about the memory in question. One pertinent example, although not related to memory, comes from Balcetis and Dunning (2007), who had participants make perceptual judgments about the distance of a field they would have to run across wearing embarrassing clothing and the slope of a hill which they would have to propel themselves up using a skateboard. In the first study, the researchers informed participants they would have to walk across a field on campus

wearing embarrassing clothing (low-choice) or that it would be helpful if they walked across the field in embarrassing clothing, but that they could also perform another task (high-choice). Researchers asked participants to estimate (in feet) the length of the field they would be walking across. The researchers assumed that longer estimates of field length implied that the participants considered the experience more aversive than if they had estimated the field as shorter. As expected, high-choice participants perceived the field as a shorter length than low-choice participants.

In the second study, participants either had to (or were induced to choose to) propel themselves up a hill using their arms while kneeling on a skateboard as a test of strength. Before performing the strength test, participants estimated the slope of the hill in two ways, which were counterbalanced. One measurement required participants to draw a diagonal line emanating from one end of a horizontal line on a piece of paper the experimenter provided them with. For the second measurement, participants moved the arm of a protractor to reflect the angle they believe best represented the slope of the hill. Using a composite measure of both slope estimates, the researchers found that high-choice participants estimated the hill as less steep (and therefore less aversive) than low-choice participants.

These studies indicate that dissonance can cause people to perceive or judge the same object differently depending on their motivation to resolve dissonance from making an aversive choice. If dissonance can cause people to change how they judge something, then it seems reasonable that dissonance might also change how people remember an event, rather than what they remember. For the purposes of the current research, how people remember an event refers to an evaluative judgment about an event, while what

people remember refers to a more objective, measurable target. For example, after greeting a stranger on the street, remembering the objective truth of what word the stranger said to you (e.g., hello vs. hi) is different than remembering your perception of how they uttered their greeting (rudely vs. politely). So far, the limited research on dissonance-induced memory distortion suggests that dissonance is disrupting what people remember, and has not specifically tested whether dissonance might disrupt how they remember it.

Rodriguez and Strange (2014) asked participants to recall numeric quality ratings they had given to cell phones following an easy or difficult choice between phones. When participants made a difficult choice, there was a significant discrepancy in participants recall of their original ratings and their true ratings, but no significant discrepancy when participants made an easy choice. Similarly, after writing counter-attitudinal essays under conditions of either high or low choice, Rodriguez and Strange (2015) asked participants to answer questions identically to the way they answered them in a prescreening that came before the essay manipulation. Participants were unable to correctly replicate their prescreen attitudes in the high-choice condition. Bem and McConnell (1970) used an almost identical manipulation and procedure and also found that participants were unable to correctly recall their initial attitudes. In all three of these studies, participants were not making judgments about their original experiences, but were asked to recall them. In each case, they were unable to recall what their experiences were, even when explicitly prompted to do so. While these three studies demonstrated participants were unable to recall a specific number, Berthold and Blank (2016) demonstrated people can fail to recognize counter-attitudinal statements and incorrectly

recall counter-attitudinal statements from liked communicators. Again, participants were not rendering judgments about an event they remembered, but were simply failing to correctly remember if another person made a specific statement. Although limited, these studies do support the idea that dissonance can disrupt what is remembered, and not just the way an event is remembered. However, no study has directly tested whether dissonance could distort how someone remembers something rather than what they remember.

Chapter 4: Knowledge of the Consequences of Choice

One important detail of attributing distortion of memory for coercion to dissonance reduction is perceiver's knowledge of the consequences of their choice at the time they make their choice. In almost every known dissonance study using an induced compliance paradigm, researchers used this type of procedure to cause participants to freely, but knowingly, engage in a counter-attitudinal behavior. In real life situations, people might not know they are engaging in self-concept violating behavior at the time that they engage in the behavior due to intense emotion, alcohol consumption, or simply being unable to foresee the consequences of their actions. However, participants in typical dissonance studies (e.g., Baumeister & Tice, 1984; Voisin et al., 2013) cannot write a counter-attitudinal essay that they are unaware is counter-attitudinal at the time they are writing it.

Early dissonance research attempted to address the question of whether or not surprise consequences are a relevant factor in the production and resolution of dissonance. Both Brehm (1959) and Brehm and Cohen (1959) demonstrated that when people make a dissonant commitment that later produces additional negative consequences that are unknown to them at the time of their commitment, they experience even greater dissonance (these are sometimes referred to as *fait accompli* studies). However, more precise tests of this assertion that followed these early examinations failed to support these original findings (e.g., Cooper & Brehm, 1968; Linder et al., 1968; Watts, 1965). These studies found that surprise consequences did not affect the magnitude of dissonance produced from a dissonance inducing action.

In these *fait accompli* studies, researchers used a dissonance inducing situation (e.g., a free choice paradigm), and then in the surprise consequence conditions, stack additional positive or negative consequences on top of an already dissonance inducing situation. For example, Brehm and Jones (1970) utilized a free choice paradigm by asking participants to rate the desirability of 15 records, and then asked them to choose one record to keep between two records they had rated very similarly. To study the effects of *fait accompli* consequences, the researchers manipulated awareness of consequences (forewarned vs. surprised) and the valence of the consequences (positive versus negative). For the forewarned participants, the researcher explained that the choice between the two records participants made was related to whether or not they received two free movie tickets in addition to their record. If they chose one of the records, they would get the movie tickets (positive consequences), but if they chose the other, they would get nothing in addition to the record (negative consequences). The experimenter did not tell the participant which record was tied to the movie tickets and which was not. For the surprised participants, the researchers gave the same information the forewarned participants received, but only after participants made their choice of record. After making their choice, participants in all conditions rerated the desirability of both records. The researchers also included a control condition that only included participants rating records, choosing between two desired records, and then rerating records.

The researchers found that the magnitude of dissonance was affected by the additional consequences, but only in the forewarned conditions. When participants were surprised by the positive or negative consequences of their choice, they did not exhibit additional dissonance. That is, the surprise participants did not exhibit significantly

different dissonance than the control participants, but the forewarned participants showed greater dissonance effects than both groups. The results of this and other *fait accompli* studies indicate that surprise consequences do not produce additional dissonance to that already produced by some other dissonance inducing action. However, these studies have not addressed whether surprise consequences on their own can create dissonance from a choice. In these studies, all participants engage in some dissonance inducing action, such as making a difficult choice (Brehm & Jones, 1970) or choosing to engage in a boring, tedious activity (Cooper & Brehm, 1971). With or without a surprise consequence, these actions induce dissonance. However, the question of whether surprise negative consequences from a choice that would otherwise not induce dissonance remains unanswered.

Additionally, researchers have studied the role of feelings of responsibility, which is a close correlate of the surprise consequences studies. As early as 1962, Brehm and Cohen argued that people would not experience dissonance if they did not feel personally responsible for engaging in dissonant behavior. Both Wicklund and Brehm (1976) as well as Cooper and Fazio (1984) argue that, without the knowledge of foreseeable aversive consequences for either the self or others, dissonance will not be aroused. Others have argued that feeling personally responsible for dissonance-arousing conditions might increase dissonance, but is not a necessary component of creating dissonance (e.g., Beauvois & Joule, 1996; Harmon-Jones et al., 1996, Harmon-Jones & Mills, 1999).

Harmon-Jones and Harmon-Jones (2007) discuss whether aversive consequences are necessary at all to arouse dissonance, regardless of the time these consequences are known and experienced. They start by discussing Festinger and Carlsmith's (1959)

classic experiment. In this study, the experimenter asked participants to lie to a confederate by telling him a very boring task was enjoyable, and offered either 1 dollar or 20 dollars for complying. Results indicated that when participants received a 20 dollar offer, they evaluated the task as less enjoyable than those who received only a 1 dollar offer. The researchers concluded that participants believed 20 dollar reward was a sufficient reason to lie to another person, but that a 1 dollar reward was not, so participants evaluated the boring task as more enjoyable to bring their attitudes in line with their dishonest behavior.

Harmon-Jones and Harmon-Jones (2007) suggest that an experiment replicating and extending Festinger and Carlsmith (1959) performed by Cooper and Worchel (1970) is often cited as early evidence that dissonance arousal requires aversive consequences. This study used the same manipulation as Festinger and Carlsmith (1959), but added a condition in which the confederate expressed disbelief towards the participant's claim that the task was enjoyable. The researchers assumed that participants who believed they mislead the confederate would find the experience aversive. If the confederate did not believe the participant, then the participant's lie did not cause any harm, and participants would not find the experience aversive. So, if aversive consequences are necessary to produce dissonance effects, the effects should only be present in the conditions where the confederate believed the participants lie. The results followed the expected pattern. Participants who received 1 dollar to lie evaluated the task as more enjoyable than participants who received 20 dollars only when the confederate indicated he believed the participant's lie. Cooper and Worchel (1970) interpreted these results as meaning simply engaging in a counter-attitudinal action would not produce dissonance, and that some

type of aversive consequence is necessary. However, Harmon-Jones and Harmon-Jones (2007) argue that significant evidence exists to suggest that producing aversive consequences is not necessary to produce dissonance.

First, selective exposure paradigms demonstrate people are more willing to examine materials that confirm their own beliefs than materials that dispute their beliefs (Brock & Balloun, 1967; Frey 1986). Harmon-Jones and Harmon-Jones (2007) argue that exposure to counter-attitudinal material does not produce any aversive consequences besides dissonance itself, yet these studies still observe dissonance effects. Second, the existence of dissonance in hypocrisy paradigms (Aronson et al., 1991; Stone et al., 1994) also indicates dissonance is produced without clear aversive consequences. For example, Aronson and colleagues (1991) asked participants to give a speech encouraging condom use after reminding them of their previous failures to use condoms. Participants exhibited dissonance effects on dependent measures asking them about their future intent to use condoms, despite having engaged in what was ostensibly a morally admirable and agreeable behavior.

Additionally, Harmon-Jones and colleagues (1996) and Harmon-Jones (2000) conducted studies in which participants engaged in counter-attitudinal behaviors, but were assured of anonymity and were able to personally discard the evidence of their behaviors. These studies still found evidence of dissonance arousal, so the authors concluded that aversive consequences are not necessary to induce dissonance. The logic was that if no others witnessed a behavior, no aversive consequences were produced.

However, this conclusion is possibly a mistake. Presumably, hypocrisy and lying are aversive consequences, regardless of whether or not others witness the behavior. Most

people are well aware that dishonesty and hypocrisy are undesirable actions, and engaging in these behaviors is aversive, regardless of if others are aware of them. For example, Shu and Gino (2012) and Gino et al. (2011) both observed moral disengagement and moral forgetting in their studies where participants enacted cheating behavior. However, none of the participants were aware that the experimenter knew they were cheating. Still, the researchers observed effects based on the inconsistency between cheating behavior and a moral self-view, and concluded that cheating itself was aversive. Therefore, the findings of studies like Aronson and colleagues (1991) and Harmon-Jones (2000) should not rule out aversive consequences as being responsible for inducing dissonance. Consider Harmon-Jones (2000) which provides one of the most mundane and inconsequential inconsistency manipulations. Participants who liked chocolate ate a piece of chocolate and were either assigned or induced to choose to write a statement saying they disliked the chocolate they ate. Still, participants who chose to write the statement changed their attitudes to dislike the chocolate, while those assigned to write the statement did not. Yet, studies like this one still cannot rule out the possibility that engaging in a hypocritical, counter-attitudinal, or otherwise immoral behavior is an aversive consequence in itself. Constraining the definition of aversive consequence to something that either other people witness or something that creates a tangible problem ignores the basic need for cognitive consistency that dissonance theory has espoused since its inception (Festinger, 1957).

Chapter 5: Overview and Methodology

The current research aimed to examine dissonance effects on memory regarding a social choice. When people make a choice that ends with negative consequences, one of the ways in which they might resolve their dissonance is through remembering being coerced into that choice, or choosing it less freely. However, when the same choice turns out positively, people might be willing to remember the decision as more freely made. Even when people do not make a choice, they still might be more likely to take credit for a positive outcome than a negative outcome (see Bradley, 1978 for a review on self-serving bias in attributions).

Participants will either be assigned to or “choose” a social partner through induced compliance procedures and have the consequences of their choice manipulated as positive or negative in two studies. Study 1 used Zoom, an online videoconferencing software the university provides to students and faculty at no cost, to provide real time interaction while making a social choice. Study 2 used an online paradigm through Amazon’s Mechanical Turk (MTurk) which people participated in at their convenience.

Design

Both studies use the same 2 (Partner: assigned or chosen) x 2 (Consequences: positive or negative) design. Both studies manipulate the partner variable by either assigning participants a partner or by inducing participants to choose a partner they would play the ultimatum game with. The ultimatum game is an economic game played between two people that involves splitting a resource, most frequently a sum of money (see Güth et al., 1982 for the original formulation). In the present experiments, the resource to be split was 10 raffle tickets, each of which entered a participant into a

drawing for a \$100 Amazon gift card. One person plays the role of the proposer, while the other plays the role of the decider. The proposer may offer the decider any portion of the 10 raffle tickets and keep the remainder. The decider has the power to either accept the deal offered by the proposer, in which case both parties claim the portion of the reward the proposer offered, or decline the proposer's deal, in which case neither party receives any portion of the reward. In both studies, participants always play the role of the decider, so consequences were manipulated as either a fair (5 tickets) or very unfair (2 tickets) offer from the proposer.

Power Analysis

All power analyses were conducted in G*power (Erdfelder et al., 1996). Assuming a medium effect size of $f = .20$ (Cohen, 1988), a sample size of 277 participants would yield adequate power of $1 - \beta = .80$ with $\alpha = .05$ to detect an effect in a 2 x 2 design. This power analysis pertains to both studies due to their shared design.

Hypotheses

The current research involves a total of six hypotheses. All six hypotheses are tested in both studies.

Hypothesis 1

There will be a main effect of consequences condition, such that participants will report having less choice in their partner selection (dependent measure 1) in the negative-consequences conditions compared to the positive-consequences conditions.

Hypothesis 2

There will be a main effect of consequences condition, such that participants will perceive the experimenter as having less influence over their decision (dependent

measure 2) when the consequences are positive compared to negative.

Hypothesis 3

There will be a main effect of partner condition, such that participants will report having less choice in their partner selection (dependent measure 1) in the partner assignment conditions compared to the partner chosen conditions.

Hypothesis 4

There will be a main effect of partner condition, such that participants will perceive the experimenter as having less influence over their decision (dependent measure 2) in the partner chosen conditions compared to the partner assignment conditions.

Hypothesis 5

There will be a two-way interaction between partner condition and consequences condition, such that participants will report significantly more choice (dependent measure 1) in the partner chosen conditions compared to the partner assignment conditions, and this difference will be greater in the positive consequences condition compared to the negative consequences condition.

Hypothesis 6

There will be a two-way interaction between partner condition and consequences condition, such that the difference in perceived experimenter influence (dependent measure 2) between the partner chosen and partner assignment conditions will be significantly greater in the positive consequences condition compared to the negative consequences condition.

Chapter 6: Study 1 Method

The design of Study 1 was a 2 (Partner: assigned or chosen) x 2 (Consequences: positive or negative) between-subjects experimental design. The experimenter administered the partner manipulation verbally, which was specific to Study 1.

Participants

Participants were students recruited from a large western university through the months of June 2020 – March 2021 using the Psychology SONA system and the Social Psychology SONA system. The SONA study description informed participants the study concerned financial and social decision making in the internet era to provide initial exposure to the cover story. The remainder of the description contained information regarding when participants would receive a Zoom link to the study and the time (15 minutes) the study was expected to take. Lastly, the description instructed participants to enter the Zoom meeting with their cameras and microphones off to further reinforce the cover story. The initial sample contained 188³ participants. However, 11 participants realized their interaction partner was a computer, and 17 participants did not comply with the experimenter request or instruction to choose Charlie. After removing these participants from the sample, the final sample contained 160 participants and was 49.38% white and mostly female (65%) with a mean age of 19.95 years ($SD = 2.43$).

³ Complications due to the Coronavirus pandemic made reaching the required sample size in this study problematic. The study was initially proposed when research participants were required by the psychology department to participate in face to face studies. However, after in-person data collection ceased due to the pandemic, research participants had no requirement to participate in Zoom format studies instead of asynchronous online studies. Despite repeated advertisement, financial incentive, and nine continuous months of data collection, sufficient participant recruitment was unsuccessful.

Procedure

The study was conducted over Zoom, which allowed the participant to believe they were interacting with another person in real time. Each SONA session was assigned a Zoom link, and participants received an email containing the link at least half an hour before each timeslot to serve as reminder and to ensure they had access to the correct link. Before each participant signed on to their timeslot, the experimenter was signed on using two additional devices besides their computer as two fake participants named Charlie and Jessica. The experimenter was able to control Charlie and Jessica's movement in and out of breakout rooms from their alternative devices as well as address them as real people during the instruction portion to ensure the participant believed both were real.

When the participant signed into the Zoom meeting, both Charlie and Jessica were present in the meeting with their cameras and microphones off. Only their names were displayed to the participant to give the appearance of two genuine participants. The experimenter then informed the participant that the group is waiting for one other person who is ostensibly joining. After waiting 1-2 minutes, the experimenter started the study without the "final participant" present. Next, the experimenter administered the cover story. Participants were led to believe the study concerned financial decision making and altruism over the internet, as a significant amount of commerce now takes place online, especially given the coronavirus situation. The experimenter then emailed the participant the Qualtrics study link.

The experimenter directed participants to open the link, which opened the survey to a page that contains an ID slider. The experimenter then provided all three participants

with IDs. In each session, “Charlie” was assigned an ID of 178 and “Jessica” was assigned an ID of 366, while the real participant was assigned their true ID. Participant IDs never overlapped with Charlie or Jessica’s. The ID slider the real participant interacted with contained the logic which assigned participants to the correct study condition based on the number they were given by the experimenter. After the participant entered their ID, the experimenter explained the rules of the ultimatum game, followed by the breakout room procedure.

The experimenter explained that participants would play the ultimatum game from breakout rooms. Each breakout room was named for the role its participants would play in the ultimatum game. The experimenter informed everyone Charlie and Jessica would enter the proposer room and the real participant would enter the decider room.

After explaining the breakout room procedure, the experimenter opened the breakout rooms and asked that everyone refrain from advancing through the survey until each participant had spoken to the experimenter in their respective breakout rooms. Charlie and Jessica entered the proposer room as the participant entered the decider room. After participants entered breakout rooms, the experimenter waited approximately 40 seconds before entering the real participant’s breakout room to give the impression they were talking to Charlie and Jessica in the proposer breakout room. The experimenter then explained that the study is intended to be run with a total of four participants, two in a proposer breakout room, and two in a decider breakout room. However, only one participant (the real participant) came to the decider room, so the participant engaged with only one of the two others in the proposer. In the partner-assigned condition, participants were assigned to Charlie after being told that women are usually more

generous in the game and the experimenter needs more data on male proposers. In the partner-chosen condition, standard induced compliance techniques induced participants to choose Charlie as their partner. The experimenter told participants they had enough data on female proposers and that women are usually more generous in the game, so it would be more helpful to the experimenter for participants to choose Charlie as their partner, but that choosing Charlie is not required. See Appendix A for the exact script and differences in partner assignment procedures between partner conditions. This induced compliance technique is commonly used in dissonance studies to control participants' choices while giving them the illusion that they did choose (Cooper et al., 1978; Leippe & Eisenstadt, 1994). It also provides participants fodder to believe they made a choice that might disadvantage them by choosing a male proposer. The experimenter also assured the participant that whoever was not selected as their game partner would participate in another activity for equivalent research credit. After delivering the partner selection manipulation, the experimenter returned to the main meeting room and waited for the participant to finish.

After the experimenter left the breakout room, the survey prompted participants to write the personalizing statement to both of their potential partners and informed them they will receive a statement from their partner options. After writing their statement, participants were presented with statements from both "Charlie" and "Jessica", and asked to select their partner. The following screen contained a message that participants are connecting to their partner, with a countdown timer and message instructing participants to alert the experimenter if connection took more than twenty seconds. The page was set to auto-advance after 13 seconds, and contained a timer counting up from zero so

participants knew how long the connection was taking. The next screen told participants they have connected, and that Charlie was making his proposal (if they chose Jessica, Jessica's name replaced Charlie's in all cases). This screen also contained a timer that counted up to 6 seconds, with a message asking participants to wait at least 30 seconds for an offer. The next screen contained the consequences of choice manipulation. In the positive consequences condition, Charlie offered 5 tickets, an exactly even split of the possible 10. In the negative consequences condition, Charlie offered 2 tickets, which approximates the percentage of the total that most people will find grossly unfair in the ultimatum game (Güth et al., 2001). Subsequently, participants were asked to respond to all dependent measures and then returned to the main meeting room to be debriefed.

Materials

Study 1 involved 8 main materials: A personalizing statement, main dependent measures, exploratory dependent measures, filler items, demographic questions, suspicion checks, a debriefing script, and a session grid. All materials except for the ultimatum game were created for Study 1.

Personalizing statement

The personalizing statement was a short paragraph, intended to be 3-5 sentences long that introduced the participant to their potential partners, Charlie and Jessica. The descriptions for the personalizing statement were selected on the basis of making Jessica look like a slightly more desirable partner than Charlie to provide some basis for participants to desire to pick Jessica, and feel they were "coerced" into picking Charlie. After exchanging conventional social pleasantries, participants might have expected that the reciprocal relationship should continue. Perhaps more importantly, the personalizing

statement also served to reinforce the idea that participants were interacting with a real person. Participants wrote their own personalizing statements to their potential partners that were between 3 and 5 sentences describing themselves with any qualities they wanted. See Appendix B for the full personalizing statements from Charlie and Jessica.

Main dependent measures

The main dependent measures were designed around capturing the participants perception of their own choice and the experimenter's influence over who their game partner was. Items included control over outcome ("How much choice did you feel you had over who your partner was?" *No Choice 0 - 7 Complete Choice*) and experimenter influence ("How much influence did the experimenter have over your choice of game partner?" *No Influence 0 - 7 A lot of Influence*). See Appendix C for the dependent measures as they appeared in the survey.

Exploratory dependent measures

Two dependent measures were included for the purpose of ascertaining how participants felt about their game partner during the study. Items included liking of partner ("How much did you like your partner" *Not at All 0 – 7 Very Much*), and fairness of partner ("How fair was your partner?" *Completely Unfair 0 – 7 Completely Fair*).

Filler items

Filler items consisted of 10 questions that centered around the cover story regarding the purpose of the experiment. The filler items were designed to reinforce participants' belief in the cover story and to disguise the dependent measures of interest. Filler question topics included generosity online versus in person, where participants shop online, financial conservatism, etc. See Appendix D for the filler items.

Demographic questions

Demographic questions included only basic measurements to assess the representativeness of the sample, such as gender, age, race, etc. See Appendix E for the full list and formatting of questions.

Suspicion check

Participants answered four suspicion check questions after responding to all dependent measures, filler items, and demographic questions. The first question was an open-ended question which asked participants, “What did you think was the true purpose of the experiment?” The second question asked participants, “Please tell us about what you thought and felt about your game partner.” with response options of yes or no. The third suspicion questions asked participants, “Before arriving to this experiment, had someone who had also participated previously discussed details about this experiment with you? Your answer will not affect your credit, but it helps us know what data we should exclude from our analyses.” With response options of yes or no. Finally, the fourth suspicion question asked participants “If so, what did you hear?” following up on the third suspicion question. See Appendix F for the suspicion check questions.

Debriefing script

After participants have completed every measure, the experimenter explained the nature of the study, that there was no second participant and that the study was intended to examine the effects of choice consequence on what people remember about a social interaction. The experimenter also explicitly asked the participants whether they believed they were interacting with another person during the study and recorded the answer on

the session grid. The debriefing script emphasized the importance of refraining from discussing the study with other students. See Appendix G for the full debriefing script.

Session grid

The session grid was a shared google sheet that experimenters used to track and assign each participant a condition. The first column of the session grid was numbered 101, followed by 201, 301, 401, and then starting the pattern again at 102, 202, 302, 402, etc. The first number of a participant's ID (1, 2, 3, or 4) corresponded to which condition the participant was in. The second two numbers indicate the number of participants in a given condition (e.g., participant 237 is the 37th participant who was in the partner assignment, positive consequences condition). Research assistants determined the condition of any upcoming participant by looking at the next available empty row. Next were columns for research assistants to fill in their name, the date and time of the session, whether the participant spoke fluent English, and an area for comments to note if something went awry during the study, or if the participant indicated they had realized they were playing the ultimatum game alone during the debriefing.

Results

All analyses were conducted in Rstudio. All dependent measures are analyzed using a 2 X 2 ANOVA that included an interaction term. See Table 1 for cell sizes, cell means, and standard deviations for each group for all dependent measures. See Table 2 for correlations between the main dependent variables and the exploratory dependent variables.

Participant choice

There was a main effect of partner condition on the participant choice measure, such that participants who chose their partner reported significantly more choice ($M = 5.20$) compared to participants who were assigned their partner ($M = 1.65$, $F(1, 156) = 100.39$, $p < .0001$, $\eta_p^2 = .39$). The effect of consequences was marginally significant, participants who received positive consequences ($M = 3.76$) reported marginally more choice than participants who received negative consequences ($M = 3.09$, $F(1, 156) = .13$, $p = .72$, $\eta_p^2 < .001$). The interaction between partner and consequences was also nonsignificant ($F(1, 156) = 0.17$, $p = .68$, $\eta_p^2 = .007$).

Experimenter influence

There was a main effect of partner condition on the experimenter influence measure, such that participants who were assigned their partner reported significantly more experimenter influence ($M = 5.40$) compared to participants who chose their partner ($M = 4.58$, $F(1, 156) = 6.29$, $p = .01$, $\eta_p^2 = .04$). The effect of consequences was null, participants who received positive consequences ($M = 5.04$) reported no more experimenter influence than participants who received negative consequences ($M = 4.94$, $F(1, 156) = 0.13$, $p = .72$, $\eta_p^2 < .001$). The interaction between partner and consequences was also nonsignificant ($F(1, 156) = 1.13$, $p = .29$, $\eta_p^2 = .007$).

Liking of partner

There was a main effect of consequence condition on the liking of partner measure, such that participants who had positive consequences liked their partner significantly more ($M = 4.75$) than participants who were assigned their partner ($M = 3.31$, $F(1, 156) = 27.68$, $p < .0001$, $\eta_p^2 = .15$). There was also a significant effect of

partner condition, such that participants who were assigned their partner ($M = 4.34$) liked their partner more than those who chose their partners ($M = 3.85$, $F(1, 156) = 5.57$, $p = .02$, $\eta_p^2 = .03$). The interaction term was not significant ($F(1, 156) = 0.52$, $p = .47$, $\eta_p^2 = .003$).

Fairness of partner

There was a main effect of consequence condition on the fairness of partner measure, such that participants who had positive consequences evaluated their partner as significantly more fair ($M = 5.95$) compared to participants who had negative consequences ($M = 2.31$, $F(1, 156) = 297.45$, $p < .0001$, $\eta_p^2 = .56$). The effect of partner was nonsignificant, participants who were assigned their partner ($M = 4.21$) did not report their partners were more or less fair than those who chose their partner ($M = 4.05$, $F(1, 156) = .96$, $p = .33$, $\eta_p^2 = .03$). The interaction term was also nonsignificant ($F(1, 156) = 1.89$, $p = .17$, $\eta_p^2 = .003$).

Discussion

Results indicated that the partner condition manipulation of choice was effective, reporting more choice (supporting Hypothesis 3) and less experimenter influence (supporting Hypothesis 4) when they chose their partner compared to when their partner was assigned to them. However, there was no effect of consequence condition on choice or experimenter influence, and no interactions, meaning Hypotheses 1, 2, 5, and 6 were unsupported.

There are several possible explanations as to why the results did not manifest as expected. First and most glaringly is the issue of statistical power. However, even considering the trends of the means for the two main dependent variables from Table 1, it

is remains questionable whether an increased sample size would have yielded the expected results. Second, the time delay between choosing or being assigned a partner and responding to the dependent measures might have been insufficient to produce dissonance. Some research suggests that to observe dissonance effects, several minutes need to pass between whatever the dissonance inducing event was and the administration of the dependent measures (Festinger & Walster, 1964; Walster, 1964). Other findings suggest that dissonance effects can be observed even when dependent measures immediately follow a dissonance inducing event. However, dissonance effects become larger as time passes (e.g., Frey et al., 1984). Third, participants might not have had sufficient reason to blame themselves for their choice. In studies like Gosling and colleagues (2006), participants had no doubt about whether they were violating their self-concept by writing a counter-attitudinal essay at the time they were asked to write the essay. In the present study, participants were given some evidence that they might have made a poor choice by choosing a male proposer, but there were still two unknowns about their choice. At the time of their choice, participants might have still believed Charlie could give them a fair deal. Further, even after participants made their choice and received their consequences, there was still no guarantee that Jessica would have given them a better deal than Charlie did. This uncertainty might have made the consequences of the choice less threatening to participants, because they never got confirmation assuring them of their mistake. Finally, it is possible that virtual interactions simply limit the power of the social aspects of the study that were originally intended to take place in person.

The exploratory dependent variables produced slightly different results. Participants reported liking their partner more and believing their partner was more fair when they received positive consequences compared to negative consequences. Participants also liked their partners marginally less when they chose their partners compared to when they were assigned their partners. These results provide weak evidence that participants attributed influence over their choice to the experimenter, but blamed (or credited) their partner for the outcome of their choice, rather than the experimenter as predicted. Overall, there was no evidence that cognitive dissonance was produced or resolved in Study 1.

Chapter 7: Study 2 Method

Study 2 retained many of the same characteristics as Study 1, including the 2 (Partner: assigned or chosen) x 2 (Consequences: positive or negative) design. However, Study 2 was conducted using MTurk, so there was no face-to-face interaction with an experimenter over Zoom. Because of this difference, the procedure of Study 2 differed from Study 1 in two relevant ways. First, participants received the induced compliance or partner assignment manipulation through an “automated alert”, which either asked participants to choose a male proposer if one was available (choice conditions), or informed them they would be assigned to a male proposer (assignment conditions). These alerts used the same language as the corresponding partner assignment and choice conditions as in Study 1. Second, the name Charlie was replaced with Edward. Because the experimenter was not present with each participant to ensure the participant that Charlie was male, Study 2 needed to use an unambiguously male name. The remainder of the materials and procedure were identical to Study 1, and participants received all of the same instruction and language at the same time as participants did in Study 1, but using written text instead of oral communication.

Participants

The initial sample was composed of 564 participants from Amazon’s Mechanical Turk (MTurk). Participants were required to meet three qualifications before they could enter the study; they had to reside in the United States, they had to have had over 500 previous MTurk HITs approved, and have over 90% HIT approval rate. Of these initial 564 participants, 150 did not select Edward as their partner and had to be removed from the analyses. Further, an additional 41 people indicated in the suspicion check questions

they did not believe they had connected to a real person. After removing these participants, there were no duplicate responses based on examining the IP addresses of respondents. There were also no participants outside the United States based on the latitude and longitude of respondents. The final sample contained 373 participants. The sample was mostly white (71.3%) and male (55.0%). The mean age of the sample was 39.6 years ($SD = 11.2$).

Timing metrics

To assess participants' attention throughout the survey, timers were included on the five instruction pages throughout the survey. The range of mean times (in seconds) on the five timers was 15.98–23.64, and each median was below each corresponding mean. However, each median was clearly within one standard deviation of the mean, indicating minimal influence of extreme scores on the mean. These measurements indicated participants paid attention to the study. See Table 3 for complete descriptive statistics on all five timers.

Results

All analyses were conducted in Rstudio. All dependent measures are analyzed using a 2 X 2 ANOVA that included an interaction term. Pairwise comparisons are conducted where interactions necessitate them. See Table 4 for cell sizes, cell means, and standard deviations for each group for all dependent measures. See Table 5 for correlations between all dependent measures.

Participant choice

There was a main effect of partner condition on participant choice, such that those who were assigned to their game partner ($M = 2.05$) reported significantly less choice

than those who “chose” their partner ($M = 4.80$, $F(1,368) = 99.27$, $p < .0001$, $\eta_p^2 = .21$). The effect of consequences was null, participants who had negative consequences ($M = 2.72$) did not report significantly different choice than participants who had positive consequences ($M = 3.13$, $F(1,368) = 1.30$, $p = .25$, $\eta_p^2 = .004$). The interaction was also nonsignificant ($F(1,368) = 1.30$, $p = .25$, $\eta_p^2 < .001$).

Experimenter influence

There were no main effects or interactions on the experimenter influence measure. Participants who were assigned their game partner ($M = 5.28$) reported no different experimenter influence than participants who chose their game partner ($M = 4.94$, $F(1,368) = 1.90$, $p = .16$, $\eta_p^2 = .005$). Additionally, participants who had negative consequences ($M = 5.22$) did not report different experimenter influence than those who had positive consequences ($M = 5.12$, $F(1,368) = .12$, $p = .73$, $\eta_p^2 < .001$). The interaction was also nonsignificant ($F(1,368) = .001$, $p = .97$, $\eta_p^2 < .001$).

Liking of partner

There was no effect of partner condition on liking of partner. Participants who were assigned their partner ($M = 3.95$) did not report different liking than those who chose their partner ($M = 3.78$, $F(1,367) = 1.21$, $p = .27$, $\eta_p^2 = .001$). There was a main effect of consequence condition on the liking of partner measure. Participants who had negative consequences ($M = 3.05$) liked their partner less than participants who had positive consequences ($M = 4.74$, $F(1,367) = 68.93$, $p < .0001$, $\eta_p^2 = .16$). However, this effect was qualified by a marginal interaction ($F(1,367) = 3.08$, $p = .08$, $\eta_p^2 = .008$). When participants received positive consequences, there were no significant differences in liking between the partner assignment condition and the partner chosen condition

($t(183) = 0.57, p = .56, d = .08$). However, when participants received negative consequences, they liked their partners marginally less when they chose them ($M = 2.61$) compared to when their partners were assigned ($M = 3.24, t(186) = 5.25, p = .07, d = .21$). See Figure 1 for a graphical representation of the marginal interaction.

Fairness of partner

There was no effect of partner condition on fairness of partner. Participants who were assigned their partner ($M = 4.41$) did not report different liking than those who chose their partner ($M = 4.37, F(1,367) = .65, p = .42, \eta_p^2 < .001$). There was a main effect of consequence on participants' ratings their partner's fairness, participants who received positive consequences ($M = 6.20$) evaluated their partner as more fair than participants who received negative consequences ($M = 2.58, F(1,367) = 292.86, p < .0001, \eta_p^2 = .46$). This effect was qualified by a significant interaction ($F(1,367) = 4.19, p = .04, \eta_p^2 = .01$). When participants received positive consequences, there were no significant differences in liking between the partner assignment condition and the partner chosen condition ($t(186) = 1.47, p = .14, d = .21$). However, when participants received negative consequences, they evaluated their partners as less fair when they chose them ($M = 2.14$) compared to when their partners were assigned ($M = 2.78, t(183) = 1.63, p = .10, d = .26$), though this difference was also nonsignificant. See Figure 2 for a graphical representation of the interaction.

Discussion

As in Study 1, the main hypotheses of interest were unsupported. Only Hypothesis 3, which predicted that participants would report less choice in the partner assignment conditions compared to the partner chosen conditions, was supported.

Many of the same problems from Study 1 apply to Study 2. The lack of time between choice and response, the lack of certainty about having made the wrong choice, and the online nature of the study all might explain the results of Study 2 in the same way they explain the results of Study 1. However, Study 2 was more than properly powered, and the means of the main dependent variables still do not uniformly trend as the unsupported hypotheses predicted they would. Therefore, it seems more likely than some combination of the other three problems or a yet unidentified problem contributed to the null results, rather than a simple lack of statistical power.

The exploratory dependent measures indicate at least a possibility that dissonance was produced and resolved in Study 2. In the positive consequences condition, participants reported liking their partner slightly more and that their partner was slightly fairer when participants chose their partner compared to when their partner was assigned. In the negative consequences condition, participants reported liking their partner slightly less and that their partner was slightly less fair when participants chose their partner compared to when their partner was assigned, although none of these differences were statistically significant. The interactions were significant/marginally significant despite these null simple effects because the difference between the positive and negative consequences conditions was greater in the partner chosen conditions than in the partner assignment conditions. One way to interpret this pattern is that participants placed more importance on whatever their partner decided when participants chose their partner compared to when they were assigned their partner. If making a choice is reflective of oneself, it makes sense that good partners were perceived as better and bad partners perceived as worse when they were chosen compared to assigned. This pattern fits with

other dissonance research that demonstrates people undergo greater attitude change after choosing to engage in a counter-attitudinal behavior compared to being assigned to do so (e.g., Cotton & Heiser, 1980; Frey & Wicklund, 1978). However, the fairness and liking variables were exploratory and the results of these variables were not a priori hypothesized, so very little weight should be assigned to the results of these measures.

Chapter 8: General Discussion

Broadly, the results of these two studies provide no evidence that cognitive dissonance can affect memory for coercion. Participants did not recall differential experimenter influence or personal choice between consequence conditions in either study. Lack of time delay, insufficient reason to self-blame, and the online nature of both studies all stand out as possibilities for the consistent null results on the main dependent measures.

Taken together, these two studies suggest that participants might not have recalled being coerced by the experimenter because they attributed at least some responsibility for the outcome to their game partner. In Study 1, participants reported liking their partner more and that their partner was fairer when they received positive consequences versus negative consequences. In Study 2, the difference in liking and fairness between the positive and negative consequences conditions was greater in the partner chosen conditions than the partner assignment conditions. These results might indicate that participants did not assign responsibility to the experimenter, but did assign some to their partner, and possibly themselves because of the difference between the choice and assignment conditions in Study 2. Participants assigning responsibility to their partner over themselves supports the results of Gosling and colleagues (2006) where participants denied responsibility for engaging in a counter-attitudinal action.

The results across both studies elucidate another possibility that might explain the null results on the main dependent measures. The exploratory dependent measures were presented just before the main dependent measures in the deceptive Qualtrics survey. It is possible participants resolved their dissonance at the first opportunity they were given,

which was the exploratory measures, rather than on the main dependent measures.

Research has consistently shown that people will resolve their dissonance at the first opportunity given to them, and once their dissonance is resolved, they no longer exhibit dissonance consistent patterns in their responses (e.g., Gosling et al., 2006; See Harmon-Jones & Harmon-Jones, 2007 for review). Though the exploratory measures were not intended to provide an outlet for dissonance resolution, the results indicate they possibly did.

Both studies examined how people remembered an event, rather than what they remembered. Previous work on dissonance induced memory distortion has tested what participants remembered (Bem & McConnell, 1970; Rodriguez & Strange, 2014; 2015) rather than how they remembered an event. These studies used a pretest-posttest format, in which participants reported a specific number on an attitudinal scale in a pretest and were asked to recall it in a posttest. Participants might have made an evaluative judgment in their first answer about their attitudes towards something (i.e., a tuition increase), but their second answer was a recall test, not an evaluative judgment. Berthold and Blank (2016) tested participants' recognition of statements made by others. In their studies, participants were asked to remember if they had previously seen or not seen a specific statement. Again, this was a recognition test, not an evaluative judgment. In contrast, the current studies tested how people remembered an event, but not what they remembered. There was no objective level of choice or experimenter influence participants saw and then could later recall or recognize. Participants experienced an event, and then made an evaluative judgment based on the way they remembered the event, but were not asked to remember any specific aspect of the event. The results of these studies weakly suggest

dissonance might not interfere with how people remember something, but several methodological limitations prevent this conclusion from having any significant credibility.

Limitations and Future Directions

Several limitations in both studies provide opportunity for improvement in future studies. First, there is possible concern regarding the severity of the consequences, specifically, that the consequences are not important enough for people to feel the need to blame the experimenter for their “bad” choice. The ultimatum game is most frequently played with a certain dollar amount (Güth et al., 1982) and in the current studies, the raffle tickets did not provide guaranteed monetary reward, only the possibility of monetary reward. Unless the participant wins the raffle drawing, the raffle tickets have no value, so their value was uncertain at the time participants received their offer. Arguably, the current studies utilized a more consequential manipulation than other dissonance studies that find effects using inconsequential manipulations, such as experiments using free choice paradigms that do not actually reward participants with their choice (Rodriguez & Strange, 2014), or experiments that provide feedback on imaginary social qualities (Aronson & Carlsmith, 1962). Still, future studies might better investigate dissonance induced memory distortion using certain monetary rewards rather than uncertain.

Second, varying the order of the main dependent measures, exploratory dependent measures, and filler items would help answer various questions about the cause of the null results. Placing the filler items before both sets of dependent measures might help identify whether lack of time between the consequences manipulation and the dependent

measures was contributing to the null results of both studies. However, this design runs the small risk of participants resolving their dissonance through some unintended mechanism in the filler questions. Similarly, placing the main dependent measures before the exploratory dependent measures would help disentangle whether participants resolved their dissonance on the exploratory measures or whether they would not have resolved dissonance on the main measures regardless presentation order.

Third, even if the results of the exploratory dependent measures had manifested the same way in Study 1 as they did in Study 2, the measures do not directly ask participants how responsible they hold their partner for the outcome. Though the results indicate some evidence participants assigned responsibility to their partner, this assertion can only remain a guess until participants are asked explicitly about responsibility.

Finally, even if the results of the current research had supported the original hypotheses, significant distance remains between the conclusions that can be drawn from the current research and concluding that people might incorrectly remember being coerced into some sexual situation when they chose the situation freely. In the current studies, the experimenter's action was singular, brief, and very concrete. Actions like these provide less opportunity for distortion or reinterpretation than the situation that inspired the study where both parties are engaging in multiple verbal and nonverbal behaviors and are reacting to one another. Building upon preliminary work on the dissonance-memory relationship (e.g., Rodriguez & Strange, 2014, 2015), future research should establish the connection made between dissonance and memory distortion for a social choice before attempting to demonstrate the relationship in romantic situations. A more sexually related experiment might place participants in a speed dating situation and have a confederate

attempt to influence participants' choice of date partner, with one partner acting very rude and the other acting kind and friendly.

Conclusion

Inspired by undesired sexual encounters, the two studies tested the hypothesis that people might resolve cognitive dissonance produced by making an undesirable choice by distorting their memories for whether they made their choice freely or not. Although the hypothesis was not supported in either study, the current research represents the first of many possible tests of the hypothesis, and methodological issues preclude outright dismissal. Dissonance researchers should continue to investigate the role dissonance resolution plays in memory distortion and specifically memory for coercion and choice.

References

- Aronson, E. (1968). Dissonance theory: Progress and problems. In R. Abelson, E. Aronson, W. McGuire, T. Newcomb, M. Rosenberg, & P. Tannenbaum (Eds.), *Theories of cognitive consistency: A sourcebook* (pp. 5-27). Rand McNally.
- Aronson, E. (2007). The evolution of cognitive dissonance theory: A personal appraisal. In A. R. Pratkanis (Ed.), *The science of social influence: Advances and future progress* (pp. 115-133). Taylor & Francis.
- Aronson, E. (1992). The return of the repressed: Dissonance theory makes a comeback. *Psychological Inquiry*, 3(4), 303-311.
https://doi.org/10.1207/s15327965pli0304_1
- Aronson, E., Fried, C., & Stone, J. (1991). Overcoming denial and increasing the intention to use condoms through the induction of hypocrisy. *American Journal of Public Health*, 81(12), 1636-1638. <https://doi.org/10.2105/AJPH.81.12.1636>
- Balcetis, E., & Dunning, D. (2007). Cognitive dissonance and the perception of natural environments. *Psychological Science*, 18(10), 917-921.
<https://doi.org/10.1111/j.1467-9280.2007.02000.x>
- Bandura, A. (1990). Selective activation and disengagement of moral control. *Journal of Social Issues*, 46, 27-46. <https://doi.org/10.1111/j.1540-4560.1990.tb00270.x>
- Batson, C. D. (1975). Rational processing or rationalization? The effect of disconfirming information on a stated religious belief. *Journal of Personality and Social Psychology*, 32(1), 176-184. <https://doi.org/10.1037/h0076771>

- Baumeister, R. F., & Tice, D. M. (1984). Role of self-presentation and choice in cognitive dissonance under forced compliance: Necessary or sufficient causes? *Journal of Personality and Social Psychology*, *46*(1), 5–13. <https://doi.org/10.1037/0022-3514.46.1.5>
- Beauvois, J.-L., & Joule, R. V. (1996). *A radical dissonance theory*. *European monographs in social psychology*. Taylor & Francis.
- Bem, D. J., & McConnell, H. K. (1970). Testing the self-perception explanation of dissonance phenomena: On the salience of premanipulation attitudes. *Journal of Personality and Social Psychology*, *14*(1), 23-31. <https://doi.org/10.1037/h0020916>
- Benney, K. S., & Henkel, L. A. (2006). The role of free choice in memory for past decisions. *Memory*, *14*(8), 1001-1011. <https://doi.org/10.1080/09658210601046163>
- Berthold, A., & Blank, H. (2016). Memory distortion and attitude change—Two routes to cognitive balance. *European Journal of Social Psychology*, *46*(2), 198-208. <http://dx.doi.org/10.1002/ejsp.2137>
- Bjork, R. A., & Woodward, A. E. (1973). Directed forgetting of individual words in free recall. *Journal of Experimental Psychology*, *99*(1), 22-27. <https://doi.org/10.1037/h0034757>
- Blumberg, M. L., & Lester, D. (1991). High school and college students' attitudes toward rape. *Adolescence*, *26*(103), 727-730.

- Brehm, J. W. (1959) Increasing cognitive dissonance by a fait accompli. *Journal of Abnormal and Social Psychology*, 58(3), 379-382.
<https://doi.org/10.1037/h0047791>
- Brehm, J. W., & Cohen, A. R. (1959). Choice and chance relative deprivation as determinants of cognitive dissonance. *Journal of Abnormal and Social Psychology*, 58(3), 383-387. <https://doi.org/10.1037/h0044993>
- Brehm, J. W., & Cohen, A. R. (1962). *Explorations in cognitive dissonance*. Wiley.
- Brehm, J. W., & Jones, R. A. (1970). The effect on dissonance of surprise consequences. *Journal of Experimental Social Psychology*, 6(4), 420-431.
[https://doi.org/10.1016/0022-1031\(70\)90053-3](https://doi.org/10.1016/0022-1031(70)90053-3)
- Bradley, G. W. (1978). Self-serving biases in the attribution process: A reexamination of the fact or fiction question. *Journal of Personality and Social Psychology*, 36(1), 56–71. <https://doi-org.unr.idm.oclc.org/10.1037/0022-3514.36.1.56>
- Brock, T. C., & Balloun, J. L. (1967). Behavioral receptivity to dissonant information. *Journal of Personality and Social Psychology*, 6(4, Pt.1), 413–428.
<https://doi.org/10.1037/h0021225>
- Cohen, J (1988). *Statistical power analysis for the social sciences* (2nd ed.). Erlbaum.
- Conway, M. A. (2005). Memory and the self. *Journal of Memory and Language*, 53(4), 594-628. <https://doi.org/10.1016/j.jml.2005.08.005>
- Cooper, J., & Brehm, J. W. (1971). Prechoice awareness of relative deprivation as a determinant of cognitive dissonance. *Journal of Experimental Social Psychology*, 7(6), 571-581. [https://doi.org/10.1016/0022-1031\(71\)90020-5](https://doi.org/10.1016/0022-1031(71)90020-5)

- Cooper, J., & Fazio, R. H. (1984). A new look at dissonance theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 17, pp. 229–266). Academic Press.
- Cooper, J., & Worchel, S. (1970). Role of undesired consequences in arousing cognitive dissonance. *Journal of Personality and Social Psychology*, *16*(2), 199–206.
<https://doi.org/10.1037/h0029830>
- Cooper, J., Zanna, M. P., & Taves, P. A. (1978). Arousal as a necessary condition for attitude change following induced compliance. *Journal of Personality and Social Psychology*, *36*(10), 1101–1106. <https://doi.org/10.1037/0022-3514.36.10.1101>
- Cotton, J. L., & Hieser, R. A. (1980). Selective exposure to information and cognitive dissonance. *Journal of Research in Personality*, *14*(4), 518-527.
[https://doi.org/10.1016/0092-6566\(80\)90009-4](https://doi.org/10.1016/0092-6566(80)90009-4)
- Davis, D., & Loftus, E. F. (2015). Remembering disputed sexual encounters: A new frontier for witness memory research. *Journal of Criminal Law and Criminology* (Invited Contribution), *105*(4), 811-851.
- Dipboye, R. L. (1977). A critical review of Korman's self-consistency theory of work motivation and occupational choice. *Organizational Behavior and Human Performance*, *18*(1), 108-126. [https://doi.org/10.1016/0030-5073\(77\)90021-6](https://doi.org/10.1016/0030-5073(77)90021-6)
- Donde, S. D. (2017). College women's attributions of blame for experiences of sexual assault. *Journal of Interpersonal Violence*, *32*(22), 3520-3538.
<https://doi.org/10.1177/0886260515599659>

- Erdfelder, E., Faul, F., & Buchner, A. (1996). GPOWER: A general power analysis program. *Behavior Research Methods, Instruments & Computers*, 28(1), 1–11.
<https://doi.org/10.3758/BF03203630>
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.
- Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology*, 58(2), 203-210.
<https://doi.org/10.1037/h0041593>
- Festinger, L., & Walster, E. (1964). Post-decision regret and decision reversal. In L. Festinger (Ed.), *Conflict, decision, and dissonance* (pp. 97-112). Stanford University Press.
- Frey, D. (1986). Recent research on selective exposure to information. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 41–80). Academic Press.
- Frey, D., Kumpf, M., Irle, M., & Gniech, G. (1984). Re-evaluation of decision alternatives dependent upon the reversibility of a decision and the passage of time. *European Journal of Social Psychology*, 14(4), 447–450. <https://doi-org.unr.idm.oclc.org/10.1002/ejsp.2420140410>
- Frey, D., & Wicklund, R. A. (1978). A clarification of selective exposure: The impact of choice. *Journal of Experimental Social Psychology*, 14(1), 132-139.
[https://doi.org/10.1016/0022-1031\(78\)90066-5](https://doi.org/10.1016/0022-1031(78)90066-5)
- Goethals, G. R., & Reckman, R. (1973). The perception of consistency in attitudes. *Journal of Experimental Social Psychology*, 9(6), 491-501.
[https://doi.org/10.1016/0022-1031\(73\)90030-9](https://doi.org/10.1016/0022-1031(73)90030-9)

- Gosling, P., Denizeau, M., & Oberlé, D. (2006). Denial of responsibility: a new mode of dissonance reduction. *Journal of Personality and Social Psychology*, *90*(5), 722-733. <https://doi.org/10.1037/0022-3514.90.5.722>
- Grubb, A., & Turner, E. (2012). Attribution of blame in rape cases: A review of the impact of rape myth acceptance, gender role conformity and substance use on victim blaming. *Aggression and Violent Behavior*, *17*(5), 443-452. <https://doi.org/10.1016/j.avb.2012.06.002>
- Güth, W., Schmittberger, R., & Schwarze, B. (1982). An experimental analysis of ultimatum bargaining. *Journal of Economic Behavior & Organization*, *3*(4), 367-388. [https://doi.org/10.1016/0167-2681\(82\)90011-7](https://doi.org/10.1016/0167-2681(82)90011-7)
- Güth, W., Huck, S., & Müller, W. (2001). The relevance of equal splits in ultimatum games. *Games and Economic Behavior*, *37*(1), 161-169. <https://doi.org/10.1006/game.2000.0829>
- Harmon-Jones, E. (2000). Cognitive dissonance and experienced negative affect: Evidence that dissonance increases experienced negative affect even in the absence of aversive consequences. *Personality and Social Psychology Bulletin*, *26*(12), 1490-1501. <https://doi.org/10.1177/01461672002612004>
- Harmon-Jones, E., Brehm, J. W., Greenberg, J., Simon, L., & Nelson, D. E. (1996). Evidence that the production of aversive consequences is not necessary to create cognitive dissonance. *Journal of Personality and Social Psychology*, *70*, 5–16. <https://doi.org/10.1037/0022-3514.70.1.5>

- Harmon-Jones, E., & Harmon-Jones, C. (2007). Cognitive dissonance theory after 50 years of development. *Zeitschrift für Sozialpsychologie*, 38(1), 7-16.
<https://doi.org/10.1024/0044-3514.38.1.7>.
- Harmon-Jones, E., & Mills, J. (1999). An introduction to cognitive dissonance theory and an overview of current perspectives on the theory. In E. Harmon-Jones & J. Mills (Eds.), *Cognitive dissonance: Progress on a pivotal theory in social psychology* (pp. 297–323). American Psychological Association.
- Hirt, E. R. (1990). Do I see only what I expect? Evidence for an expectancy-guided retrieval model. *Journal of Personality and Social Psychology*, 58(6), 937-951.
<https://doi.org/10.1037/0022-3514.58.6.937>
- Jones, S. C. (1973). Self-and interpersonal evaluations: esteem theories versus consistency theories. *Psychological Bulletin*, 79(3), 185-199.
<https://doi.org/10.1037/h0033957>
- Klass, E. T. (1978). Psychological effects of immoral actions: The experimental evidence. *Psychological Bulletin* 85(4), 756-771. <https://doi.org/10.1037/0033-2909.85.4.756>
- Kouchaki, M., & Gino, F. (2016). Memories of unethical actions become obfuscated over time. *Proceedings of the National Academy of Sciences of the United States of America*, 113(22), 6166–6171. <https://doi.org/10.1073/pnas.1523586113>
- Krueger, J. (2003). Return of the ego—Self-referent information as a filter for social prediction: Comment on Karniol (2003). *Psychological Review*, 110(3), 585-590.
<https://doi.org/10.1037/0033-295X.110.3.585>

- Leippe, M. R., & Eisenstadt, D. (1994). Generalization of dissonance reduction: Decreasing prejudice through induced compliance. *Journal of Personality and Social Psychology*, 67(3), 395-413. doi: 0.1037/0022-3514.67.3.395
- Levine, L. J., Prohaska, V., Burgess, S. L., Rice, J. A., & Laulhere, T. M. (2001). Remembering past emotions: The role of current appraisals. *Cognition & Emotion*, 15(4), 393-417. <https://doi.org/10.1037/0022-3514.67.3.395>
- Linder, D. E., Cooper, J., & Wicklund, R. A. (1968). Pre-exposure persuasion as a result of commitment to pre-exposure effort. *Journal of Experimental Social Psychology*, 4(4), 470-482. [https://doi.org/10.1016/0022-1031\(68\)90071-1](https://doi.org/10.1016/0022-1031(68)90071-1)
- Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Process*, 65(3), 272–292. <https://doi.org/10.1006/obhd.1996.0028>
- Mather, M., & Johnson, M. K. (2000). Choice-supportive source monitoring: Do our decisions seem better to us as we age? *Psychology and Aging*, 15(4), 596-606. <https://doi.org/10.1037/0882-7974.15.4.596>
- North, R.J. & Swann, W. B. (2009) Self-verification 360°: Illuminating the light and dark sides. *Self and Identity*, 8(2-3), 131-146. <https://doi.org/10.1080/15298860802501516>
- Peterson, Z. D., & Muehlenhard, C. L. (2004). Was it rape? The function of women's rape myth acceptance and definitions of sex in labeling their own experiences. *Sex Roles*, 51(3), 129-144. <https://doi.org/10.1023/B:SERS.0000037758.95376.00>

- Peterson, Z. D., & Muehlenhard, C. L. (2011). A match-and-motivation model of how women label their nonconsensual sexual experiences. *Psychology of Women Quarterly, 35*(4), 558-570. <https://doi.org/10.1177/0361684311410210>
- Rodriguez, D. N., & Strange, D. (2014). Dissonance-induced false memories: Evidence from a free-choice paradigm. *Journal of Cognitive Psychology, 26*(5), 571-579. <https://doi.org/10.1080/20445911.2014.925459>
- Rodriguez, D. N., & Strange, D. (2015). False memories for dissonance inducing events. *Memory, 23*(2), 203-212. <https://doi.org/10.1080/09658211.2014.881501>
- Ross, M. (1989). Relation of implicit theories to the construction of personal histories. *Psychological Review, 96*(2), 341-357. <https://doi.org/10.1037/0033-295X.96.2.341>
- Ross, M., McFarland, C., Conway, M., & Zanna, M. P. (1983). Reciprocal relation between attitudes and behavior recall: Committing people to newly formed attitudes. *Journal of Personality and Social Psychology, 45*(2), 257-267. <https://doi.org/10.1037/0022-3514.45.2.257>
- Sanitioso, R., Kunda, Z., & Fong, G. T. (1990). Motivated recruitment of autobiographical memories. *Journal of Personality and Social Psychology, 59*(2), 229-241. <https://doi.org/10.1037/0022-3514.59.2.229>
- Scheier, M. F., & Carver, C. S. (1980). Private and public self-attention, resistance to change, and dissonance reduction. *Journal of Personality and Social Psychology, 39*(3), 390-405. <https://doi.org/10.1037/0022-3514.39.3.390>

- Schwartz, M. D., & Leggett, M. S. (1999). Bad dates or emotional trauma? The aftermath of campus sexual assault. *Violence Against Women, 5*(3), 251-271.
<https://doi.org/10.1177/10778019922181211>
- Shrauger, J. S. (1975). Responses to evaluation as a function of initial self-perceptions. *Psychological Bulletin, 82*(4), 581-596. <https://doi.org/10.1037/h0076791>
- Sedikides, C. (2003). On the status of self in social perception: Comment on Karniol (2003). *Psychological Review, 110*(3), 591-594. <https://doi.org/10.1037/0033-295X.110.3.591>
- Sedikides, C., & Green, J. D. (2000). On the self-protective nature of inconsistency-negativity management: Using the person memory paradigm to examine self-referent memory. *Journal of Personality and Social Psychology, 79*(6), 906-922.
<https://doi.org/10.1037/0022-3514.79.6.906>
- Sedikides, C., & Green, J. D. (2004). What I don't recall can't hurt me: Information negativity versus information inconsistency as determinants of memorial self-defense. *Social Cognition, 22*(1), 4-29. <https://doi.org/10.1521/soco.22.1.4.30987>
- Sedikides, C., & Green, J. D. (2009). Memory as a self-protective mechanism. *Social and Personality Psychology Compass, 3*(6), 1055-1068.
<https://doi.org/10.1111/j.1751-9004.2009.00220.x>
- Sedikides, C., & Gregg, A. P. (2003). Portraits of the self. In M. A. Hogg & J. Cooper (Eds.), *Sage handbook of social psychology* (pp. 110-138). Sage.
- Shu, L. L., & Gino, F. (2012). Sweeping dishonesty under the rug: how unethical actions lead to forgetting of moral rules. *Journal of Personality and Social Psychology, 102*(6), 1164-1177. <https://doi.org/10.1037/a0028381>

- Shu, L. L., Gino, F., & Bazerman, M. H. (2011). Dishonest deed, clear conscience: When cheating leads to moral disengagement and motivated forgetting. *Personality and Social Psychology Bulletin*, 37(3), 330-349.
<https://doi.org/10.1177/0146167211398138>
- Stanley, M. L., & De Brigard, F. (2019). Moral memories and the belief in the good self. *Current Directions in Psychological Science*, 28(4), 387–391.
<https://doi.org/10.1177/0963721419847990>
- Stone, J. (1994). *Self-consistency vs. self-enhancement in the performance expectancy paradigm: A meta-analytic review*. Unpublished Manuscript, Princeton University, Princeton, NJ.
- Stone, J. (2009). The power of the self-consistency motive in social life. In M. H. Gonzales, C. Tavis, & J. Aronson (Eds.), *The scientists and the humanist: A festschrift in honor of Elliot Aronson* (pp. 133-158). Psychology Press.
- Stone, J., Aronson, E., Crain, A. L., Winslow, M. P., & Fried, C. B. (1994). Inducing hypocrisy as a means of encouraging young adults to use condoms. *Personality and Social Psychology Bulletin*, 20(1), 116-128.
<https://doi.org/10.1177/0146167294201012>
- Stone, J., & Cooper, J. (2001). A self-standards model of cognitive dissonance. *Journal of Experimental Social Psychology*, 37(3), 228-243.
<https://doi.org/10.1006/jesp.2000.1446>

- Stone, J., & Focella, E. (2011). Postdecisional self-enhancement and self-protection: The role of the self in cognitive dissonance processes. In M. D. Alicke & C. Sedikides (Eds.), *Handbook of self-enhancement and self-protection* (pp. 192–210). Guilford.
- Tavris, C., & Aronson, E. (2008). *Mistakes were made (but not by me): Why we justify foolish beliefs, bad decisions, and hurtful acts*. Houghton Mifflin Harcourt.
- Thibodeau, R., & Aronson, E. (1992). Taking a closer look: Reasserting the role of the self-concept in dissonance theory. *Personality and Social Psychology Bulletin*, *18*(5), 591-602. <https://doi.org/10.1177/0146167292185010>
- Villalobos, J. G., Davis, D., & Leo, R. A. (2016). His story, her story: Sexual miscommunication, motivated remembering, and intoxication as pathways to honest false testimony regarding sexual consent. In R. Burnett (Ed.), *Vilified: Wrongful allegations of person abuse*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198723301.003.0010>
- Voisin, D., Stone, J., & Becker, M. (2013). The impact of the antitobacco norm on the selected mode of cognitive dissonance reduction. *Journal of Applied Social Psychology*, *43*(1), 57-67. <https://doi.org/10.1111/j.1559-1816.2012.00981.x>
- Walster, E. (1964). The temporal sequence of post-decision processes. In L. Festinger (Ed.), *Conflict, decision, and dissonance* (pp. 112-129). Stanford University Press.
- Wicklund, R. A., & Brehm, J. W. (1976). *Perspectives on cognitive dissonance*. Erlbaum.

- Wilson, L. C., & Miller, K. E. (2016). Meta-analysis of the prevalence of unacknowledged rape. *Trauma, Violence, & Abuse, 17*(2), 149-159.
<https://doi.org/10.1177/1524838015576391>
- Wilson, L. C., Miller, K. E., Leheney, E. K., Ballman, A. D., & Scarpa, A. (2017). Examining the psychological effect of rape acknowledgment: the interaction of acknowledgment status and ambivalent sexism. *Journal of Clinical Psychology, 73*(7), 864-878. <https://doi.org/10.1002/jclp.22379>
- Yamawaki, N. (2009). The role of rape myth acceptance and belief in a just world on victim blame attribution: A study in Japan. *Psychologia: An International Journal of Psychological Sciences, 52*(3), 163-174.
<https://doi.org/10.2117/psysoc.2009.163>

Table 1

Means and standard deviations of each dependent measure for each group

Measurement	Partner Assigned		Partner Chosen	
	Positive Consequences (<i>n</i> = 39)	Negative Consequences (<i>n</i> = 41)	Positive Consequences (<i>n</i> = 41)	Negative Consequences (<i>n</i> = 39)
Participant Choice (7 = Complete Choice)	2.03 (2.50)	1.29 (2.15)	5.41 (1.73)	4.97 (2.48)
Experimenter Influence (7 = a lot of influence)	5.28 (2.26)	5.51 (2.10)	4.80 (1.83)	4.33 (2.14)
Liking of Partner (7 = Liked a lot)	4.85 (1.58)	3.85 (1.61)	4.49 (1.16)	3.17 (1.10)
Fairness of Partner (7 = Completely Fair)	5.90 (1.62)	2.61 (1.84)	6.00 (1.45)	2.00 (1.62)

Table 2

Correlations between all dependent measures for Study 1

	Experimenter Influence	Liking of Partner	Fairness of Partner
Participant Choice	-0.26*	0.11	0.12
Experimenter Influence	-	0.09	0.07
Liking of Partner	-	-	0.59**
Fairness of Partner	-	-	-

* Indicates $p < .01$, ** indicates $p < .001$

Table 3

Timing measurements in seconds

Timing Metric	Mean	Median	95% CI	IQR	SD	Range
Time spent reading first instruction page (all conditions)	23.64	16.45	20.27-27.02	22.98	33.16	0.17-356.89
Time spent reading second instruction page (choice conditions)	22.07	19.51	17.93-28.554	10.43	18.1	2.34-168.07
Time spent reading personalizing statements (choice conditions)	19.47	16.77	16.46-22.44	10.71	12.5	3.01-72.47
Time spent reading second instruction page (assigned conditions)	15.98	12.07	13.55 - 19.41	10.98	15.82	1.27-146.29
Time spent reading personalizing statements (assigned conditions)	20.16	15.13	13.83-17.57	13.51	65.77	0.94-1049.86

Table 4

Means and standard deviations of each dependent measure for each group

Measurement	Partner Assigned		Partner Chosen	
	Positive Consequences (<i>n</i> = 125)	Negative Consequences (<i>n</i> = 129)	Positive Consequences (<i>n</i> = 63)	Negative Consequences (<i>n</i> = 56)
Participant Choice (7 = Complete Choice)	2.21 (2.77)	1.88 (2.56)	4.94 (1.91)	4.64 (2.08)
Experimenter Influence (7 = a lot of influence)	5.23 (2.33)	5.32 (2.22)	4.90 (2.02)	4.98 (1.93)
Liking of Partner (7 = Liked a lot)	4.69 (1.86)	3.24 (2.20)	4.83 (1.47)	2.60 (2.24)
Fairness of Partner (7 = Completely Fair)	6.11 (1.42)	2.78 (2.53)	6.39 (1.06)	2.14 (2.36)

Table 5

Correlations between all dependent measures for Study 2

	Experimenter Influence	Liking of Partner	Fairness of Partner
Participant Choice	-0.05	0.39*	0.28*
Experimenter Influence	-	-0.02	0.02
Liking of Partner	-	-	0.71*
Fairness of Partner	-	-	-

* indicates $p < .001$

Figure 1

Marginal interaction of partner and consequence conditions on liking of game partner with 95% confidence intervals

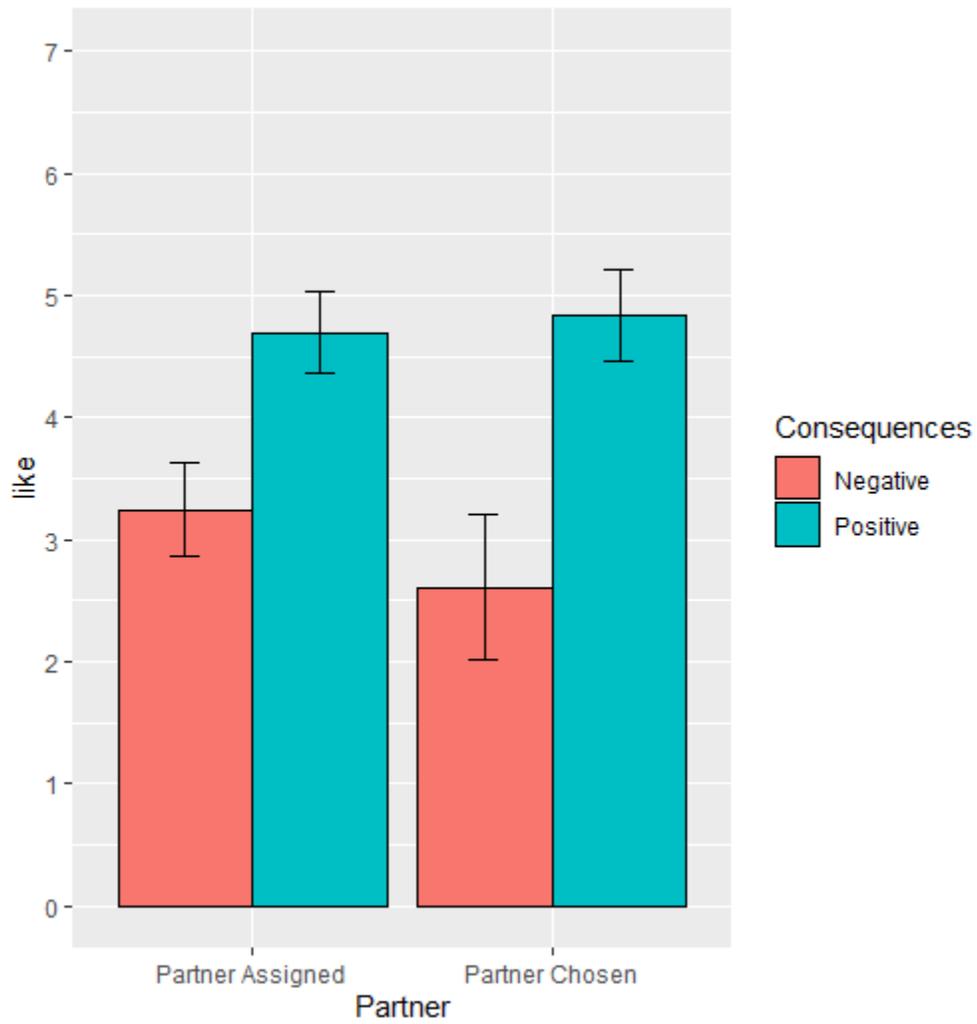
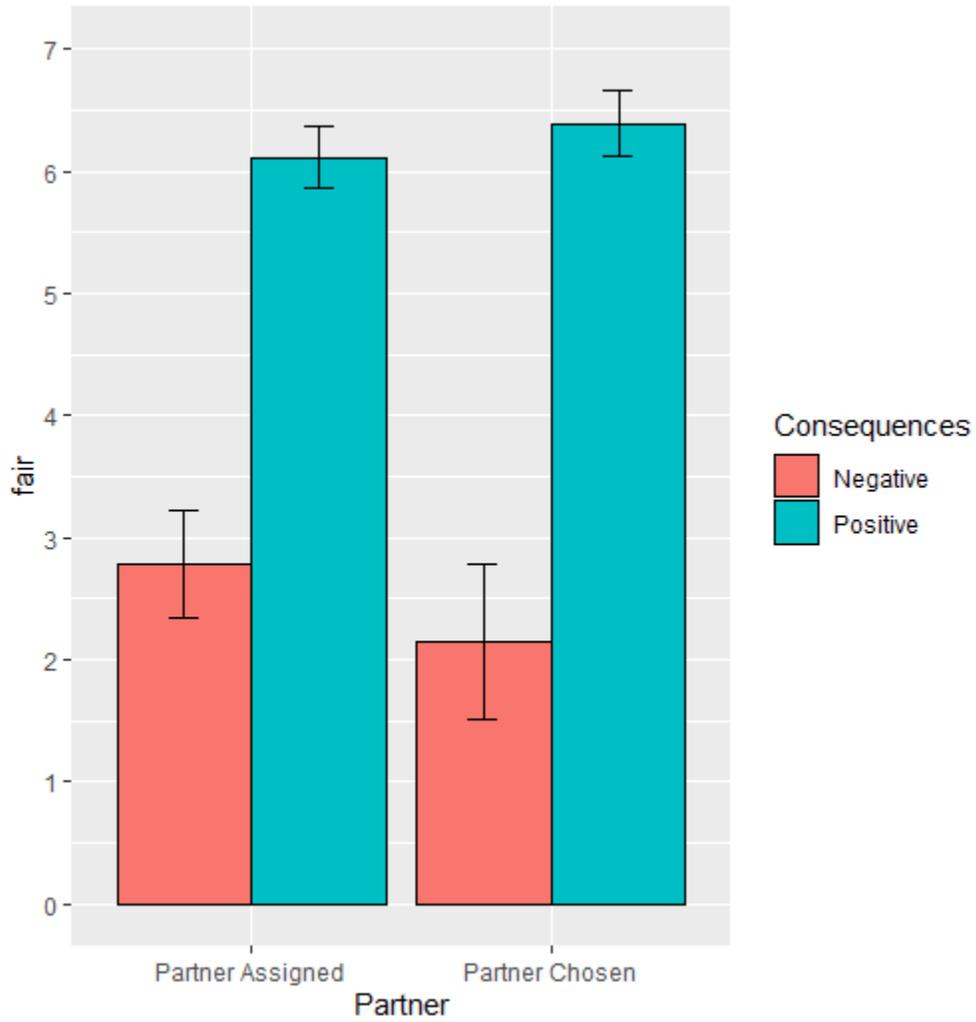


Figure 2

Interaction of partner and consequence conditions on fairness of game partner with 95% confidence intervals



Appendix A

Script/Protocol for Research Assistants

After the participant enters, say hello, ask them to mute their camera and microphone if they haven't already, and let them know you are just waiting for the last participant to show up:

RA: "Hi __, we are just waiting on one other person, but if they are not here in the next minute or so, we will get started without them."

After about 1 minute after the supposed start time:

RA: "Ok, the last person isn't here, so we will get going without them. First, let me tell you about the study."

We are interested in financial behavior, generosity, and fairness in the internet age. A lot of deal making used to take place face to face, but many people use money over the internet now, so we are interested in non face to face financial interactions, especially given our circumstances with the coronavirus.

Ask if anyone has any questions. Nobody ever does, but we want to give the appearance of an audience.

RA: "I am going to send all of you a link now... [sends link. This is the draft you got started already] When you get it, please click the link. The first page will ask you for your ID, which I will assign you."

Charlie, you are 178, Jessica, you are 366, and __ you are [real ID number] I've also written these in the chat in case you don't remember.

Please enter the ID and advance the page once to the consent page.

Here you need to wait a few seconds for participants to get the email and enter their ID on a slider. This is a good time to set up the breakout rooms. Remember to assign Charlie and Jessica to the "proposer room", and the real participant to the "decider" room. You can set up the rooms, but you should not click "Assign" until it is actually time for them to move.

"The main part of the experiment is the ultimatum game, which is played between two people, a proposer and a decider. The proposer proposes how to divide 10 tickets with the decider. Every ticket enters you into a drawing for a \$100 amazon gift card. If the decider rejects this offer, neither gets anything. If the decider accepts, both parties receive what the proposer offered. So, if the proposer offers the decider 4 tickets and 6 for himself, the decider gets 4 and he gets 6 if the decider says yes, but both get nothing if the decider says no. Is everyone clear on this? I am now going to invite you to breakout rooms. The rooms will be named after the role you will play in the ultimatum game. Please join these rooms, read the consent page, and I will join each of your rooms shortly. Please DO NOT advance past the consent page until I join you. I will go into the proposer room first, and then the decider room."

The first RA can open the breakout rooms now. The second RA should accept the invites into the breakout room and leave. The second RA is finished at this point.

Remember that IDs starting with 1 and 2 have the participants assigned to Charlie, but IDs starting with 3 and 4 you'll need to induce participants to choose Charlie.

After the consent page, the participants will arrive at a page asking them to answer whether they are proposers or deciders, and to enter a codename. You will want to walk them through this part.

RA: "After you advance past the consent page, you'll see two questions. One asking you what your role in the game, the other is a codename or real name, which is how other participants will see you. Go ahead and enter that. On the the next page, you will be asked to write a short introduction about yourself to your partner. After this, you'll be presented with partner options."

This is where you will change what you say depending on the condition:

RA in Choice conditions (3 & 4): "Normally, there would be two people here. However, the other person did not show up, so in these situations we have you choose your partner. This actually happens quite a bit, and most people wind up choosing female partners because they tend to be more generous in this game. However, so many people have already chosen female proposers that we actually need more male proposers. So the choice is completely up to you, but we would appreciate it if you chose the male proposer. Whichever partner you do not choose will participate in a backup task for equivalent credit."

RA in Assignment conditions (1 & 2): "Normally, there would be two people here. However, the other person did not show up, so in these situations we just assign you your partner. This actually happens quite a bit. Women tend to be more generous in this game, but we have to assign you to the male proposer because we already have a lot of data on female proposers. The female proposer will participate in a backup task for equivalent credit."

Regardless of the participant's decision:

RA: "Ok great. Go ahead and get started. I will be waiting in the main room, just join me there when you're done."

After the participant alerts the RA they have finished the survey, the RA will administer standard debriefing.

Fill in any relevant comments on the session sheet. Then you're done!

Appendix B

Personalizing Statement Options

Personalizing Statement from Charlie (Edward in Study 2)

“My name is Charlie. I'm around 5'9" and I have a beard. I also have a dog. I am a junior at UNR. I basically want to get this over with and get my credit.”

Personalizing Statement from Jessica

“Hi, I'm Jessica. I'm originally from Rochester, NY and I'm 21 years old. I used to do acting in a theatre group, but I haven't done that for a while now. I enjoy sports, and I'm studying political science because I hope to be a lawyer someday. Truthfully, I don't really know what to write for the rest of this, but thanks for reading!”

Appendix C

Main Dependent Measures

1. How much choice did you feel you had over who your partner was?

No Choice

Complete Choice

0 1 2 3 4 5 6 7

2. How much influence did the experimenter have over your choice of game partner?

No Influence

A lot of Influence

0 1 2 3 4 5 6 7

Exploratory Dependent Measures

3. How much did you like your partner?

Not at All

Very Much

0 1 2 3 4 5 6 7

4. How fair was your partner?

Completely Unfair

Completely Fair

0 1 2 3 4 5 6 7

Appendix D

Filler items

1. In general, how financially conservative are you?

Not at All Conservative

Very Conservative

0 1 2 3 4 5 6 7

2. How often do you make financial transactions online?

Never

Very Frequently

0 1 2 3 4 5 6 7

3. How often do you donate to charity online?

Never

Very Frequently

0 1 2 3 4 5 6 7

4. In general, are you more financially conservative when shopping online compared to shopping in person?

Less Conservative

More Conservative

0 1 2 3 4 5 6 7

5. What commerce sites do you usually shop on, if you shop online?

- Amazon
- Walmart
- Target
- Ebay
- Craig's list
- Other

6. Would you say you frequently buy expensive items (\$100+) online?

Never

Very Frequently

0 1 2 3 4 5 6 7

7. How frequently do you shop online when buying something for another person?

Never

Very Frequently

0 1 2 3 4 5 6 7

8. How frequently are you in a situation where you barter (make an offer, counteroffer, etc.) with another person?

Never

Very Frequently

0 1 2 3 4 5 6 7

9. Would you say you are more likely to be generous during in person interactions or online interactions?

- In person
- Online
- Equally likely

10. Would you say you are more likely to barter during in person interactions or online interactions?

- In person
- Online
- Equally likely

Appendix E

Demographic Questions

1. What is your gender?
 - Male
 - Female
 - Other (Please Specify)

2. What is your sexual orientation?
 - Heterosexual
 - Homosexual
 - Bisexual
 - Other (Please Specify)

3. What is your age in years?

The response option for this question is a slider from 18-100 to prevent non-numeric characters from being entered.

4. What is your race?
 - Caucasian
 - African American
 - Hispanic
 - Asian
 - Pacific Islander
 - Native American
 - Other (Please Specify)

5. What is your marital status?
 - Single
 - Married
 - Separated
 - Divorced
 - Widowed
 - Other (Please Specify)

6. What is your political orientation?

Very Politically Conservative

Very Politically Liberal

0 1 2 3 4 5 6 7

7. What is your Religious orientation?

Not at all Religious

Very Religious

0 1 2 3 4 5 6 7

Appendix F

Suspicion Check Questions

1. What did you think was the purpose of the experiment?
2. Please tell us about what you thought and felt about your game partner?
3. Before arriving to this experiment, had someone who had also participated previously discussed any details of the experiment with you? Your answer will not affect your credit, but it helps us know what data we should exclude from our analyses.

Yes No
4. If so, what did you hear?

Appendix G

Debriefing Script

Thank you for participating in our study. Before I continue, I need to know, did you believe you were interacting with another person while you were playing ultimatum game?

[continue regardless of participant's answer]

As you might suspect by now, the study was not intended to examine financial decision making and altruistic behavior over the internet. You were not interacting with another person but rather a computer program that responded to your input choices. The true intention of the study was to test the effects of choice consequence on what people remember about a social interaction. Regardless of the offer your computer partner made to you, you will receive 5 raffle tickets as compensation for the study, which is the amount that everyone who participated has received.

As you might also expect, it is extremely important to the integrity of this research that you not discuss the details of this experiment with anyone. If people enter the study already knowing the details of the experiment, the data will be tainted and unusable to us, and also prevent us from running paid studies again in the future.

Do you have any questions about your participation today?

Thank you again.