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Leslie Ashburn-Nardo
_____
                    Chair

Kathryn Morris
_____

Jane Williams
_____

_____

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_____

Approved by: _Nicholas Grahame_____   _11/07/2013_____
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COGNITIVE AND TASK PERFORMANCE CONSEQUENCES FOR WOMEN WHO

CONFRONT VS. FAIL TO CONFRONT SEXISM

A Thesis

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ABSTRACT

Gorski, Kimberly M. M.S., Purdue University, December 2013. Cognitive and Task Performance Consequences for Women Who Confront vs. Fail to Confront Sexism. Major Professor: Leslie Ashburn-Nardo.

Women who fail to confront sexism can experience negative intrapersonal consequences, such as greater negative self-directed affect (negself) and greater obsessive thoughts, particularly if they are highly committed to challenging sexism. Female undergraduates (N = 392) were sampled to investigate whether failing to confront past sexism influences future task performance and whether any effects on performance occur through the depletion of cognitive resources. Participants were randomly assigned to recall either confronting or failing to confront past sexism, then completed measures of affect, obsessive thoughts, working memory, and performance. Women who recalled failing to confront were expected to have greater negself and obsessive thoughts related to the situation and lower working memory and performance, and desire to respond to the situation was expected to moderate these effects. As predicted, compared with women who recalled confronting, women who recalled failing to confront reported greater negself. Contrary to predictions, there was no significant effect of confrontation condition on obsessive thoughts, working memory, or performance. However, condition interacted with desire to confront, such that the more women who recalled failing to confront wanted to respond to the situation, the more negself they reported and the lower their

working memory. In addition, for women who recalled confronting, greater desire to respond was associated with higher performance, while desire to respond was unrelated to performance for women who recalled failing to confront. In contrast to predictions, neither obsessive thoughts nor working memory mediated the failure to confront-performance relationship, and there was no evidence of moderated mediation. In sum, although the cognitive variables of obsessive thoughts and working memory did not mediate the effect of failing to confront on performance, the results nevertheless demonstrate the importance of confronting sexism, particularly when one wants to do so, and have important implications for settings like the workplace where women may face discrimination and have to decide whether or not to confront.

CHAPTER 1. INTRODUCTION

Discrimination is alive and well despite the recent election (and re-election) of an

African American president and beliefs in a so-called post-racial America (Kaiser, Drury,

Spalding, Cheryan, & O'Brien, 2009). For stigmatized individuals who are targets of

discrimination, perceptions of discrimination in the workplace can lead to a host of

negative consequences, including negative work attitudes (e.g., job satisfaction,

organizational commitment) and fewer promotions (Ragins & Cornwell, 2001).

Because discrimination persists and is detrimental to those who experience it,

targets of discrimination often wish to address discrimination for reasons such as to

educate the perpetrator or change the perpetrator's beliefs (Hyers, 2007). As a result,

targets can be faced with the decision of whether or not to confront perpetrators of

discrimination. This decision to confront is critical because research has shown that

confronting discrimination can reduce the likelihood of future prejudiced responses

(Czopp, Monteith, & Mark, 2006).

Despite a desire to confront, targets of discrimination often fail to express their

disapproval to the perpetrator fully or fail to address the perpetrator at all (Swim & Hyers,

1999; Woodzicka & LaFrance, 2001). Failure to confront discrimination can lead to

various negative consequences for targets as well; for example, it can suggest a target

condones the discriminatory behavior, which may lead to continued expressions of bias.

Additionally, the target can experience various affective and cognitive effects (Shelton, Richeson, Salvatore, & Hill, 2006).

The present study centers on the cognitive consequences targets face when they either confront or fail to confront perpetrators of discrimination, how these consequences affect future task performance, and the role that wanting to respond to the discrimination plays in predicting these outcomes.

1.1. Background

1.1.1. Discrimination: Prevalence and Forms

Discrimination has become less overt over time but continues to occur, often in the form of so-called everyday prejudice (Swim, Cohen, & Hyers, 1998). Swim, Hyers, Cohen, and Ferguson (2001) gave insight into the prevalence of everyday sexism and the forms it takes using diary studies. Female participants who recorded all incidents of sexism they experienced or observed over a two-week period indicated they witnessed on average about one to two incidents per week directed at women that were considered to be probably or definitely prejudiced. On the other hand, male participants reported observing about one incident per week directed at women. Additionally, both men and women reported that men experienced one incident about every other week. With regard to the characteristics of the incidents, the incidents directed at women were fairly evenly distributed amongst three categories: traditional gender role prejudice and stereotypes (e.g., comments that women possess stereotypic traits or that certain roles are more appropriate for men or women), demeaning or derogatory comments or behaviors (e.g.,

using sexist jokes or negative attitudes towards equality), and sexual objectification (e.g., offensive comments or behaviors of a sexual nature), whereas the incidents directed at men consisted of 80% traditional gender role prejudice and stereotypes and 20% demeaning comments. No incidents of sexual objectification of men were reported. Other studies have supported this evidence regarding the types of discrimination faced by women. For example, Kaiser and Miller (2004) found that female participants asked to report the two most recent instances in which they were discriminated against because of their gender cited traditional gender role stereotypes, demeaning and derogatory comments and behaviors, being ignored in conversations, and being subjected to sexually objectifying incidents such as catcalls.

Similar incidence of discrimination has been found with regard to race and sexual orientation. More specifically, some estimates show incidents of racism occur on average about once every other week (Swim, Hyers, Cohen, Fitzgerald, & Bylsma, 2003). Research on the types of discrimination faced by African Americans shows discrimination takes various forms, ranging from avoidance actions, to rejections in customer service situations, to physical threats and harassment (Feagin, 1991). Reports of discrimination according to sexual orientation have demonstrated that gay, lesbian, and bisexual individuals report experiencing an average of two heterosexist "hassles" per week, defined as comments or behaviors that reflect hostile or denigrating attitudes toward gay men, lesbians, or bisexuals and include jokes, insults, stereotypes, threats of violence, exclusion from events or conversations, hostile treatment, and fear of having one's sexual identity revealed (Swim, Johnston, & Pearson, 2009).

Not surprisingly, "protected" groups (i.e., groups covered under Title VII of the Civil Rights Act of 1964) report experiencing or perceiving greater amounts of discrimination than non-protected groups. For example, in Swim et al.'s (2001) studies, men reported significantly fewer sexist incidents directed at women than women reported, but there were no significant differences in the number of sexist incidents both women and men reported as being directed at men. Also, specific to a workplace setting, a study using data from the 2005 Equal Employment Opportunity Commission (EEOC) 40th Anniversary Civil Rights in the Workplace survey conducted by the Gallup Organization found that women were about 12.5 times more likely than men to perceive sex discrimination in the workplace. Further, Black employees were 4 times as likely as Whites and Hispanic employees were 3 times as likely as Whites to perceive race or ethnicity-based discrimination (Avery, McKay, & Wilson, 2008). As a whole, this evidence suggests discrimination remains fairly prevalent and manifests in both traditional (overt) and modern (subtle) forms. It is also clear that women and minority groups continue to perceive more discrimination on average than other groups.

1.1.2. Effects of Discrimination

1.1.2.1. Psychological and Physical Outcomes

Experiencing discrimination can result in a range of negative consequences. Among these consequences are negative effects on targets' psychological and physical well-being. In terms of psychological well-being, experiencing a sexist incident can decrease a woman's comfort level. Experiencing more sexist incidents has also been

associated with increased anger, anxiety, and depression and decreased social state self-esteem (Swim et al., 2001). Furthermore, Klonoff, Landrine, and Campbell (2000) found that women who experienced more frequent sexist incidents had significantly greater symptoms of somatization, obsessive-compulsive thoughts and behaviors, and interpersonal sensitivity compared to women who experienced a low frequency of sexist incidents and men, while the number of symptoms did not differ between women who experienced a low frequency of sexist incidents and men. In terms of race, racial discrimination has been shown to be a better predictor of total psychological symptoms, somatization, and anxiety than education, income, age, gender, and generic stressful events for Black individuals (Klonoff, Landrine, & Ullman, 1999). Being excluded from work-related or social interactions because of one's ethnicity has also been shown to be associated with lower life satisfaction and worse health conditions (Schneider, Hitlan, & Radhakrishnan, 2000). A 2009 review by Pascoe and Smart Richman further illustrates that the adverse health effects of discrimination are well-documented, as the authors found that perceived discrimination was significantly associated with poorer mental and physical health outcomes, decreased participation in healthy behaviors and/or increased participation in unhealthy behaviors, and increases in various stress responses.

1.1.2.2. Work-Related Outcomes

The present study investigated the effects of failing to confront discrimination on task performance with the intent of applying the findings to the workplace. Therefore, it is important to conceive of how discrimination can affect employees' work-related attitudes and outcomes, particularly because work attitudes can affect performance. One

work-related attitude that can be affected by discrimination is the perception of

organizational justice, or fairness in the workplace (Greenberg, 1987). Research related to

organizational justice shows that perceptions of discrimination can negatively affect

employees' perceptions of various types of need fulfillment, including economic need

fulfillment (e.g., pay and benefits and equity of outcomes), interpersonal-related need

fulfillment (e.g., dignity, respect shown to employees), and deontic-based need

fulfillment (e.g., perceptions of ethical behavior and practice; Goldman, Slaughter,

Schmit, Wiley, & Brooks, 2008). These findings are important because fulfillment of

these needs has been found to be positively associated with job satisfaction and

organizational commitment (Goldman et al., 2008). Moreover, a review by Colquitt,

Conlon, Wesson, Porter, and Ng (2001) found that all three components of organizational

justice positively predicted trust.

In addition to organizational justice, various other work attitudes and behaviors

can be affected by perceived discrimination. For example, more perceived workplace

discrimination has been associated with more negative job and career attitudes, including

job satisfaction, organizational commitment, turnover intentions, organization-based self-

esteem, satisfaction with opportunities for promotion, and career commitment for gay

employees (Ragins & Cornwell, 2001). Another study found that the more employees

perceived racial and gender discrimination in organizational policies and practices and

from supervisors and coworkers, the less organizational commitment and job satisfaction

they reported, and perceived supervisor and coworker discrimination were also associated

with fewer organizational citizenship behaviors (Ensher, Grant-Vallone, & Donaldson,

2001). In addition, Shaffer, Joplin, Bell, Lau, and Oguz (2000) found that gender

harassment (e.g., verbal and nonverbal behaviors that are hostile, insult, or degrade women) was a significant positive predictor of turnover intentions and unwanted sexual attention had a negative effect on job satisfaction. Sexual harassment has also been associated with increased work withdrawal (e.g., absenteeism, tardiness, avoidance of work environment and tasks) and job withdrawal (e.g., organizational avoidance related to attempts to leave the organization; Buchanan & Fitzgerald, 2008).

The effects of discrimination on the performance of work teams have also been examined. Raver and Gelfand (2005) found that higher ambient sexual harassment (e.g., harassment directed towards women committed by supervisors or co-workers in the last 24 months, including being treated negatively because of one's sex, being repeatedly told sexual stories or jokes, and experiencing others imply faster promotions or better treatment in exchange for being sexually cooperative) was significantly and positively associated with relationship conflict (e.g., rivalry or animosity between group members) and task conflict (e.g., disagreements about how a task should be performed). In addition, ambient sexual hostility, a type of ambient sexual harassment defined as insulting and explicitly sexual verbal and nonverbal behaviors, was significantly negatively related to both team cohesion and team financial performance. These results suggest that if members of work teams are experiencing discrimination, the team can be negatively affected in various ways, including performance. This research is especially important because work teams are increasingly prevalent in organizations today.

In sum, although not many studies have investigated the link between discrimination and task performance directly, understanding how discrimination influences work attitudes is important because many work attitudes can affect

performance. As a case in point, Goldman et al. (2008) found that perceptions of discrimination were linked to organizational justice, and organizational justice influenced job satisfaction and organizational commitment. These attitudes can consequently affect performance, as the positive association between job satisfaction and performance is well-established (see Judge, Thoresen, Bono, & Patton, 2001 for a review). Organizational commitment has also been positively associated with performance (e.g., Riketta, 2008). Other consequences of discrimination such as increased withdrawal behaviors and turnover intentions have the potential to influence performance because an employee who is absent more frequently or wishes to leave the organization could likely decrease their effort and become less productive. In all, this research implies that discrimination can affect performance both directly and indirectly through its effects on attitudes. While this section centered on the effects of discrimination on the individual employee level, the next section outlines how discrimination can affect an organization in a broader sense and explains why organizations should care about discrimination.

1.1.3. Why Organizations Should Care About Discrimination

Records of discrimination charges filed with the EEOC show that discrimination is a frequent occurrence in organizations, as a total of 99,412 individual charges were filed in the year 2012 under the statutes enforced by the EEOC (i.e., Title VII of the Civil Rights Act of 1964, Americans with Disabilities Act of 1990, Equal Pay Act of 1963, Age Discrimination in Employment Act of 1967, and Genetic Information Nondiscrimination Act of 2008; U.S. Equal Employment Opportunity Commission,

2012). Discrimination in the workplace is a serious problem for organizations because of its effects on individual employees, work teams, and the organization as a whole.

As discussed in the previous section, discrimination can negatively affect an individual's psychological and physical health and work attitudes and outcomes. Moreover, discrimination can reduce team cohesiveness and performance. All of these consequences for employees and teams have the potential to ultimately affect the organization through reducing productivity and the bottom line. For the organization as a whole, discrimination can also create legal compliance issues, which can be financially costly and tarnish the organization's public image. Public image is vital because a positive corporate image has been linked to a more positive reputation (Markwick & Fill, 1997), and a good reputation has been linked with sustained profits over time (Roberts & Dowling, 2002). Reputation in the way of how an organization conducts business ethically is also a component of corporate social responsibility (CSR), which has been shown to be related to a firm's reputation and attractiveness as an employer, and could give a firm a competitive advantage (Turban & Greening, 1996). Additionally, CSR has been linked to corporate financial performance (Orlitzky, Schmidt, & Rynes, 2003) as well as customer satisfaction and firm market value (Luo & Bhattacharya, 2006).

Furthermore, discrimination can prevent organizational diversity goals by creating a work environment that is uninviting to target group members. An environment that condones discrimination is a problem because it can lessen a target's sense of belonging, which could subsequently decrease performance (Walton & Cohen, 2007). Additionally, an employee who perceives that discrimination is tolerated in the workplace may feel less supported by his or her supervisors, co-workers, or the organization. A supportive

organization, such as one with more supportive organizational policies and practices, has been associated with less perceived discrimination (Ragins & Cornwell, 2001). Maintaining a high level of perceived organizational support (POS), or an employee's global beliefs regarding the extent to which an organization values their contributions and is concerned with their well-being (Eisenberger, Huntington, Hutchison, & Sowa, 1986), is important because research shows POS is positively associated with organizational commitment, job involvement, performance, and desire to remain with the organization, and negatively associated with turnover intentions, actual turnover, and other withdrawal behaviors (Rhoades & Eisenberger, 2002). These outcomes of POS imply that an unsupportive work environment can drive away employees from diverse backgrounds, preventing the organization from maintaining a productive and diverse workforce.

1.1.4. Responding to Discrimination

1.1.4.1. Organization-Level Responses

Because the aforementioned negative consequences can arise when discrimination is perceived in the workplace, organizations can implement a variety of practices in attempts to reduce it. Diversity training, organizational policies, and mentoring are examples of such practices (Wentling & Palma-Rivas, 1998). Diversity training involves increasing awareness and educating employees about cultural differences and the importance of valuing diversity in the workplace. Diversity training can also help build skills for how to work with diverse groups of people. In addition, implementing organizational policies that ensure equity across groups, such as in recruitment practices,

is another strategy. Further, providing mentoring or career development programs can help ensure equity in opportunities for all employees and foster encouragement and trust (Wentling & Palma-Rivas, 1998).

1.1.4.2. Individual-Level Responses

Despite efforts by organizations to reduce discrimination, it is unrealistic to assume all discrimination can be eliminated by organizational policies and practices alone. Also, given that discrimination often takes more subtle forms (e.g., chilly climate, everyday sexism), employees frequently must deal with it directly themselves and decide whether or not to respond to it. Targets can choose to simply ignore it, but that may signal to the perpetrator that the target condones the discriminatory treatment, which could lead to the behavior continuing and possibly becoming more frequent or severe. While intentionally ignoring treatment perceived as harmful or derogatory to one's self or group does not always intuitively make sense, as explained later in this section, there are various reasons why a target may end up failing to respond to a perpetrator of discrimination.

Other response options for targets are to report the perpetrator to a manager or other authority figure, file a lawsuit, or file a charge with the EEOC. Many individuals are engaging in the latter, as an examination of the EEOC data shows individual charges under Title VII have generally raised over the last 15 years (U.S. Equal Employment Opportunity Commission, 2012). Alternatively, depending on the circumstances, a target may choose to act and make it clear to the perpetrator that his or her behavior will not be tolerated. The remainder of this section discusses this particular individual response to

discrimination, labeled confrontation. Confrontation will first be defined, and then the likelihood and forms of confrontation will be reviewed, followed by the reasons targets may not confront and the consequences of not confronting.

1.1.4.2.1. Confrontation

Confrontation often conjures up images of an intense or even hostile lashing out against another individual, but it does not have to be very intense. Confrontation is defined in the social psychology literature as "verbally or nonverbally expressing one's dissatisfaction with prejudicial and discriminatory treatment to the person who is responsible for the remark or behavior" (Shelton et al., 2006, p. 67). Hence, confrontation can range from an eye rolling to a heated diatribe.

Research demonstrates that targets of discrimination do in fact want to respond to it by confronting the perpetrator. For example, Hyers (2007) found that targets of discrimination want to respond in order to educate the perpetrator and attempt to change their beliefs, or for self-validation (e.g., to release anger or show defiance). Confrontation is an important tool for use against discrimination, as research shows confrontation can influence perpetrators' thoughts and feelings (e.g., arouse guilt and negative self-directed affect; Czopp & Monteith, 2003), reduce future stereotypic responses from occurring, and decrease prejudiced attitudes (Czopp et al., 2006).

1.1.4.2.1.1. Likelihood and Types of Confrontation

Targets report a desire to respond to perpetrators of discrimination, but how often do they actually follow through, and how do they respond? Swim and Hyers (1999)

investigated targets' reactions to sexism and found that although 45% of the female participants publicly confronted a male confederate who made sexist comments, when considering the type of confrontation, only 16% confronted him with direct verbal comments. The most frequent type of confrontation, performed by 25% of the participants, was questioning the confederate (e.g., asking the confederate to repeat himself or asking rhetorical questions). The second most frequent type was a task-related response (e.g., giving an explanation to contradict the sexist suggestion), performed by 20% of the participants. Using humor or sarcasm (e.g., making an anti-male, sexist comment) and making surprised exclamations (e.g., "Oh my God. I can't believe you said that!") each made up 16% of confrontation reactions, while grumbling made up 2%.

Although the majority of participants did not publically confront the confederate, many held a variety of private responses reflecting their disagreement with the sexist comment. More specifically, 43% of the participants in the sexist condition mentioned at least one type of confrontational response in the thoughts and feelings they wrote down during the study. These included responses they made during the study, would like to have made, or would not likely have seriously engaged in (e.g., killing the confederate). Arguing with the confederate and engaging in a violent action such as hitting him were the most common responses cited. In addition, of those who did not publicly respond, 75% privately reported that they saw the confederate as prejudiced and 91% privately held negative thoughts and feelings about him (Swim & Hyers, 1999).

A second study by Swim and Hyers (1999) that used a different sample investigated women's overconfidence in predicting the likelihood they would respond to sexist comments. Results showed that female participants were less likely to report that

they would confront when they imagined a scenario in which a male made sexist comments and when confronting was too risky, when they would be perceived as impolite, and when there were other women present compared to if they were the only woman in the group. Participants also indicated the likelihood that they would definitely give a particular response and these predictions were compared to the actual responses in Study 1. Forty-seven percent of participants in Study 2 anticipated definitely questioning the sexist response, whereas only 25% actually questioned such a response in Study 1. Furthermore, 81% anticipated definitely giving at least one confrontational response, while only 45% actually did so in Study 1.

In another study of anticipated versus actual responses to sexism, Woodzicka and LaFrance (2001) found that when asked to indicate how they thought they would react to an interviewer who asked sexually harassing questions, 62% of female participants indicated they would confront the harasser by either asking him why he asked the question or telling him the question was inappropriate. Additionally, 28% reported they would leave the interview or rudely confront the interviewer, and 68% said they would refuse to answer at least one of the harassing questions. The authors then investigated female participants' responses to sexually harassing questions in a laboratory experiment with a male confederate as the interviewer. Results demonstrated that none of the participants refused to answer any of the questions. Fifty-two percent ignored the harassment by answering the question as they were asked and 36% politely asked the interviewer why he asked the question, but 80% of these participants asked this at the end of the interview, not immediately after the question was asked. Moreover, not a single participant confronted the interviewer in a negative manner, and not one left the interview.

Although Swim and Hyers (1999) and Woodzicka and LaFrance (2001) did not use the same sample to compare anticipated versus actual confrontational responses, their results nevertheless suggest that although targets of discrimination do not always actively and publicly confront perpetrators of discrimination, they often wish to do so and privately hold negative views of the perpetrator. These results also suggest that when actually in a discriminatory situation, the costs of confronting may become more salient and can hinder confrontational responses.

1.1.4.2.1.2. Reasons for Not Confronting

The previous section described targets' desire to confront discrimination, yet it is evident that targets often do not react as they intend, or sometimes do not confront at all. One possible explanation for this hesitancy to confront is that individuals weigh the costs and benefits of confronting before taking action to confront. The Confronting Prejudiced Responses (CPR) Model is one framework for understanding the process through which individuals decide to confront discrimination (Ashburn-Nardo, Morris, & Goodwin, 2008). The CPR Model helps explain the factors that predict the likelihood individuals who experience or observe discrimination will confront it, as well as the challenges involved in the decision to confront. It is proposed that individuals face at least five hurdles to confronting discrimination: (1) interpreting an event as discrimination, (2) determining whether the event is an emergency, (3) deciding whether to take responsibility to confront, (4) deciding how to confront, and (5) deciding whether to take action based on the assumed costs versus benefits of confronting (Ashburn-Nardo et al.,

2008). As can be inferred from the CPR Model, the decision to confront discrimination is no simple task, and this decision is further muddled by its associated risks.

One of the costs of confronting that targets of discrimination must consider is the social costs. Individuals contemplating confrontation may perceive confrontation as socially undesirable or that it may make them disliked among others. This perception is not unfounded, as stigmatized group members who stand up to discrimination are often labeled complainers. Kaiser and Miller (2001) found that an African American who attributed a failure to discrimination was evaluated less favorably and seen as more of a complainer than an African American who attributed a failure to his answer quality. These results held regardless of the certainty that discrimination occurred. Furthermore, the authors found that when the target blamed failure on an external factor other than discrimination (e.g., difficulty of the test), he was not seen unfavorably or as a complainer. Apparently, the attribution of a failure to an external source was not enough in itself to elicit negative impressions from others. Shelton and Stewart (2004) found a similar effect for gender, as the more often women confronted a male interviewer who asked sexist questions, the more the women were seen as complainers by a male participant who acted as the interviewer. Conversely, women who confronted a male interviewer who asked offensive but not sexist questions did not influence the male interviewer's perceptions of them. It is clear from these examples that targets that confront discrimination are often viewed unfavorably. Generalizing these results to the workplace, perceptions of high social costs of confronting (e.g., fear of losing one's job, fear of unfavorable performance reviews, or fear of loss of promotion by confronting a

supervisor) can potentially serve to impede targets from confronting discrimination in organizations (Ashburn-Nardo, Blanchar, Petersson, Morris, & Goodwin, 2013).

Another reason targets of discrimination may not follow through and confront is that they have difficulty gauging the power or intensity of the situation when an opportunity to confront actually arises. As Woodzicka and LaFrance (2001) found, one explanation could be increased fear, as 40% of targets were significantly more likely to report feeling afraid when actually facing sexism compared to 2% when imagining confronting. Those who actually were faced with the sexually harassing situation also felt less anger. Furthermore, as levels of fear increased, the likelihood of confronting decreased significantly. Similarly, targets of discrimination may view confrontation as threatening. As a result, in the case of sexism, for example, viewing confronting as more threatening can make a female target less likely to report they had confronted recent discrimination they faced (Kaiser & Miller, 2004).

1.1.4.2.1.3. Effects of Not Confronting

Just as confronting discrimination can be costly—or at least potentially costly—to a target, so too can failing to confront. As mentioned previously, confrontation can reduce future prejudiced responses (Czopp et al., 2006). Therefore, it follows that failing to confront can allow for continued prejudicial attitudes or discriminatory treatment because perpetrators of the negative treatment are not made aware of the effects of their behavior on targets and others in the environment. In addition, failing to confront can negatively influence the cognition and affect of a target (Shelton et al., 2006). Little research to date has investigated these *intra*personal (e.g., cognitive and affective) costs

of targets failing to confront discrimination. Two studies by Shelton et al. (2006) are some of the few studies dealing explicitly with the intrapersonal costs and are discussed in detail in the following section.

1.2. Theoretical Framework

1.2.1. Shelton et al. (2006) Studies

As mentioned above, few studies to date have investigated the intrapersonal costs of targets failing to confront. Shelton et al. (2006) conducted two studies that specifically explored this topic and consequently comprised a substantial part of the conceptual framework for the present study. Study 1 of Shelton et al. (2006) revealed some affective consequences of failing to confront. Specifically, the authors examined the interplay between one's level of commitment to challenging sexism (commitment) and discrimination-related should-would discrepancies (i.e., the degree of the difference between how one feels they *should* respond versus how they *would* respond to a perpetrator of discrimination), and how these factors influence affect. To elicit these should-would discrepancies, participants were asked to report their personal standards for how they felt they *should* respond to various hypothetical scenarios involving gender discrimination (all participants were female), followed by their responses to how they felt they *would* respond to the same situations.

Study 1 results revealed a significant interaction between discrepancy scores and commitment for negative self-directed affect (negself), such that for women with greater commitment, larger discrepancies were associated with more negself. Conversely, for

women with lower levels of commitment, discrepancy scores were unrelated to negself. Although these scenarios were only hypothetical, this suggests that alignment between one's attitudes about addressing sexism and one's behavior in response to sexism matters a great deal in terms of emotional outcomes when a target experiences discrimination, as only women with high levels of commitment experienced these negative feelings when their behavior violated their personal standards about challenging sexism.

In Study 2, Shelton et al. (2006) wanted to replicate the findings from Study 1 regarding negself by using actual instead of hypothetical sexist situations. Further, Study 2 extended Study 1 by examining cognitive costs (i.e., obsessive thoughts) associated with targets not confronting. Female participants were asked to recall a situation in which they experienced sexism and either felt they should have responded to the perpetrator but *did not* respond, or felt they should have responded to the perpetrator and *did* respond. Participants then completed measures of affect and obsessive thoughts they had about their behavior during the situation. Commitment was also assessed at an earlier time.

Similar to Study 1, Study 2 results showed that when participants recalled a sexist situation in which they felt they should have responded to the perpetrator but *did not* respond, the more committed to challenging sexism the participants were, the more negself they experienced. Commitment was unrelated to negself for participants who recalled a sexist situation in which they responded to the perpetrator. The results for obsessive thoughts mirrored these findings, as higher levels of commitment were associated with greater obsessive thoughts only for women who recalled a sexist situation in which they responded to the perpetrator. Notably, the results of the regression analysis predicting obsessive thoughts from commitment were marginally significant for

participants who recalled not confronting. Although these results did not reach conventional levels of significance, compared to the non-significant results for participants who recalled confronting, these results are meaningful in terms of practical significance and should be retested.

The key point to emphasize from Shelton et al.'s (2006) work is that the results of their two studies were contingent on the participants' commitment to challenging sexism. That is, a greater obligation to stand up for women and to fight sexism was what led to greater negself and obsessive thoughts for those who did not confront, as these effects were not seen in women with low commitment. Therefore, the current study also measured commitment and the same moderating effects were proposed to occur.

1.2.2. Higgins' Self-Discrepancy Theory and Self-Regulation

Shelton et al. (2006) drew from Higgins' self-discrepancy theory and self-regulation theory to explain these consequences of not confronting. Higgins' theory states that transgressing a personal standard for behavior leads to negative affective consequences. Higgins conceptualized three domains of the self: the actual, ideal, and ought self. According to Higgins, discrepancies between the actual and ought self can lead to guilt, self-contempt, and uneasiness directed to the self (Higgins, 1987). Monteith's (1993) model of self-regulation of prejudiced responses states that when a low-prejudiced individual becomes aware of a prejudice-related discrepant response they have made, this violates the self-concept of the individual, leading to increased negself, self-focus, and attention to discrepancy-relevant information. As a result of the guilt experienced from the discrepant response, when an opportunity for a prejudiced response

occurs in the future, an inhibitory system is activated that slows responses in order to reduce prejudiced responses and replace them with responses consistent with the individual's low-prejudiced beliefs. Research has supported these theories, demonstrating that individuals with larger should-would discrepancies report greater negself feelings (i.e., guilty, self-critical) than individuals with smaller discrepancies (Devine, Monteith, Zuwerink, & Elliot, 1991; Monteith, 1993; Monteith, Devine, & Zuwerink, 1993; Monteith & Voils, 1998; Monteith, Ashburn-Nardo, Voils, & Czopp, 2002). Thus, in Shelton et al. (2006), targets' discrepancies between wanting to confront (e.g., high commitment to challenging sexism) and their actual behavior (e.g., failing to confront) were explained in association with the greater negself they reported.

Although Higgins did not include cognitive consequences of should-would discrepancies in his theory, Shelton et al. (2006) addressed this issue by rationalizing that it is reasonable to believe not living up to one's personal standards can impair cognitive functioning, as targets who failed to confront were likely engaging in suppressing and concealing their negative emotions when facing the perpetrator during the sexist incident. In addition, along the lines of Monteith's (1993) theory, Shelton et al. (2006) argued that a low-prejudiced individual that violates a personal standard would be attempting to self-regulate and thus focusing on the self and discrepancy-relevant information, thereby affecting cognition.

1.2.3. Stereotype Threat and Working Memory

Based on the evidence that targets of discrimination experience negself and ruminate about not confronting, these consequences should theoretically have deleterious

effects on a target's job performance because the target's cognitive resources are being taxed. Literature on stereotype threat and working memory is helpful in understanding how these cognitive effects influence later performance.

Stereotype threat occurs when an individual experiences anxiety over the possibility of confirming a negative stereotype about his or her group, and has been shown to affect performance negatively (Steele & Aronson, 1995). Schmader, Johns, and Forbes (2008) proposed an integrated process model of stereotype threat to understand its effects on performance. In this framework, working memory is identified as the core cognitive faculty involved in stereotype threat effects. Working memory capacity is conceived of as a limited memory store with executive and attentional components. In other words, working memory capacity represents the ability to maintain memory to be used to focus attention on temporarily activated task-relevant information while inhibiting other, task-irrelevant information (Engle, Tuholski, Laughlin, & Conway, 1999). Included in Schmader et al.'s (2008) model is stereotype threat acting as a psychological stressor, a prime of the imbalance of self-concept, and a suppressor of thoughts as the individual attempts to regulate negative thoughts and feelings. These are proposed to be the main mechanisms contributing to the taxing of working memory resources in responses to stereotype threat. Shelton et al.'s (2006) explanation that women who failed to confront experienced greater obsessive thoughts when they were highly committed to challenging sexism because they may have been suppressing negative emotions when facing the perpetrator and engaging in self-regulation is consistent with this model.

Several studies have investigated the effects of stereotype threat on working memory capacity, and the results are in line with Schmader et al.'s (2008) model. For example, women placed in a stereotype threat condition in which they completed an operation span task by evaluating mathematical equations while memorizing words to be recalled later recalled fewer words than men in the stereotype threat condition and women in the control condition. Furthermore, the operation span score was not significantly different for men across conditions (Schmader & Johns, 2003). Working memory capacity can also have an effect on the degree to which a stereotype affects performance. For example, Régner et al. (2010) found that women who scored low on measures of working memory performed worse than men who measured low on working memory when they were told a test was diagnostic of logical reasoning ability. However, women low on working memory performed just as well as men low on working memory when told the test was diagnostic but gender-fair. Low working memory women in the gender-fair condition also outperformed low working memory women in the diagnostic condition. High working memory women were not affected by the stereotype threat condition. These results suggest that if a stigmatized individual's working memory capacity is already lower, perhaps due to rumination as a result of an experience with discrimination, he or she may be more susceptible to the effects of stereotype threat, which could decrease performance.

Evidence also suggests the effects of stereotype threat can be pervasive. Beilock, Rydell, and McConnell (2007) demonstrated that the effects of stereotype threat can "spill over" to other, unrelated tasks. In their study, participants under the stereotype threat condition completed an arithmetic-type task of varying demands followed by either

a verbal or spatial two-back working memory task. To complete these tasks, participants were asked to indicate whether a stimulus (a cluster of letters inside of a box presented at different spatial locations on the computer screen) presented on the current trial matched the stimulus presented in two trials previous to the current trial. The verbal condition focused only on matching the letters, whereas the spatial condition focused only on matching the spatial location of the letters. Results showed that those who performed worse on the arithmetic task performed worse on the verbal two-back task, but no effect was found for performance on the spatial two-back task. The authors suggested this effect was found only for the verbal two-back task because it required verbal working memory resources, just as the high-demand arithmetic problems required phonological resources, while the spatial task did not require such resources. This evidence is noteworthy, given that stereotype threat was activated for a math-related stereotype yet spilled over to a verbal domain. Stereotype effects have also been found to spill over to other domains such as exhibiting aggression, eating behaviors, and making risky decisions (Inzlicht & Kang, 2010). The implications for such findings are great, suggesting performance can suffer in various, unrelated domains following activation of stereotype threat.

Despite the aforementioned negative effects of stereotype threat on performance, there is encouraging evidence that the negative effects of stereotype threat on cognition can be mitigated. Research shows that changing target group members' conceptions of a stereotype can eliminate the effects of stereotypes on working memory capacity depletion. Forbes and Schmader (2010) found that retraining women on a stereotype increased working memory capacity and performance when in a stereotype threat condition. Women who were trained to associate women with being good at math exhibited higher

working memory capacity than women who were trained to associate men with being good at math. When in a stereotype-neutral condition, however, stereotype retraining did not have an effect on working memory capacity. These results suggest that providing a supportive environment free from negative stereotypes can prevent the cognitive deficits often associated with stereotype threat.

Taken together, the stereotype threat literature reveals that when participants wanted to succeed on a task and were made aware that their membership in a particular group meant they stereotypically should fail, their cognitive resources were depleted and their subsequent performance suffered. Similarly, if a woman recalls a situation involving sexism, this memory could conjure up feelings similar to those that are evoked by a stereotype threat. Following recall of this memory, she may then ruminate about failing to confront this sexism, especially if she is highly committed to challenging sexism. As a result, her working memory may be diminished and her performance may suffer. This is the process that is expected to occur in the present study.

1.3. Present Study

The present study seeks to contribute to the prejudice confrontation literature by increasing the understanding of how failing to confront discrimination can affect important and tangible real world outcomes for targets, as well as the mechanisms through which failing to confront may affect performance. Understanding these underlying mechanisms can give insight into the value of confrontation as an effective intervention for reducing the harmful effects of discrimination. To investigate these issues, the present study had two purposes. The first purpose was to replicate the findings

of Study 2 of Shelton et al. (2006) using similar methodology. As mentioned previously, Shelton et al.'s (2006) results for obsessive thoughts were marginally significant, thus raising the possibility that they occurred by chance. Therefore, replicating their study will serve to support evidence of the relationship between failing to confront and obsessive thoughts. Based on the results of Shelton et al. (2006) and applying Higgins' self-discrepancy theory and self-regulation theory, the following hypotheses were proposed (see Figure 1 for a model of these proposed relationships):

Hypothesis 1a: Women who recall a past sexist situation in which they failed to confront the perpetrator of the sexism will have experienced greater negative self-directed affect during the recalled situation than women who recall a past sexist situation in which they confronted the perpetrator.

Hypothesis 1b: The effect of recalling failing to confront on negative self-directed affect will depend on women's commitment to challenging sexism, such that women with greater commitment to challenging sexism will have experienced greater negative self-directed affect during the recalled situation than those with lower commitment.

Hypothesis 2a: Women who recall a past sexist situation in which they failed to confront the perpetrator of the sexism will have experienced greater obsessive thoughts during the recalled situation than women who recall a past sexist situation in which they confronted the perpetrator.

Hypothesis 2b: The effect of recalling failing to confront on obsessive thoughts will depend on women's commitment to challenging sexism, such that women with greater commitment to challenging sexism will have experienced greater obsessive thoughts during the recalled situation than those with lower commitment.

The second purpose of this study was to extend Shelton et al. (2006) to include additional measures. More specifically, the present study extended Shelton et al. (2006) by including a more objective and sensitive measure of the cognitive costs of not confronting (i.e., working memory via the operation span task) rather than only relying on a subjective, self-report measure of obsessive thoughts. Additionally, the inclusion of a task performance measure in the present study extends Shelton et al. (2006) by measuring the effects failing to confront has on an outcome applicable to the workplace, where targets often experience and are faced with confronting discrimination.

Based on evidence from Study 2 of Shelton et al. (2006) demonstrating that targets ruminate when they fail to confront discrimination and research showing stereotype threat reduces working memory capacity and consequently reduces future performance, the following hypotheses were proposed (see Figure 1):

Hypothesis 3a: Women who recall a past sexist situation in which they failed to confront the perpetrator of the sexism will exhibit lower working memory capacity than women who recall a past sexist situation in which they confronted the perpetrator.

Hypothesis 3b: The effect of recalling failing to confront on working memory capacity will depend on women's commitment to challenging sexism, such that women with greater commitment to challenging sexism will experience lower working memory capacity than those with lower commitment.

Hypothesis 4a: Women who recall a past sexist situation in which they failed to confront the perpetrator of the sexism will exhibit lower task performance scores than women who recall a past sexist situation in which they confronted the perpetrator.

Hypothesis 4b: The effect of recalling failing to confront on task performance will depend on women's commitment to challenging sexism, such that women with greater commitment to challenging sexism will exhibit lower task performance scores than those with lower commitment.

Hypothesis 5a: Obsessive thoughts will mediate the relationship between failure to confront sexism and task performance.

Hypothesis 5b: Working memory capacity will mediate the relationship between failure to confront sexism and task performance.

CHAPTER 2. METHOD

2.1. Participants

Participants (N = 400) were recruited from the IUPUI Psychology Department research subject pool via Sona Systems, an online tool for scheduling and managing research participants and studies. Participants received two research credits for participation in this study as partial fulfillment of a course requirement. Additionally, as part of a motivational incentive, 10 participants (five from each condition) were selected in a random drawing of all participants who completed the study to receive a check for $25. Only female participants were recruited, as the present study focused on the experiences of individuals who are traditionally targets of sexism. Research has demonstrated that, on average, women experience greater amounts of sexism than men (e.g., Swim et al., 2001); hence, a previous experience with sexism may be more readily accessible for women. The present study also sought to replicate the findings of Shelton et al. (2006) in which only female participants were sampled.

Eight cases were excluded from analysis (2 withdrawals, 2 completed the study in a noticeably shorter amount of time than other participants and appeared not to have followed directions or taken the study seriously, 2 voluntarily expressed difficulty with reading comprehension at the beginning of the study, 1 had missing data, and 1 was a non-native English speaker), reducing the N to 392. In terms of the demographic makeup

of the sample, the mean age was 21 years old. For ethnicity, 6.9% of participants reported

being Hispanic or Latina and 93.1% reported not being Hispanic or Latina. For race,

74.0% were White, 14.3% were Black or African American, 3.8% were Asian, 0.5%

were American Indian or Alaska Native, 3.8% reported "other", 3.3% reported more than

one race, and 0.3% did not report a race.

2.2. Design

Participants were randomly assigned to a confrontation recall manipulation (recall

a time when you responded to vs. did not respond to negative treatment based on your

gender) in a person (level of commitment to challenging sexism, measured continuously)

by treatment (recall condition: confronted, did not confront) between-subjects design.

Confronted n = 192 and did not confront n = 200.

2.3. Measures

2.3.1. Affect

The emotional reactions participants experienced during the sexist situation they

recalled were assessed with a 32-item scale used by Shelton et al. (2006; Appendix B).

Participants indicated the extent to which the listed adjective or phrase described how

they felt when that situation occurred using a 7-point Likert-type scale (1 = *Does not*

apply at all, and 7 = *Applies very much*). Items included "guilty", "irritated with others",

and "energetic."

A principal components factor analysis with varimax rotation of the affect items resulted in a five-factor solution. However, the scree plot suggested a four-factor solution, and upon inspecting the factor loadings, it was decided that the fifth factor should be dropped because it consisted of items that all cross-loaded on at least one other factor more strongly, with the exception of "anxious", which loaded slightly higher on factor five (.49) than on factor four (.43). Together, the four-factor solution explains 58.7% of the variance. The four factors are as follows: negative self-directed affect (negself), or negative feelings participants had about themselves ($\alpha = .93$; angry at myself, disappointed with myself, disgusted with myself, annoyed at myself, regretful, shame, guilty, self-critical, embarrassed, depressed), negative affect directed at others (negother), or negative feelings participants had about other people in the situation ($\alpha = .86$; irritated with others, angry at others, disgusted with others, frustrated, bothered, tense), general positive affect (positive; $\alpha = .85$; good, happy, friendly, content, optimistic, energetic, calm), and discomfort ($\alpha = .81$; threatened, fearful, uneasy, uncomfortable, concerned). Overall, these factors are similar to those in Shelton et al. (2006). More specifically, for negself, the primary affect subscale of interest, Shelton et al.'s (2006) initial factor analysis resulted in the same items with the exception of "embarrassed" and "depressed." Scores on the items within each factor subscale were averaged to comprise indices of negself, negother, positive, and discomfort. Only negself was tested in the analyses, as it is the focal affect subscale of the present study.

2.3.2. Obsessive Thoughts

The degree to which participants experienced obsessive thoughts related to the sexist situation they recalled was measured using two obsessive thoughts scales from Shelton et al. (2006). The first scale focused on feelings and behaviors *during or immediately following* the sexist situation (see Appendix B). Responses to these 21 items were assessed on a 4-point Likert-type scale (1 = *I did not do this at all,* and 4 = *I did this a lot*) to which participants indicated the extent they experienced each of the reactions (e.g., "I replayed the scene over and over in my mind."). Two items were added to this scale: "I blamed someone else involved in the situation for things that happened" and "I carried on with my day and stopped thinking about what happened" to provide additional examples of different reactions participants may have had. Internal consistency reliability for this scale is acceptable (α = .75).

The second scale consisted of 31 items and focused on the participant's reactions *following* the sexist situation (see Appendix B). Responses to the first 28 items were measured on a 4-point Likert-type scale (1 = *I did not experience this at all*, and 4 = *I experienced this a lot*). A sample item is "I was worried about what other people thought of me." In order to reflect more positive reactions participants may have experienced, particularly if they recalled having confronted, nine items were added to the scale, including: "Felt empowered" and "I felt a sense of relief." Internal consistency reliability for these 28 items is α = .85. Three additional items also from the original Shelton et al. (2006) scale measured how much the participant wanted to respond to the situation, how much the situation bothered them, and how prejudiced against women they thought the situation was, respectively.

To measure obsessive thoughts, Shelton et al. (2006) created a rumination subscale comprised of five of the obsessive thoughts items. Therefore, a principal components factor analysis with varimax rotation including all items from both obsessive thoughts scales was conducted to explore whether the same five items would load onto a single factor and whether other interpretable factors would emerge. The factor analysis resulted in a 10-factor solution explaining 62.8% of the variance. Only the rumination factor will be discussed in this paper, as the primary interest of the present study was to replicate Shelton et al.'s (2006) rumination findings; however, the other factors may be examined in future exploratory analyses.

As expected, the five items from Shelton et al.'s (2006) rumination subscale loaded onto the same factor. These items included: "I thought about how much the incident got to me (e.g., hurt me, angered me)", "I replayed the scene over and over in my mind", "I felt it intensely and I kept feeling it—I wouldn't let it go", "Ruminated about (i.e., dwelled on) how I behaved during the situation", and "Ruminated about (i.e., dwelled on) the situation." Four additional items loaded onto this factor: "I stopped thinking about what happened", "I made jokes about it", "I was intensely aware of my internal physical reactions (e.g., heartbeat, sweaty palms)", and "I carried on with my day and stopped thinking about what happened."

A reliability analysis of these nine items demonstrated that removing "I made jokes about it" would increase the scale alpha from .846 to .859 and removing "I was intensely aware of my internal physical reactions (e.g., heartbeat, sweaty palms)" would maximize the scale alpha at .862. Examining the item statistics revealed that "I made jokes about it" had the second weakest factor loading (.43) and the weakest item-total

correlation (.27). In addition, "I was intensely aware of my internal physical reactions (e.g., heartbeat, sweaty palms)" had the weakest factor loading (.427), and although its item-total correlation was moderate (.44), in terms of face validity, much like the "I made jokes about it" item, this item did not appear to measure cognition or rumination in the way that the other seven items do. Rather, these two items appear to measure a strategy for mitigating harmful effects from the sexist incident (i.e., making jokes) and physical reactions. It was therefore deemed appropriate to remove these items from the subscale. The remaining seven items were averaged to calculate the obsessive thoughts scores.

2.3.3. Commitment to Challenging Sexism

Commitment to challenging sexism (commitment) was assessed with 13 items from the activism subscale of O'Neil, Egan, Owen, and Murry's (1993) Gender Role Journey Measure (see Appendix B). This subscale was chosen because previous research has shown high activism predicts public confrontation of sexist remarks (Swim & Hyers, 1999). Therefore, it follows that activism scores would be conceptually similar to Shelton et al.'s (2006) commitment measure (to which I was unable to gain access), given evidence of the negative effects that occur when people do not act in accordance with their personal beliefs (e.g., Higgins' self-discrepancy theory). A sample item is "I have taken some actions in my personal life to reduce sexism." Participants indicated their level of agreement with the items using a 6-point Likert-type scale (1 = *Very strongly agree*, and 6 = *Very strongly disagree*). Internal consistency reliability for the scale is α = .86, which surpasses the recommended .70 cutoff.

2.3.4. Working Memory Capacity

The operation span task (OSPAN; Turner & Engle, 1989) was used to measure working memory capacity. The version of the OSPAN used in the present study is an automated version designed to run with Inquisit software (Inquisit, 2012) and has been shown to be significantly related to the Turner & Engle (1989) OSPAN and to demonstrate similar correlations with a measure of fluid abilities (Unsworth, Heitz, Schrock, & Engle, 2005). Compared to the original OSPAN task, which requires participants to provide answers verbally and for the experimenter manually to navigate the participants through the sets, this automated version allows for easier data collection and for the participant to complete the task without assistance from the experimenter.

The OSPAN consists of two simultaneous tasks. One is a processing task in which participants are presented with a mathematical equation [e.g., $(1 * 2) + 1 = ?$] and they must decide whether the given answer to the equation is correct or incorrect. Each equation begins with the multiplication or division of two positive integers, and the product of these integers is then added to or subtracted from another positive integer. The second task is a memory span task in which a monosyllabic word is presented briefly after each math equation and is to be recalled later. The original coding from the Inquisit software website used letters as stimuli, but using the Turner and Engle (1989) study as a guide, the coding was changed to replace the letters with words for the present study. The words were derived from a collection of the most commonly occurring words in the English language (Francis & Kucera, 1982), a process also performed by Turner and Engle (1989). Twelve one-syllable concrete nouns between four and six letters each (four

of each length) were selected from the list. Words included "horse", "wall", and "school." A complete list of the word stimuli is shown in the OSPAN Word Matrix in Appendix B.

The OSPAN procedure is as follows. First, an equation is presented on the screen. Once the participant solves the equation in her head, she clicks the mouse button, which brings up a new screen with a suggested solution to the equation. The participant has a limited amount of time to click the mouse button on the appropriate "true" or "false" box to indicate her answer. If she takes too long to answer, the screen changes, moving on to the word to be recalled. The amount of time the math solution is presented is determined by the average speed at which she solved the equations during the practice trials (which are explained later in this section). Then, the word to be recalled is presented briefly.

Following each set of trials pairing an equation with a word to be recalled, participants are asked to recall as many of the words from the set as they can. A screen containing a 3×4 grid of all 12 words used in the task appears and participants are instructed to select the words they saw in the previous set in the order in which they were presented. Once clicked on, the words appear in the order selected at the bottom of the screen. Participants are able to click a "BLANK" button if a word was forgotten to function as a placeholder for the word in the set order. This is also a way to avoid penalizing a participant for an entire set if she forgot some of the words in the set. If an error is made, words can be deleted prior to submitting the final answer using the "CLEAR" button. After all the words are selected, the participant clicks "EXIT." A new screen is then presented with the next equation. The same procedure follows, with the participant clicking to solve the equation, a new word being presented, then a recall screen of the same format as before until all trials are completed. See Appendix B for

screenshots of the OSPAN, including a sample math equation, math solution, word stimulus, word matrix, and feedback screen.

In order for participants to get accustomed to the procedure, the OPSAN began with 22 practice trials: four with words only (two trials with two words each and two trials with three words each), 15 with math problems only, and three pairing the words with math problems (two pairs each) before moving on to the scored portion of the task. The scored portion consisted of 15 sets with three to seven equation/word pairs per set (three sets of each length) for a total of 75 pairs. To reduce the possibility that participants would expect to recall a certain amount of words per set, the sets were presented in random order, but the same equations were always paired with the same words. The total number of perfectly recalled sets (OSPAN absolute score), total number of math errors (broken down into math speed errors and math accuracy errors), and total number of words correctly recalled were recorded. OSPAN absolute score was used as the working memory score in all analyses.

To motivate participants to perform well, the experimenter instructed them at the start of the task to do their best to maintain a math accuracy score of at least 85% because the top performers would earn $25. This reward was not actually determined in this way—it was random. However, the 85% accuracy goal was employed for a purpose. Previous OSPAN studies (e.g., Engle et al., 1999; Unsworth et al., 2005) have used this benchmark in order to prevent participants from completely ignoring the math problems. Working memory capacity involves focusing on task-relevant information while inhibiting task-irrelevant information, and thus the math problems play a key role by acting as task-irrelevant information, distracting participants from remembering the task-

relevant information (i.e., the words). Participants could keep track of how well they were performing as they progressed through the task because after each set, the program provided feedback on the number and percentage of correctly recalled words and the number of math errors made. Additionally, the math accuracy percentage appeared in red font in the upper right corner of each feedback screen to inform participants of their running math accuracy score.

2.3.5. Task Performance

Task performance was measured with an 810-word non-fiction reading passage (see Appendix B). The researchers added 47 errors to the passage, which included changing spelling, punctuation, and word order. Participants were instructed to mark any spelling or grammatical errors found in the passage and were given a time limit of seven minutes to complete the task. This seven-minute maximum was determined to be the average amount of time it took to complete the task after piloting it on a group of 12 undergraduate and graduate students from the principal investigator's lab group. This time limit was also imposed to encourage participants to use greater concentration. If participants had been given an unlimited amount of time, each would have had the potential to find all the errors, making it difficult to determine whether scores were influenced by any cognitive resource depletion or distractibility elicited from the experimental manipulation or by other factors unrelated to the experiment such as persistence on the task. Total number of errors correctly identified served as the task performance score used in the analyses.

2.3.6. Demographics

Demographic information including age, gender, ethnicity, and race was collected from each participant (see Appendix B).

2.4. Procedure

Participants were brought into a lab and completed this study individually in private rooms. Each lab session lasted approximately one hour. All dependent measures were presented via computer using MediaLab software (Jarvis, 2008), with the exception of the paper-based task performance measure (i.e., reading passage task). Demographics, information needed for mailing the reward checks, and the suspicion check were also completed on paper.

First, informed consent was obtained. Upon agreeing to participate, demographics were collected to confirm each participant was at least 18 years old and female. Of note, both experimenters were White females in order to hold experimenter race and gender constant. This had the added advantage of minimizing any possible discomfort participants may have experienced recalling a sexist incident in the presence of a male, as a male perpetrator fits the "prototype" of sexism (Inman & Baron,1996).

The experimenter then explained that the study consisted of two parts, and the purpose of the first part was to compare individuals' past life experiences. Participants were told they would be asked to recall and describe a past life experience about a randomly selected topic and answer questions about their thoughts, feelings, and reactions to that experience. The recalled experience was described as being pulled from a random selection of topics so as to not influence participants' thoughts about the exact

nature of the study. The experimenter then proceeded to initiate MediaLab. The first

screen contained the following instructions, which varied by experimental condition and

are modified versions of those used by Shelton et al. (2006). The instructions were

modified using expressive writing techniques derived from the clinical psychology

literature (Graybeal, Sexton, & Pennebaker, 2002) as a guide. These modifications were

implemented to help participants re-live the past sexist experience and so that the

recollections could more accurately represent how the participant felt when the sexist

treatment originally occurred. When giving the initial instructions, the experimenter also

emphasized the importance of using a lot of detail when describing the experience.

Instructions for the *confront* condition:

> Please do your best to remember a situation in which you were treated in a
> negative manner because of your gender. If you cannot remember a
> situation in which you were personally involved, please recall a situation
> in which you personally witnessed another woman being treated
> negatively because of her gender. Regardless of whether the negative
> treatment was directed at you personally or was directed at someone else,
> this situation MUST be one in which you RESPONDED to the negative
> treatment. In other words, you either responded verbally to the perpetrator
> or did something (e.g., nonverbal behavior such as shaking your head or
> rolling your eyes) to make it very clear to the perpetrator how you felt. It
> is important that you really place yourself back in the situation as if you
> are reliving it. Really dig deep to remember all you can about this situation.
> Please type a description of this situation in the text box provided on the
> screen. Please write as much as you can and be as detailed as possible.

For the *did not confront* condition, the prompt was identical except for portions of the

following two sentences:

> Regardless of whether the negative treatment was directed at you
> personally or was directed at someone else, this situation MUST be one in
> which you SHOULD HAVE responded to the negative treatment but DID
> NOT. In other words, you did not respond verbally to the perpetrator nor
> do something (e.g., nonverbal behavior such as shaking your head or

rolling your eyes) to make it clear to the perpetrator how you felt even though you wanted to do so.

After reading these instructions, participants took time to recall a situation and type a description of it into the text box provided on the screen. No maximum time was allotted for recall; participants were allowed to use as much time as needed and could type as much or as little as they wanted. Participants spent an average of about 15 minutes on this task.

Following the recall of the sexist situation, participants moved on to the next screen where they were prompted with instructions for completing the affect scale. The two obsessive thoughts scales and the commitment scale followed. The order of the scales was consistent across participants (i.e., affect first, obsessive thoughts *during* the situation next, then obsessive thoughts *following* the situation, then commitment last). Within each scale, items appeared in random order across participants, with the exception of the final three items on the second obsessive thoughts measure and all items on the commitment measure, which were ordered the same across participants.

After completing these measures, participants were prompted by the computer to inform the experimenter that they were finished by opening the lab room door. The MediaLab screen was password-protected so that the participant could not move on to the next measure without first receiving instructions from the experimenter. At this point, the experimenter described that the next two tasks were part of a separate, unrelated study for a graduate student's thesis that was investigating the completion of tasks under time constraints. This explanation involved some minor deception because the OSPAN and reading passage tasks could understandably appear unrelated to the study's first purpose

of comparing people's past life experiences. Additionally, the intent of this deception was to minimize suspicion about any possible link between the recall exercise and OSPAN and reading passage.

Next, the experimenter explained the procedure of the OSPAN and emphasized that participants should do their best to maintain a score of at least 85% accuracy on the math problems because the top performers across the next two tasks would be awarded $25. The experimenter then entered the password to initiate the OSPAN. Participants then viewed detailed instructions and worked through the task.

The final dependent measure was the reading passage task. The experimenter proctored this task, setting a timer to ensure the participants were allotted exactly seven minutes to find as many errors as possible. Participants were given a pen and instructed to circle any errors they found and were told that the experimenter would interrupt them when the seven minutes elapsed. Participants were told to open the lab room door if they finished before time was up.

Participants were then given the option to fill out a participant compensation form (see Appendix B). This form asked for the participant's name and mailing address and was framed as a way to obtain information needed to send reward checks to the top performers across the last two tasks. In reality, this information was used to randomly select 10 names to which to mail the $25 reward checks. Participants could decline to provide this information, but were told they must provide it if they wished to be considered for the reward. Next, participants filled out a form that asked what they thought the purpose of the study was, to serve as a suspicion check (see Appendix B). Last, participants were debriefed and thanked for their participation.

2.5. Statistical Analyses

The data were first screened to check for outliers, missing values, abnormal response patterns, and to examine variable distributions. A visual scan of the data and variable frequencies revealed no apparent outliers or abnormal response patterns. Histograms indicated the dependent variable distributions appeared normal. Missing data were scarce and ultimately excluded, as noted in the Participants section. As mentioned in the Participants section, data screening procedures resulted in the exclusion of eight cases. In addition, a review of the suspicion check responses showed that participants described the purpose of the study in accordance with how it was explained by the experimenters. Thus, no cases were excluded on the basis of suspicion.

Means and standard deviations were then calculated for all dependent variables as well as Pearson correlations between outcomes (see Table 1). For all analyses, results were considered statistically significant at the $p \leq .05$ level (two-tailed) and were considered marginally significant at $p > .05$ and $p \leq .10$ (two-tailed). Exact p-values were reported except in cases where p was less than .001. In such cases, $p < .001$ was reported.

Hypotheses were tested as follows. The main effects of recall condition on each of the dependent outcomes (Hypotheses 1a, 2a, 3a, 4a) and the simple moderation effects of commitment (Hypotheses 1b, 2b, 3b, and 4b) were tested using hierarchical multiple regression analyses. Prior to running these analyses, recall condition was first dummy-coded using confronting as the focal group (recalled failing to confront = 0, recalled confronting = 1). Commitment was then mean-centered by subtracting the mean scale score of the sample ($M = 3.99$) from the mean scale score of each case. Next, dummy-coded condition was multiplied by mean-centered commitment to create a condition by

commitment interaction term. Dummy-coded condition and mean-centered commitment were then entered in Step 1 of the regression and the interaction term was entered in Step 2. A significant standardized regression coefficient for recall condition in Step 1 indicated a significant main effect for recall condition, and a significant interaction term in Step 2 suggested moderation is occurring.

Simple mediation effects (Hypotheses 5a and 5b) and the full moderated mediation model were tested using PROCESS. PROCESS is a macro developed for SPSS and SAS that uses ordinary least squares or maximum likelihood logistic regression to estimate direct and indirect effects in a variety of statistical models, including mediation models, conditional effects in moderation models, and conditional process models with multiple mediators (Hayes, 2013, p. 419). Among its capabilities, PROCESS estimates unstandardized model coefficients, standards errors, and *t* and *p*-values, provides various methods for probing interactions, and constructs bootstrap confidence intervals for effect size inference.

PROCESS was used to test the mediation hypotheses rather than the Baron and Kenny (1986) approach because there is increasing support for bootstrapping methods for assessing indirect effects (e.g., Hayes, 2009; MacKinnon, Lockwood, & Williams, 2004; Preacher & Hayes, 2004; Preacher, Rucker, & Hayes, 2007). In support of bootstrapping, simulation studies of methods for testing the effects of intervening variables have shown that the Baron and Kenny (1986) method was among the lowest in terms of power (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002), while bootstrapping has emerged as one of the more valid and powerful methods (MacKinnon et al., 2004). Furthermore, unlike the Sobel test (Sobel, 1982), which tests the significance of an

indirect effect, often in conjunction with the Baron and Kenny (1986) approach, bootstrapping does not require assumptions about the shape of the sampling distribution (Hayes, 2009).

Bootstrapping is a resampling strategy in which the sample is treated as a smaller population representative of a larger population from which the sample was derived. Using replacement, resamples of size n (i.e., the original sample size) are generated in a process that is repeated for k times (i.e., bootstrap samples). The indirect effect is computed for each resample, the bootstrap values are sorted, and then an inference about the size of the indirect effect is made by using the k estimates to generate a confidence interval (Hayes, 2009; Preacher et al., 2007). Hayes (2009) recommends k is at least 5,000, and thus the present study set k to 10,000 in all PROCESS analyses. In addition, 95% confidence intervals were requested. Mediation is said to occur if the confidence interval for the indirect effect does not contain zero (i.e., the effect is significantly different from zero in the population).

A moderated mediation analysis was also conducted using PROCESS. Moderated mediation occurs when the indirect effect of a variable depends on the level of another variable. Included in the moderated mediation analysis PROCESS output are estimates for both the conditional direct and indirect effects. A conditional direct effect is the effect of the antecedent causal agent (x) on the outcome variable (y) through the proposed moderator (w), shown as path c'_3 in Figure 2. A conditional indirect effect is the effect of x on the proposed mediator (m) through w, shown as path a_3 in Figure 2. Applied to the present study, the direct effect of recall condition (x) on performance (y) is proposed to depend on level of commitment (w), such that women who recalled failing to confront are

expected to perform more poorly than women who recalled confronting, but only at high

levels of commitment. Additionally, obsessive thoughts (m_1) and working memory (m_2)

are proposed to be the mechanisms through which recall condition affects performance.

Thus, the recall condition-performance relationship is proposed to be indirect. Further,

the indirect effect of recall condition on performance through obsessive thoughts and

working memory is proposed to depend on level of commitment, such that obsessive

thoughts are expected to increase and working memory is expected to decrease

significantly for women who recalled failing to confront, but only at high levels of

commitment. Therefore, in this study, mediation is proposed to occur and both the direct

and indirect effects are proposed to be conditional on level of commitment. In other

words, moderated mediation is proposed. Mediation is said to be moderated if the indirect

effect of the highest order interaction (i.e., whether the indirect effect of recall condition

on performance through obsessive thoughts and working memory is moderated by

commitment) is statistically different from zero, evidenced by a confidence interval for

this effect that does not contain zero.

CHAPTER 3. RESULTS AND DISCUSSION

3.1. Preliminary Analyses

Prior to testing the hypothesized conditional process model to determine whether moderated mediation is occurring, initial analyses testing the moderating effect of commitment were conducted to confirm that commitment is a viable moderator. Hypotheses 1b, 2b, 3b, and 4b predicted that commitment would moderate the relationships between recall condition and the four outcomes of interest: negself, obsessive thoughts, working memory, and task performance, such that women who recalled failing to confront would experience greater negself and obsessive thoughts and lower working memory and performance at higher levels of commitment compared to women who recalled confronting. To test these hypotheses, hierarchical multiple regression analyses were performed.

As the results of the regression analyses displayed in Table 2 show, commitment significantly moderated only the recall condition-obsessive thoughts relationship, as evidenced by the significant interaction term ($\beta = .14$, $p = .03$). The interaction terms failed to reach the $p = .05$ level of significance for negself ($\beta = .06$, $p = .40$), working memory ($\beta = .01$, $p = .92$), and performance ($\beta = -.01$, $p = .89$). Therefore, only Hypothesis 2b was supported. Notably, what stood out from these findings is that, inconsistent with Shelton et al.'s (2006) findings, the effect of commitment on the recall

condition-obsessive thoughts relationship was in the opposite direction of what was expected. Women who recalled confronting actually experienced more obsessive thoughts at higher levels of commitment ($\beta = .39$, $p < .001$) than women who recalled failing to confront ($\beta = .21$, $p = .004$).

To investigate why this effect of commitment on the recall condition-obsessive thoughts relationship may have occurred and why the moderation results were mostly non-significant, the commitment scale was examined more closely. Because this study is seeking to replicate Shelton et al. (2006), the first step in understanding why these unexpected effects may have occurred was to compare the current study's commitment measure to Shelton et al.'s (2006) measure. First, in terms of the individual items, Shelton et al. (2006) did not list all six of the commitment items, but the wording of the two items listed in their chapter reflects more direct responses to gender discrimination and explicitly refers to confronting (e.g., "How committed are you to trying to fight gender discrimination?" and "How obligated do you feel to confront someone or something that is sexist?"). In comparison, the commitment items in the present study relate more closely to handling gender role conflict, feelings about sexism, and actions related to anger, frustration, and knowledge about sexism than specifically to intentions to confront. Since these items do not directly refer to confronting, it may be possible that women who reported high levels of agreement for the items most closely related to confronting (e.g., "I have taken some actions in my personal life to reduce sexism" and "When I get angry about sexism, I want to fight back") may be responding in ways other than confronting.

Shelton et al. (2006) and the current study also differ in when commitment was assessed. In Shelton et al.'s (2006) Study 2, the commitment items were embedded with

other measures and assessed at a separate time from the study, whereas commitment was assessed during the experimental session for the present study. In the present study, participants had already recalled the sexist experience and answered questions about it prior to completing the commitment measure, which could have influenced their responses differently compared to if they had completed it in a separate session. My initial intent was to include the commitment measure with other measures in a psychology department mass screening at the beginning of the semester and then preselect participants who scored in the upper one-third of the distribution of scores (i.e., only those high on commitment). However, due to limitations in the capabilities of the prescreening system, this idea was abandoned because I was working within the parameters of one semester and the rate at which participants were completing the prescreen was too slow. Essentially, there would not have been sufficient time to establish the distribution of scores and recruit a sample size from that distribution large enough to achieve adequate statistical power. Such variations in item wording and time of scale administration could in part explain why Shelton et al.'s (2006) findings were not replicated.

In addition to comparing the current study's commitment measure to Shelton et al.'s (2006) measure, it is worthwhile to look to a study by Swim and Hyers (1999) that used the activism subscale as a commitment measure to further understand possible reasons why the commitment measure did not work as intended. Part of the rationale for using the activism subscale was that Swim and Hyers (1999) found higher activist orientation predicted public confrontation of sexist remarks, and thus, it is logical to think activism would be associated with commitment. However, similar to Shelton et al.

(2006), it is possible that the differences between the Swim and Hyers (1999) study and the current study may have led to different results. For example, Swim and Hyers (1999) defined confrontation only as verbal disapproval, and participants were given the opportunity to confront a confederate in a controlled lab setting. Also, the authors noted factors such as personal responsibility for confronting and costs of confronting may have played a role in confronting behavior. Because the sexist experiences of the participants in the current study were not standardized as they were in Swim and Hyers (1999), it is possible that factors that were not controlled for, such as whether the participant was a witness or a victim, how many people were involved in the situation, and how severe the sexism was perceived to be, could have led to different outcomes for different participants. Until the recalled experiences are coded and examined more closely in future research, the effects that these factors may have had are unknown.

Because an analysis of the aforementioned studies suggested experimental design may help explain the inability to replicate the commitment findings, the focus shifted back to the current study to further scrutinize the commitment measure by comparing it to other items in the study. Pearson correlations between commitment and three items included at the end of the second obsessive thoughts scale were examined to assess convergent validity. These items asked (1) How much did you want to respond to the situation you described? (2) How much did the situation bother you?, and (3) Rate the extent to which the situation was prejudiced against women. As expected, commitment correlated positively and significantly with all three of these items; however, the correlations were weak to moderate ($r = .18$, $p < .001$, $r = .25$, $p < .001$, and $r = .30$, $p < .001$, respectively). Although significant, one would expect stronger correlations (i.e.,

higher convergent validity) between these items and commitment, particularly for the first item that asked the degree to which the participant wanted to respond to the situation. Of all the items used in this study, this item is the most direct assessment of confrontation behavior. Overall, this item is also a better predictor of the outcomes than commitment (see variable intercorrelations in Table 1).

As a whole, this evidence suggests that commitment, while a reliable measure and previously demonstrated to predict public confrontation of sexist remarks, may not be tapping into participants' desire to confront sexism in the current study. Because the item asking participants how much they wanted to respond to the situation is a more direct measure of intentions to confront, is more similarly worded to the items Shelton et al. (2006) used, and is more strongly correlated with the outcomes, it was decided that this item would replace commitment in testing the hypotheses.

3.2. Hypothesis Tests

3.2.1. Main Effects and Moderation Analyses

Hypotheses 1a, 2a, 3a, and 4a tested the main effects of recall condition on each of the four outcomes, predicting that women who recalled failing to confront would exhibit greater negself and obsessive thoughts and lower working memory and performance scores compared to women who recalled confronting. Results are reported in Table 3 (Step 1 of the hierarchical regression analyses).

For Hypothesis 1a, as predicted, women who recalled failing to confront experienced significantly greater negself during the sexist situation they recalled than women who recalled confronting ($\beta = -.26$, $p < .001$). Conversely, there was no

significant difference in obsessive thoughts between women who recalled confronting and women who recalled failing to confront (β = -.02, p = .70). Moreover, there were no significant differences between women who recalled confronting and women who recalled failing to confront for working memory (β = -.05, p = .29) or performance (β = .08, p = .11). Thus, Hypotheses 2a, 3a, and 4a were not supported.

Hypotheses 1b, 2b, 3b, and 4b predicted that commitment would moderate the relationships between recall condition and negself, obsessive thoughts, working memory, and performance, respectively. As discussed in the previous section, how much the participant wanted to respond to the situation (want to respond) replaced commitment and these hypotheses were retested. Hierarchical multiple regression analyses were run after mean-centering the want to respond variable and creating a recall condition by want to respond interaction term. The results of these analyses are presented in Table 3.

For Hypothesis 1b, results showed that want to respond significantly moderated the recall condition-negself relationship, as evidenced by the significant interaction term (β = -.19, p = .003) in Step 2. As depicted in Figure 3, the effects were in the expected direction. The more women who recalled failing to confront wanted to respond to the situation, the more negself they reported experiencing during the situation (β = .29, p < .001), while how much women who recalled confronting wanted to respond to the situation was unrelated to the amount of negself they reported experiencing (β = .02, p = .82). Hypothesis 1b was supported.

Results for Hypothesis 2b yielded a non-significant interaction term (β = -.02, p = .74), demonstrating that want to respond did not significantly moderate the recall condition-obsessive thoughts relationship. Both women who recalled confronting (β = .34,

$p < .001$) and women who recalled failing to confront ($\beta = .39$, $p < .001$) experienced significantly greater obsessive thoughts at higher levels of wanting to respond. The graph of this interaction in Figure 4 illustrates the similarity of these effects between conditions. Hypothesis 2b was not supported.

For Hypothesis 3b, want to respond moderated the recall condition-working memory relationship, but only marginally significantly ($\beta = .13$, $p = .07$). The effects were in the expected direction (see Figure 5). The more women who recalled failing to confront wanted to respond, the significantly lower their working memory capacity ($\beta = -.14$, $p = .05$). On the other hand, working memory capacity of women who recalled confronting was unaffected by how much they wanted to respond ($\beta = .04$, $p = .55$). Hypothesis 3b was partially supported.

An interesting pattern of results emerged for Hypothesis 4b. Want to respond significantly moderated the recall condition-performance relationship, as evidenced by the significant interaction term ($\beta = .14$, $p = .04$). However, inconsistent with predictions, wanting to respond was unrelated to performance for women who recalled failing to confront ($\beta = -.06$, $p = .37$) and women who recalled confronting actually performed better the more they wanted to respond ($\beta = .14$, $p = .05$). Hypothesis 4b was therefore not supported. See Figure 6 for a graph of this interaction.

3.2.2. Mediation Analyses

Hypotheses 5a and 5b tested the mediating effects of obsessive thoughts and working memory. Hypothesis 5a predicted that obsessive thoughts would mediate the relationship between recall condition and performance. A simple mediation analysis

using PROCESS demonstrated that the indirect effect of recall condition on performance was .0003 and not statistically different from zero, as shown by a bias-corrected 95% bootstrap confidence interval (-.08 to .10) based on 10,000 bootstrap samples. Because this confidence interval contains zero, this suggests mediation is not occurring. A positive indirect effect in this case indicates that women who recalled confronting had greater obsessive thoughts on average than women who recalled failing to confront; however, this effect is so weak that such a conclusion cannot be made. It is no surprise that this conclusion cannot be drawn because the mean obsessive thoughts scores for both conditions are nearly identical. In addition, accounting for the effect of obsessive thoughts, the direct effect of recall condition on performance was marginally significant (effect = 1.29, p = .10). In all, there is no evidence of mediation and Hypothesis 5a was not supported.

Hypothesis 5b predicted working memory capacity would mediate the recall condition-performance relationship. Employing the same simple mediation procedure using PROCESS, the resulting indirect effect was -.20 and not statistically different from zero, as shown by the bias-corrected 95% bootstrap confidence interval (-.65 to .13) based on 10,000 bootstrap samples, which contains zero. This negative indirect effect suggests that women who recalled confronting had lower working memory on average than women who recalled failing to confront, but again this effect is not significant. Accounting for the effect of working memory, the direct effect of recall condition on performance is significant (effect = 1.50, p = .05). These results suggest working memory is not a significant mediator and Hypothesis 5b was not supported.

3.2.3. Conditional Process Analysis

The final analysis was to test the moderation and mediation hypotheses together in a conditional process model, or in other words, to test for moderated mediation. Figure 7 shows the modified conditional process model. The conditional process model was modified from its original version (Figure 2) to replace commitment with want to respond due to the fact that commitment was not a viable moderator. In addition, obsessive thoughts is not included in the modified model. Because previous analyses indicated that women in both recall conditions had nearly identical levels of obsessive thoughts on average, that obsessive thoughts increased with want to respond at a similar magnitude across conditions, and that obsessive thoughts was not a significant mediator of the recall condition-performance relationship, it was left out of the conditional process model. If retained, the indirect effect of obsessive thoughts would only grow weaker compared to what it was in the simple mediation analysis because the effects of want to respond and working memory would be added to the regression. Also, based on the non-significant simple moderation results, it is not possible that the indirect effect would be significantly moderated by want to respond. In all, retaining obsessive thoughts would not help explain the recall condition-performance relationship above and beyond working memory and would likely weaken the overall model. Working memory was also not a significant mediator; however, it was retained as the sole mediator in the model because want to respond moderated the recall condition-working memory relationship, albeit marginally. Also, recall condition significantly predicts working memory for women who recalled failing to confront and working memory is a significant predictor of performance.

3.2.3.1. Indirect Effect Results

To interpret whether the mediating effect of working memory is moderated by want to respond, the recall condition by want to respond interaction terms for the direct and indirect effects were first examined. Regarding the conditional indirect effect, or the effect of recall condition on working memory through wanting to respond, the recall condition by want to respond interaction is marginally significant ($b = 2.87$, $p = .07$; Table 4), suggesting the effect of whether a participant recalled confronting or not confronting on working memory may depend on how much the participant wanted to respond to the situation, although not at a conventional level of significance. PROCESS also generates conditional direct and indirect effects based on levels of the moderator. The default option was selected, which generates effects at the mean of the moderator and ± one standard deviation from the mean. Because the want to respond value one standard deviation above the mean exceeds the maximum score, the maximum was used instead. Table 5, which shows the effects at different levels of want to respond, indicates that the conditional indirect effect increases as OSPAN scores increase. Further, the conditional indirect effect is only significantly different from zero for women who did not have a strong desire to respond to the situation, as shown by the 95% bootstrap confidence interval (-1.23 to -.02) based on 10,000 bootstrap samples that does not contain zero for wanting to respond scores one standard deviation below the mean. This suggests that for women who had a low desire to respond to the situation, those who recalled confronting had lower working memory on average (effect = -.52) compared to those who recalled failing to confront, and lower working memory was associated with lower task performance ($b = .12$, $p < .001$). On the other hand, for women who had a

stronger desire to respond to the situation, their working memory capacity did not

significantly differ based on whether or not they recalled confronting.

3.2.3.2. Direct Effect Results

Table 4 shows that the conditional direct effect of recall condition on task

performance through want to respond is also marginally significant ($b = 1.35$, $p = .09$). A

closer look at the effects in Table 5 shows the conditional direct effect is consistently

positive and increases as OSPAN scores increase. Opposite of the findings for the

conditional indirect effect, the conditional direct effect is significantly different from zero

only for women who had a high desire to respond to the situation, as the 95% bootstrap

confidence interval (.64 to 4.78) based on 10,000 bootstrap samples does not contain zero

for want to respond scores one standard deviation above the mean. The conditional direct

effect was also marginally significant for women who reported having a desire to respond

at the mean level of the sample. Put another way, at high levels of wanting to respond,

women who recalled confronting performed better on average than women who recalled

failing to confront (effect = 2.71), whereas task performance scores did not significantly

differ based on whether or not women with a low desire to respond recalled confronting.

3.2.3.3. Overall Model Results

The primary statistic that determines whether mediation is moderated is the

confidence interval for the indirect effect of the highest order interaction; in other words,

whether the indirect effect of recall condition on performance through working memory

is moderated by want to respond. The bias-corrected 95% bootstrap confidence interval (-

.01, .81) based on 10,000 bootstrap samples for this effect contains zero, suggesting there is no evidence the indirect effect of whether or not a participant recalled confronting a previous incident involving sexism on task performance through working memory depends on how much a participant wanted to respond to the situation they recalled.

CHAPTER 4. GENERAL DISCUSSION

Discrimination remains a problem today, and the number of EEOC claims filed under Title VII suggests it is likely members of stigmatized groups will face discrimination at work at some point during their careers. Given concerns about backlash, this very likely is an underestimate. Experiencing discrimination can negatively affect one's physical and psychological well-being and work-related attitudes and outcomes, as well as individual and team task performance. Discrimination can consequently affect an organization's bottom line and reputation, create legal troubles for the organization, and undermine an organization's efforts toward achieving its diversity goals. For these reasons, understanding ways to prevent or reduce discrimination is critical. Confrontation has emerged as a viable method targets can exercise to respond to perpetrators of discrimination and prevent future prejudiced behavior (e.g., Czopp et al., 2006). However, even though targets report a desire to confront, they often do not follow through, as numerous "roadblocks" can get in the way. The decision to confront is an important one because failing to confront can lead to various negative consequences. Research on prejudice confrontation has tended to focus on the *inter*personal (i.e., social) consequences of failing to confront, while little research has investigated the *intra*personal (i.e., within person) consequences. Moreover, the effects of failing to confront on other types of outcomes have yet to be explored. The present study sought to

contribute to the prejudice confrontation literature by delving deeper into the intrapersonal costs of failing to confront through objectively assessing the cognitive costs of failing to confront. Additionally, the present study explored the reach of the effects of failing to confront by examining a real-world outcome that can be applied to the workplace. The effect of desire to respond to a sexist situation was also measured to examine how congruity between intentions and behaviors interacts with the decision to confront to predict affective, cognitive, and performance outcomes.

4.1. Findings by Outcome

4.1.1. Affect

As previous research shows, the positive relationship between discrimination-related should-would discrepancies and negself is well-established (e.g., Devine et al., 1991; Shelton et al., 2006). Along these lines, the present study sought to replicate Shelton et al.'s (2006) findings that failing to confront sexism was associated with greater negself for targets who were highly committed to challenging sexism. The current study conceptually replicated these findings, showing that women who recalled failing to confront reported experiencing significantly greater negself during the sexist situation they recalled than those who recalled confronting, particularly if they had a stronger desire to respond to the situation. These results are consistent with previous research and suggest failing to confront can have harmful effects on one's emotions. On a positive note, this evidence provides hope for targets, suggesting confronting may act as a buffer against depression-like affective consequences that can come with experiencing sexism.

4.1.2. Obsessive Thoughts and Working Memory

In addition to affect, the present study assessed obsessive thoughts and working memory as intrapersonal costs of failing to confront. In the investigation of these variables, this study sought to accomplish three goals: (1) replicate Shelton et al.'s (2006) findings for obsessive thoughts, (2) test working memory as an additional and more sensitive cognitive cost, and (3) test obsessive thoughts and working memory as mediators of the recall condition-performance relationship in order to get a better concept of the underlying mechanisms affecting performance of targets who fail to confront.

The first cognitive variable of interest was obsessive thoughts. Shelton et al. (2006) found that women who recalled failing to confront experienced greater obsessive thoughts than those who recalled confronting, particularly if they were highly committed to challenging sexism (represented in the current study by the "want to respond" variable). These results were not replicated. Women in both recall conditions reported similar levels of obsessive thoughts, and the recall condition by want to respond interaction was not significant, indicating that recalling the sexist incident elicited about the same amount of obsessive thoughts about what happened and how the situation was handled regardless of how much participants wanted to respond. It was expected that the more women who recalled failing to confront wanted to respond to the situation, the more they would ruminate; therefore, the primary question is why women who recalled confronting experienced nearly identical effects. One possible explanation is that women who recalled confronting dwelled on the situation and how they behaved just as much as women who recalled failing to confront because the recall instructions in the current study helped participants relive the sexist incidents more strongly than Shelton et al.'s

(2006) instructions. Although similarly worded, the current study added language to the recall prompts using the expressive writing literature as a guide, and the experimenters also emphasized during instruction that the participants should use a lot of detail. In all, the obsessive thoughts results make sense when considering that experiencing sexism can be an emotionally charged and powerful event that evokes many harmful effects. Additionally, the fact that participants could choose any event from their lives to recall that involved negative treatment based on their gender makes it likely that the events most women recalled were significant enough to stand out and consequently significant enough to ruminate about and not simply forget, despite how they reacted or how the situation was resolved.

In the previous paragraphs, possible explanations for the obsessive thoughts findings were provided. While a plethora of reasons could explain why women in both recall conditions dwelled on the situation to the same degree, comparing the obsessive thoughts results to those for working memory provides a more complete understanding of the cognitive costs of failing to confront and contributes to achieving the study's second purpose, which was in part to extend the work of Shelton et al. (2006) by providing a more in-depth assessment of the cognitive costs of failing to confront. Similar to obsessive thoughts, the current study found no significant differences in working memory between conditions. However, when considering how much the participants wanted to respond to the situation, a different picture emerged. Specifically, the more women who recalled failing to confront wanted to respond, the significantly lower their working memory. These results are fascinating because they suggest failing to act in accordance with one's intentions led to increased cognitive load and mental distractedness, whereas

acting in line with one's intentions did not produce such cognitive effects. These findings are interesting on their own, but they appear to contradict the obsessive thoughts findings. The next paragraph compares the results of the two measures to understand why these differences may have occurred.

At first glance, the results for obsessive thoughts and working memory appear contradictory. On the one hand, the obsessive thoughts results suggest that cognition is unaffected by recall condition and wanting to respond, while on the other hand, the working memory results suggest that cognition is affected differently by these variables. Stepping back and considering the underlying theory, it was expected that these variables would behave similarly in the overall model and affect performance similarly. Further, it was expected that greater rumination would be associated with lower working memory because if an individual is dwelling on a sexist incident, that would imply they are having trouble focusing on things other than the incident and are mentally distracted. An increase in distractibility should logically be associated with a decrease in working memory because working memory requires concentration and is influenced by distractibility. Looking at the variable intercorrelations in Table 1, obsessive thoughts and working memory are unrelated. Considering the overall results, this is not surprising, but these measures were expected to exhibit convergent validity. One factor that could explain why these variables are unrelated is the characteristics of the measures. Overall, the two measures are quite different in regards to format, scoring, and what they measure. More specifically, a key consideration is the self-report nature of the obsessive thoughts scale. Self-report measures are known to be influenced by factors such as memory distortion and social desirability bias. Compared to the obsessive thoughts measure, the OSPAN is

an objectively scored, more sensitive, and commonly used measure of cognition. Due to

its objective nature, the OSPAN is less prone to the biases of self-report measures. The

OSPAN also measured participants' cognition shortly after they relived the sexist

incident, which may have produced stronger effects than the obsessive thoughts scale,

which relied on participants' ability to accurately recall the thoughts and behaviors they

experienced based on a retrospective account of the sexist incident. This could have been

a factor, as there is evidence showing the inaccuracy of introspection (e.g., Nisbett &

Wilson, 1977). Moreover, theoretically speaking, recalling a sexist incident is analogous

to activating stereotype threat, making the OSPAN an appropriate choice for measuring

cognitive load in the current study, as the link between stereotype threat, working

memory, and cognitive performance is well-established. Correlations also revealed that

working memory is significantly associated with performance, while obsessive thoughts

is unrelated to performance (see Table 1).

In all, it could be argued that the OSPAN is a more direct and valid measure of

cognitive load than the obsessive thoughts scale. However, this is not to say that the

results for obsessive thoughts should be ignored or diminished. The results for these two

cognitive variables are not necessarily in opposition because the two measures may likely

be assessing different aspects of cognition. Results from both measures are valuable

because they illustrate that experiencing sexism affects cognition in a rather complex

manner. The implication is that for targets who want to respond and follow through to

confront, rumination is not necessarily going to trickle down to negatively affect other

outcomes like cognitive functioning or performance. Once again, the key message is that

there appear to be benefits of confronting when one wants to because even though

women who recalled confronting ruminated just as much as women who recalled failing to confront, they did not experience the same decrements in working memory.

4.1.3. Performance

Another component of the second purpose of this study was to extend the effects of failing to confront sexism to a workplace outcome in order to determine whether the effects would carry over to other outcomes in a measurable way. Failing to confront was expected to lead to increased obsessive thoughts and decreased working memory, thereby reducing performance. Contrary to predictions, there were no significant differences in performance scores between conditions. One possible explanation for this non-significant difference is that participants were not invested in the task or motivated to perform well on it. This may be particularly true due to the fact that the performance measure was at the end of the experiment and just after a rather lengthy OSPAN, which took 15 to 20 minutes on average to complete. Participants may have been too fatigued by the time they reached the performance task to care about it or put forth great effort. An examination of the performance scores shows that no participants scored the maximum possible score of 47, as the maximum scores were 39 (confronted condition) and 36 (did not confront condition). In addition, participants across both conditions correctly identified 18.94 errors on average. Broken down by condition, women in the confronted condition identified 19.60 errors on average and women in the did not confront condition identified 18.31 errors on average. These mean scores are fairly low and do not reach the midpoint of the scale, providing some support for the idea that participants may have been fatigued or lacked motivation.

Despite the fact that performance scores were not significantly different between conditions, it is important to note that women who recalled confronting scored over one point better on average than women who recalled failing to confront. While this was not a statistically significant difference, it arguably has meaning in terms of practical significance. This one point difference equates to a 7% difference. That is, women who recalled confronting performed 7% better on average than women who recalled failing to confront. This might not seem like a substantial difference, but depending on how performance is measured and what implications performance has on other outcomes or decisions, it can have a tremendous effect in a work setting. For example, 7% can be the difference in meeting a sales or production quota, meeting a deadline in a timely manner, or being considered for a promotion. Further, it is possible that experiencing multiple incidents of discrimination over time can produce a compounding effect, leading to larger performance reductions.

In terms of the moderation results, the recall condition by want to respond interaction for performance was not in the predicted direction, with women who recalled confronting performing better than women who recalled failing to confront at higher levels of wanting to respond. Remarkably, although the working memory of women who recalled failing to confront was significantly reduced when these women had a strong desire to respond to the situation, this reduction was not enough to significantly reduce their performance. Again highlighting its protective effects, confronting appears to have prevented women who wanted to respond from experiencing both working memory and performance deficits. It is also possible that confronting empowered the women in such a way that bolstered their cognitive performance. Research has supported this idea,

showing that confronting gives women feelings of competence, self-esteem, and a sense

of empowerment (Gervais, Hillard, & Vescio, 2010). In addition, coping strategies like

confronting can help a target achieve core social motives (e.g., self-enhancement, need

for control, need to belong) activated and threatened by discrimination (Swim & Thomas,

2006). For instance, using Shelton et al. (2006) as an example, Swim and Thomas (2006)

argued that confronting can function as a means to gain control over the self if

confronting allows one to be true to the self (i.e., by acting in line with one's beliefs).

4.1.4. Mediation and Conditional Process Model

Finally, the current study tested the mediating effects of obsessive thoughts and

working memory and a moderated mediation model of the cognitive and performance

consequences of confronting versus failing to confront sexism. First, with regard to the

mediation tests, literature on stereotype threat has shown that the threat of confirming a

negative stereotype about one's group decreases cognitive performance (e.g., Steele &

Aronson, 1995) and that working memory is a central mechanism responsible for this

effect (Schmader et al., 2008). Using this evidence as a guide, the current study proposed

that working memory and obsessive thoughts would mediate the recall condition-

performance relationship based on the idea that recalling a sexist incident would be akin

to activating a stereotype threat. However, neither variable was found to be a significant

mediator. These results are not surprising for obsessive thoughts. As discussed previously,

obsessive thoughts was unrelated to performance and scores were virtually the same

across conditions. Therefore, it makes sense that obsessive thoughts would not act as a

mediator because a variable would not be able to explain a relationship comprised of

variables it is not correlated with. On the other hand, the results for working memory were more unexpected, especially given the stereotype threat research. It is possible that these results were non-significant because there are variables other than working memory explaining the recall condition-performance relationship. This is reasonable to believe because for one, the current study shows the effect of recall condition on both working memory and performance depended on how much participants wanted to respond to the situation. Even though this is a moderating variable and not a mediating variable, it provides evidence that other variables are likely influencing this relationship. Also supporting this claim, recall condition and working memory together account for only 6% of the variance in performance (working memory accounts for 5% unique variance).

Another possible explanation is that recalling a sexist incident does not evoke the same effects as activating a stereotype threat. This study is the first to test this model, making it difficult to determine if this is the case. Since there were no significant differences in working memory by recall condition, this seems to suggest recalling a sexist incident may not be equivalent to activating a stereotype threat. However, as discussed later in the limitations section, various factors related to the recall manipulation could have affected participants' outcomes (e.g., memory decay, severity of the sexism). In addition, in contrast to studies of stereotype threat, which typically manipulate the threat in a controlled manner, the current study likely suffered from the limitations of using a less controlled, open-ended recall prompt. In any case, more research needs to be conducted before this question can be answered.

Next, the proposed conditional process model was tested. How much participants wanted to respond to the situation was expected to moderate both the indirect effect of

recall condition on performance through working memory and the direct effect of recall condition on performance. As the results showed, want to respond did not significantly moderate either the indirect or direct effect, providing no evidence for moderated mediation. Although non-significant overall, the conditional process analysis is beneficial in that it partitions the conditional indirect and direct effects according to levels of the moderator, allowing for a more pinpointed interpretation. Illustrating this point, simple moderation and bivariate regression analyses demonstrated that want to respond moderated the recall condition-working memory relationship in the expected direction, but these results do not provide information about differences in working memory according to specific levels of how much the women wanted to respond. The conditional process results, on the other hand, showed significant differences in working memory by condition occurred only for women who had a low (one standard deviation below the mean) desire to respond to the situation. These results are useful because specific cutoff scores can be applied to solve problems or inform decisions. For example, using the current study's results and considering only women with a high desire to respond (given the overall negative associations between higher levels of want to respond and the outcomes), the results showed no significant difference between conditions in working memory, but women who confronted performed better on average. These results imply that if a woman has a strong desire to respond, she is predicted to perform better and her working memory is predicted to be higher (although not significantly), if she confronts. If an organization wishes to use this information with regards to performance outcomes, the organization could test commitment levels of employees and target confrontation training based on these scores in order to protect against possible reductions in performance.

In addition, the conditional process analysis provides a different way of interpreting findings by testing all variables in the hypothesized model simultaneously. Compared to testing the moderating effect of want to respond on recall condition-performance in a simple moderation analysis, which showed that want to respond was a significant moderator, the conditional process results show that when working memory is included in the regression, the recall condition by want to respond interaction becomes marginally significant. This weakened interaction effect demonstrates how testing all these variables together in one moderated mediation model can provide a more complete picture of the variable relationships and increase overall interpretability of the model.

Taken together, the results of the conditional process model analysis provide weak support for the hypothesized model, particularly for the overall prediction that failure to confront when one wanted to would increase cognitive distraction and consequently reduce performance. To date, there is little evidence in the literature to support the idea that prejudice-related self-discrepancies lead to rumination or cognitive deficits. Shelton et al.'s (2006) model was based on the theories of Higgins (1987) and Monteith (1993), but these theories have been tested in terms of affective, not cognitive outcomes of self-discrepancies. Higgins' (1987) theory does not discuss cognitive costs of self-discrepancies, and in terms of Monteith's (1993) model, Shelton et al.'s (2006) rumination predictions were on the basis of the increased focus on the self and discrepancy-relevant information that low-prejudiced individuals experienced in Monteith's (1993) study. In addition, Shelton et al. (2006) cited literature demonstrating that emotion suppression can impair memory (e.g., Richards & Gross, 1999) and that thought suppression can lead to intrusive thoughts (e.g., Wegner, 1994) to support their

predictions. Thus, Shelton et al.'s (2006) obsessive thoughts predictions were based on

research that did not directly test the link between self-discrepancies and obsessive

thoughts. Furthermore, although Shelton et al.'s (2006) rumination findings supported

their predictions and pointed toward the importance of cognitive variables in the model,

these findings were marginal. The marginal findings along with a lack of empirical

evidence suggest it is possible that the hypothesized model is incorrectly specified. For

instance, it could be that negself alone is the driving factor responsible for producing

distraction and reducing later performance, and obsessive thoughts or cognition is not

necessary to explain potential performance consequences for women who fail to confront

sexism. However, the current study does not provide strong support for negself as the

driving factor, given that negself was unrelated to performance ($r = -.04$). On the other

hand, the non-significant main effects, mediation, and moderation results for both

cognitive variables may support this assertion, especially given the adequate power. In

addition, working memory was significantly correlated with performance, but this is

perhaps due to the conceptual overlap between measures – both assessed language

abilities to some extent. Another plausible explanation in support of affect driving the

findings alone is that positive affect associated with confronting, such as feelings of

empowerment, may have boosted performance. Studies such as Gervais et al. (2010)

seem to suggest this may be the case, but future research is needed to explore this

possibility.

4.2. Contributions

4.2.1. Theoretical Contributions

The contributions of the present study to the social and industrial/organizational psychology literature are threefold. First, the present study provides another look into some of the potential intrapersonal costs of failing to confront sexism on targets of sexism by retesting previously examined affective and cognitive costs. Second, this study increases understanding of the cognitive costs of failing to confront by examining an additional cognitive variable and testing two cognitive variables as mediators. Third, this study provides a framework for testing the reach of the effects of failing to confront on an applied outcome through examining task performance.

One of the purposes of this study was to replicate Shelton et al. (2006), who demonstrated that failing to confront sexism predicted more negself and obsessive thoughts for targets that were highly committed to challenging sexism. The current study succeeded in conceptually replicating these findings for negself. Replicating these affective consequences of failing to confront is in line with past research that has demonstrated the link between discrimination-related should-would discrepancies and negself (e.g., Devine et al., 1991; Shelton et al., 2006) and is important because it contributes to the body of prejudice confrontation research on the intrapersonal costs of failing to confront. Furthermore, the fact that these results were found using a recall prompt rather than immediately following a sexist incident implies these effects are quite strong.

Because the negself findings are well-established in the social psychology literature, the examination of some cognitive costs of failing to confront sexism provides

for a more novel contribution of the current study's findings. Although Shelton et al.'s (2006) obsessive thoughts findings were not replicated, the current study's findings contribute to an increased understanding of the cognitive costs of failing to confront by suggesting that the experience of sexism has an overall rumination effect, independent of how much a target wants to respond or whether the target confronts. To the experimenter's knowledge, obsessive thoughts has only been tested once previously in this way, making it unclear whether these results are spurious. However, retesting this variable served to provide more evidence toward building a theory on the cognitive costs of failing to confront.

Part of the second purpose of this study was to extend Shelton et al.'s (2006) model by adding a second cognitive variable (i.e., working memory) and testing the mediating effects of both obsessive thoughts and working memory. Through examining these variables, the current study contributes to the literature with novel findings that show failing to confront when one wishes to do so can produce a marked decrease in cognitive resources. Furthermore, these results were obtained using a more sensitive, objective, and common measure of cognition than what has been used previously, which provides stronger support for the effects. Additionally, even though obsessive thoughts and working memory were not significant mediators, this study was the first to test these variables as mechanisms responsible for the effect of the decision to confront on task performance. In sum, this study contributes to the prejudice confrontation literature by suggesting that the cognitive costs of failing to confront should continue to be investigated in order to increase understanding of the intrapersonal costs of failing to confront.

Last, previous research on prejudice confrontation has not extended the effects of failing to confront beyond the thoughts and emotions or attitudes of the target or other individuals involved in the situation. This study contributed to filling this gap in the literature by providing a way to quantify the effects of failing to confront on an outcome with real world implications. Results for task performance were unexpected but intriguing because they suggest confronting inhibited the negative effects of sexism and boosted the cognitive performance of women who wanted to respond to the perpetrator. These results contribute to the industrial/organizational psychology literature by demonstrating that discrimination has the potential to affect task performance, a key work-related outcome, and that confronting can mitigate some of the negative effects discrimination may produce. Further, this study provides a framework for testing various outcomes affected by the decision to confront, contributing to a greater understanding of the utility of confronting.

4.2.2. Practical Applications

In addition to contributing to the social and industrial/organizational psychology literature, the results of the current study have important implications for settings where discrimination may occur and cognitive performance is measured, such as the workplace. For example, the information gained from this study can be used to educate managers and employees on the potential harmful effects of failing to confront discrimination. From an organizational standpoint, a chief concern among these effects is a reduction in task performance. Although the performance of those who recalled failing to confront was not significantly reduced in the present study, because the working memory of these

individuals was significantly reduced, it is possible these effects could lead to performance deficits on other types of cognitive tasks or could lead to other negative outcomes. On the organizational level, reductions in performance are undesirable for all organizations because they can decrease productivity and the bottom line.

Aside from the effects on performance, it is also imperative to communicate to managers how the damaging effects of failing to confront can link to and prevent the achievement of organizational goals (e.g., fostering a diverse and welcoming environment and culture, teamwork). On the individual level, for stigmatized individuals who are more likely to experience discrimination, suffering from negative emotions or reductions in performance could lead to a variety of negative outcomes including poorer health, more negative work attitudes, and fewer opportunities for raises, promotions, or mentoring. Poorer performance or attitudes could also promote negative stereotypes about the target's group. These outcomes, both at the individual and organizational level, are ones about which all organizations should be concerned.

If such affective consequences and cognitive deficits for targets are occurring due to a preventable factor like discrimination, an organization can intervene and put efforts into place to reduce the potential for these effects. A common practice organizations employ to reduce discrimination is a diversity training program. The focus of diversity training programs is typically on preventing people from engaging in discriminatory behavior and encouraging sensitivity to group differences. In addition to standard diversity training practices, it could prove useful to include information from this study about confrontation in these programs. Some suggestions for a program on confrontation include educating employees on how to react if targeted by discrimination, having

employees practice confrontation strategies so confronting is less intimidating, and explaining the benefits and utility of confronting with an emphasis on the importance of confronting if one feels compelled to respond. In sum, including the knowledge gained from the present study in education and training programs to detail the potential effects of confronting versus failing to confront on affect, cognition, and performance at both the individual and organizational level can bring to life the real consequences of discrimination and may provide a viable method for preventing or reducing these effects in organizations.

4.3. Limitations and Future Research

The limitations of the current study center on the study's choice of measures and design. Specific issues include measurement validity and generalizability of the study's results. First, one of the primary validity concerns is the construct validity of the commitment/want to respond measure. The items used to measure commitment, the originally hypothesized moderator, failed to significantly moderate all but one of the proposed relationships. Possible reasons for these non-significant effects are discussed in detail in the preliminary analyses section and will not be discussed again here; however, this brings to bear the question of whether a single-item measure of wanting to respond to the recalled sexist situation provides a broad enough assessment of commitment. Whenever possible, steps should be taken to maximize validity. Therefore, it is important to note that there are benefits to using multiple items over a single item measure. For example, compared to a single item, a larger number of reliable items can increase construct validity by more fully covering the commitment construct domain. Also

regarding coverage of the construct domain, the want to respond item differs from Shelton et al.'s (2006) items in that it was specific to the situation participants recalled rather than a measure of desire to respond to sexism in a global sense. The CPR Model posits that a target will face various obstacles in the decision to confront, including interpreting the event as discrimination and deciding whether or how to respond (Ashburn-Nardo et al., 2008). Based on this model, it is possible that even if a target has a certain average level of commitment overall, his or her commitment level may change depending on the evaluation of the situation (e.g., social costs of confronting, ambiguity of the perpetrator's behavior). In this way, overall commitment compared to wanting to respond to a specific situation has the potential to differentially predict outcomes. Consequently, it would be worthwhile to retest the study's hypotheses using a reliable multiple-item measure of commitment and also to compare overall commitment versus commitment based on a specific situation.

A second limitation of this study's measures concerns external validity, or the generalizability of findings to other settings or people. External validity is a chief concern for this study particularly because this was a lab study seeking to apply the findings to the workplace. Issues with external validity in this case involve the sample, the task performance measure, and the essay recall manipulation.

The first concern for external validity of the present study involves the characteristics of the sample. Seeking to replicate Shelton et al. (2006), the sample was comprised entirely of women. This was advantageous in that it reduced any effects of participant gender, and given evidence that women experience more sexist incidents on average, may have allowed for easier recall than if male participants had been used.

However, sampling only women limits the interpretability of the findings to a single group and a single form of discrimination. The sample was also mostly non-Hispanic, White college students, calling into question the generalizability of the findings to other groups. Future studies should examine other stigmatized groups such as groups based on race, ethnicity, religion, sexual orientation, age, or disability. Comparing different groups would shed light on whether experiencing different forms of discrimination leads to different intrapersonal and performance outcomes. Additionally, because the outcomes of this study are intended to be applied to the workplace, there is a concern of whether the results from a sample of college students, who were very young on average, generalize to employees in an organizational setting. In this study, participants were free to recall any type of negative treatment against women, and therefore, the incidents covered a range of types of treatment and settings in which the treatment occurred. Although the treatment and settings varied, results suggested discrimination can affect individuals not just in the moment it occurs, but also at a later point in time through recalling a memory of the event. Based on this evidence, it is reasonable to believe that discrimination does not have to occur in the workplace for it to affect targets at work. It is possible that simply remembering any type of sexist incident while on the job could trigger negative emotions and cognitions and influence performance. Future research would benefit from conducting a case study of an organization to examine employees in a work setting rather than students in a lab. It would also be valuable to test whether events that occur at work versus outside of work produce different outcomes.

The second concern for external validity is in regards to the task performance measure. When choosing the task performance measure, care was taken to select a task

that is not specific to any particular job and could apply to a variety of work-related tasks that involve concentration and sorting through information. The reading passage task was thought to accomplish these goals and is in contrast to tasks commonly used in studies of working memory and performance. Such studies often use sample problems from standardized tests like the SAT (e.g., Steele & Aronson, 1995), which arguably do not appear as generalizable to common job tasks as the reading passage. Although perhaps more face valid than standardized test items, it is possible that scores on the reading passage do not generalize to other measures of task performance at work. To determine the generalizability of the reading passage, future studies could correlate reading passage scores with task performance scores from a variety of actual jobs. Furthermore, another limitation of using the reading passage is that there was no baseline measure of grammatical skills or reading comprehension assessed. Another reason the reading passage was selected is that it required the ability to discern incorrect and omitted information from a larger body of information in order to test cognitive distractibility rather than general cognitive ability, but it is possible that, controlling for the experimental variables, participants differed in their spelling, grammatical, or reading comprehension abilities. It is unlikely this was a significant issue for a few reasons. For one, two participants were excluded who expressed comprehension difficulties upfront. Also, with adequate statistical power and a sample consisting of college students, it is fairly safe to assume any differences in abilities would be minimal or average out. Future research should, however, gather baseline data if investigating task performance based on comprehension or other abilities, particularly if the people in the sample may have a range of ability levels. Measuring changes from baseline scores would provide for a more

precise examination of the magnitude of the cognitive and performance changes. Alternatively, future studies could investigate other types of tasks that are subject to distractibility but not general cognitive ability, such as pattern recognition or spatial tasks.

Next, the use of an essay recall manipulation prompt is a concern for both internal validity and external validity. The present study asked participants to recall a previous experience with sexism rather than creating an opportunity to confront in the lab or observing confrontation in a naturalistic setting. One obvious issue with recall is that memories are undoubtedly subject to fading or other confounding effects, which could weaken internal validity. Depending on a variety of factors including how recently the event occurred, how severe the negative treatment was, and individual differences in memory, participants may not have recalled the details of the incident fully or accurately. Participants also may not have felt the emotions from recalling the incident as strongly as when the situation originally occurred. To mitigate possible issues with recall, the prompt was worded using expressive writing techniques to encourage participants to relive the experience and provide detail. The fact that the current study found some significant effects using a recall prompt suggests these effects could likely be stronger immediately following discrimination. However, future studies could use a different experimental design in order to reduce issues associated with memory recall. For one, a controlled lab study in which confederates are trained to act in a discriminatory manner and participants are given the opportunity to confront could be conducted to increase internal validity. A study such as this would standardize the discrimination and provide a clearer way to compare effects across participants, as opposed to comparing effects from varied experiences. Alternatively, future studies could observe and record real confrontations in

an organizational setting. This method would, however, be extremely challenging and observation can influence behavior of participants. One method that could prevent observer effects would be to perform a diary study similar to those Swim et al. (2001) conducted.

The next set of limitations involves the study's design. The primary design issue is the cross-sectional nature of the study. A cross-sectional study is limiting because it provides only a narrow view of the effects at a particular moment in time. A longitudinal study would be beneficial to conduct to investigate whether the affective and cognitive effects found in this study carry over for a time period after a sexist event occurs. Because the current study used a recall prompt, this implies that the effects elicited by the sexist memories persisted long enough to affect the outcomes during the experimental session, but when the incidents occurred was not taken into account. It would be interesting for future research to explore whether negself, working memory, or performance increase or decrease over time. Comparing the effects at multiple points in time would provide a better picture of how they change and endure.

Last, this study's model provides a framework for testing a myriad of models related to the decision to confront and the possible outcomes influenced by this decision. Future studies would further contribute to the prejudice confrontation literature by testing other moderators (e.g., severity of the incident, characteristics of the perpetrator), other types of performance (e.g., mathematical calculations, decision-making), or other work outcomes (e.g., job satisfaction, turnover intentions). It is unknown whether there are other intrapersonal consequences of failing to confront, but future research should

continue to investigate this research area in order to create a deeper understanding of just how far-reaching the effects of discrimination are for individual targets.

4.4. Conclusion

Considering the results of the present study as a whole provides a deeper look into the effects and reach of the experience of sexism among women. Through an examination of affective, cognitive, and performance outcomes, this study reveals the harm that failing to confront sexism can produce for women, and highlights the importance of acting in line with one's intentions to confront. These results contribute to the prejudice confrontation literature by retesting and further examining the intrapersonal costs of failing to confront, and add to the industrial/organizational psychology literature by demonstrating that discrimination can affect a key work outcome. In all, these results are encouraging, as they provide additional evidence for confrontation as a promising method for protecting targets against the damaging effects of discrimination. Organizations can use this information to design diversity training programs or interventions to make the workplace more inviting and productive for all employees.

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*Asterisk denotes reference cited only in Appendix A: Proposal Introduction

TABLES

Table 1. Variable Intercorrelations

	Variable	*M*	*SD*	1	2	3	4	5	6	7
1.	Recall Condition[a]	—	—	**(N/A)**						
2.	Negself	2.95	1.63	-.25**	**(.93)**					
3.	Obsessive Thoughts	2.58	.79	-.00	.43**	**(.86)**				
4.	Working Memory	29.61	15.26	-.06	-.04	-.06	**(N/A)**			
5.	Performance	18.94	7.79	.08†	-.04	-.01	.23**	**(N/A)**		
6.	Commitment	3.99	.73	.09†	.11*	.29**	-.11*	.00	**(.86)**	
7.	Want to Respond	3.07	.98	.04	.16**	.36**	-.06	.04	.18**	**(N/A)**

Note. Internal consistency reliability estimates (α) are bolded in parentheses. *N* = 392.
[a]Dummy-coded variable (recalled failing to confront = 0, recalled confronting = 1).
*Correlation is significant at *p* < .05 (2-tailed). **Correlation is significant at *p* < .01 (2-tailed).
†Correlation is significant at *p* < .10 (2-tailed).

Table 2. Hierarchical Multiple Regression Analysis Predicting Negself, Obsessive Thoughts, Working Memory, and Performance from Commitment

| | Outcome | | | | | | | |
Predictor	Negself ΔR^2	Negself β	Obsessive Thoughts ΔR^2	Obsessive Thoughts β	Working Memory ΔR^2	Working Memory β	Performance ΔR^2	Performance β
Step 1	.08**		.08**		.01†		.01	
Condition[a]		-.26**		-.03		-.05		.08†
Commitment[b]		.14**		.29**		-.10*		-.01
Step 2	.00		.01*		.00		.00	
Condition[a]		-.26**		-.03		-.05		.08†
Commitment[b]		.10		.20**		-.11		.00
Condition × Commitment[c]		.06		.14*		.01		-.01
Total R^2	.08		.09		.01		.01	
N	392		392		392		392	

Note. ΔR^2 = change in proportion of variance explained in outcome; β = standardized regression coefficient. [a]Dummy-coded variable; [b]Mean-centered variable; [c]Interaction term.
*Statistic is significant at $p < .05$ (2-tailed). **Statistic is significant at $p < .01$ (2-tailed).
†Statistic is significant at $p < .10$ (2-tailed).

Table 3. Hierarchical Multiple Regression Analysis Predicting Negself, Obsessive Thoughts, Working Memory, and Performance from Want to Respond

	Outcome							
	Negself		Obsessive Thoughts		Working Memory		Performance	
Predictor	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	.09**		.13**		.01		.01	
Condition[a]		-.26**		-.02		-.05		.08
Want to Respond[b]		.17**		.36**		-.06		.04
Step 2	.02**		.00		.01†		.01*	
Condition[a]		-.26**		-.02		-.06		.08
Want to Respond[b]		.30**		.38**		-.14*		-.06
Condition × Want to Respond[c]		-.19**		-.02		.13†		.14*
Total R^2	.11		.13		.02		.02	
N	392		392		392		392	

Note. ΔR^2 = change in proportion of variance explained in outcome; β = standardized regression coefficient.
[a]Dummy-coded variable; [b]Mean-centered variable; [c]Interaction term.
*Statistic is significant at $p < .05$ (2-tailed). **Statistic is significant at $p < .01$ (2-tailed).
†Statistic is significant at $p < .10$ (2-tailed).

Table 4. Conditional Process Analysis

Antecedent		M (Working Memory)				Y (Performance)		
		b	SE	p		b	SE	p
X (Condition)[a]	a_1	-1.67	1.54	.28	c'_1	1.45	0.77	.06
M (Working Memory)		—	—	—	b	0.12	0.03	$< .001$
W (Want to Respond)[b]	a_2	-2.20	1.07	.04	c'_2	-0.23	0.53	.67
X × W (Condition × Want to Respond)[c]	a_3	2.87	1.58	.07	c'_3	1.35	0.79	.09
Constant		30.37	1.08	$< .001$		14.77	0.93	$< .001$
		$R^2 = 0.01$				$R^2 = 0.07$		
		$F(3,388) = 1.94, p = .12$				$F(4,387) = 7.30, p < .001$		

Note. b = unstandardized regression coefficient; SE = standard error; R^2 = proportion of variance explained in outcome. Letters in columns left of the b values represent corresponding paths on Figure 7. [a]Dummy-coded variable; [b]Mean-centered variable; [c]Interaction term.

Table 5. Confidence Intervals for the Conditional Process Analysis

Want to Respond[ab]	Indirect Effect		Direct Effect		
	Effect	95% Bias-Corrected Bootstrap CI	Effect	95% Bias-Corrected Bootstrap CI	*p*
-.975	-.52	-1.23 to -.02	.13	-2.01 to 2.28	.90
.004	-.19	-.63 to .13	1.46	-.05 to 2.96	.06
.930	.12	-.36 to .62	2.71	.64 to 4.78	.01

Note. Indirect Effect = effect of recall condition on working memory through want to respond; Direct Effect = effect of recall condition on performance through want to respond; CI = confidence interval. Confidence intervals that do not contain zero suggest effect is significant. Negative effects indicate women in the confront condition scored lower on average than women in the did not confront condition. [a]Mean-centered variable; [b]Values are one standard deviation below the mean, at the mean, and at the maximum.
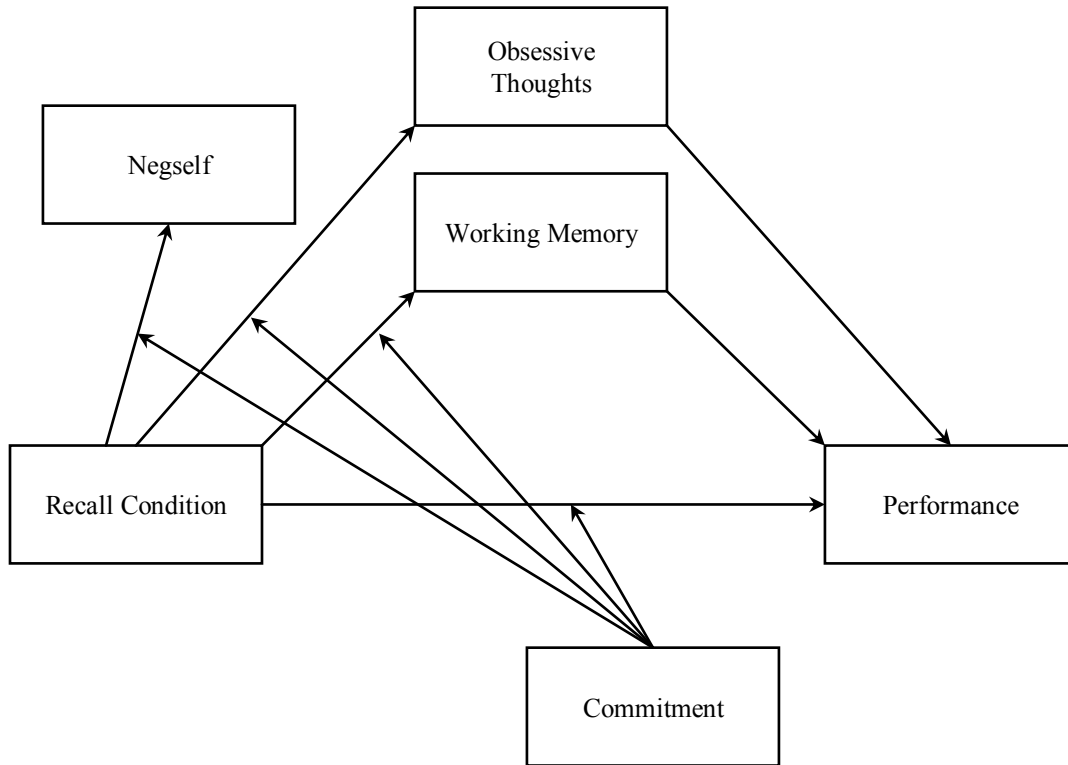
FIGURES

Figure 1. Model of Hypothesized Relationships
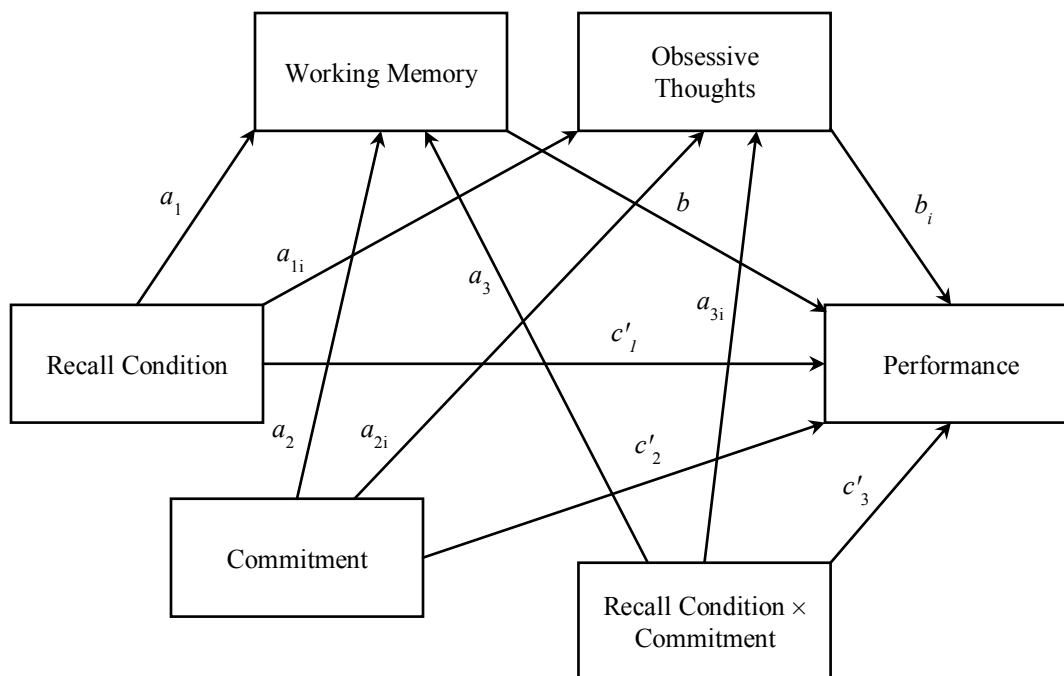
Figure 2. Conditional Process Model

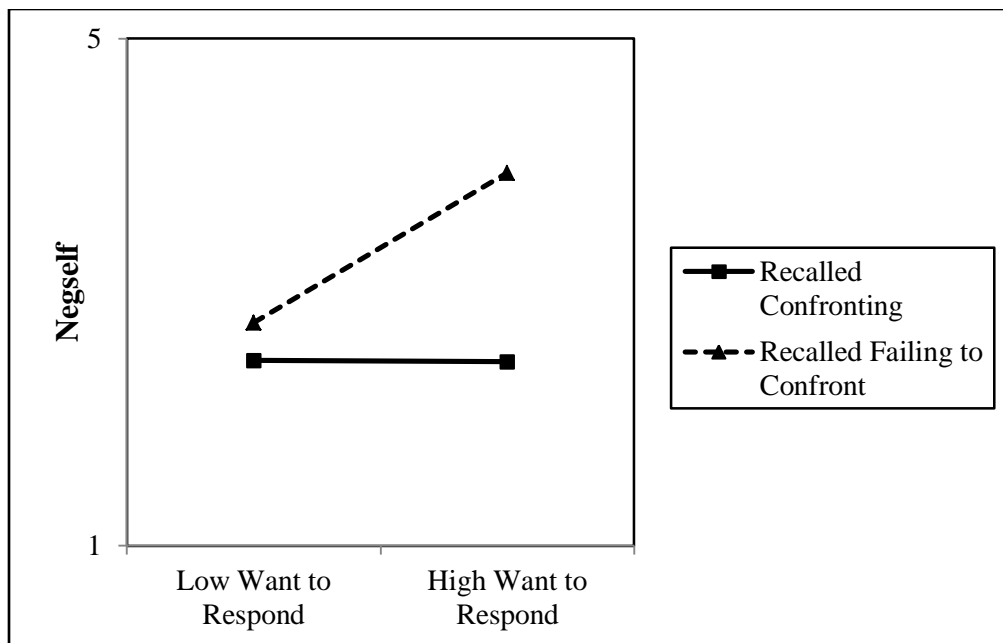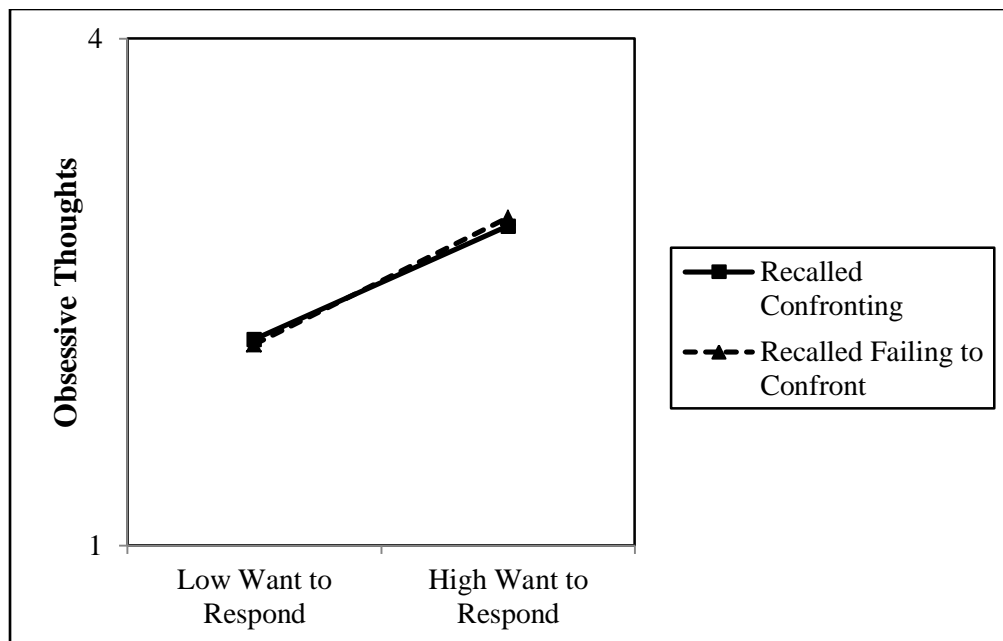Figure 3. Interaction between Recall Condition and Want to Respond for Negself

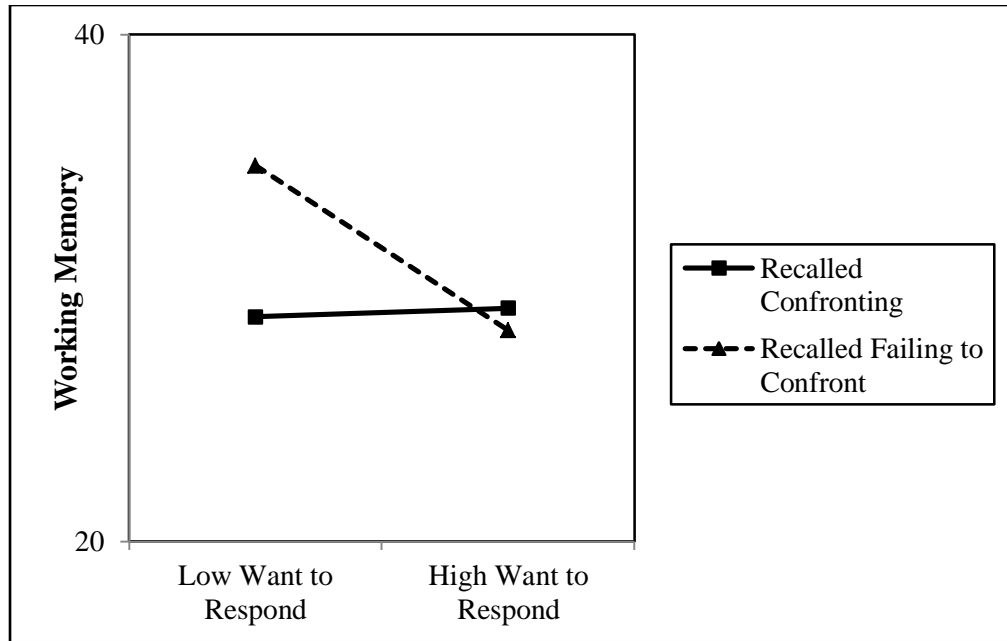Figure 4. Interaction between Recall Condition and Want to Respond for Obsessive Thoughts

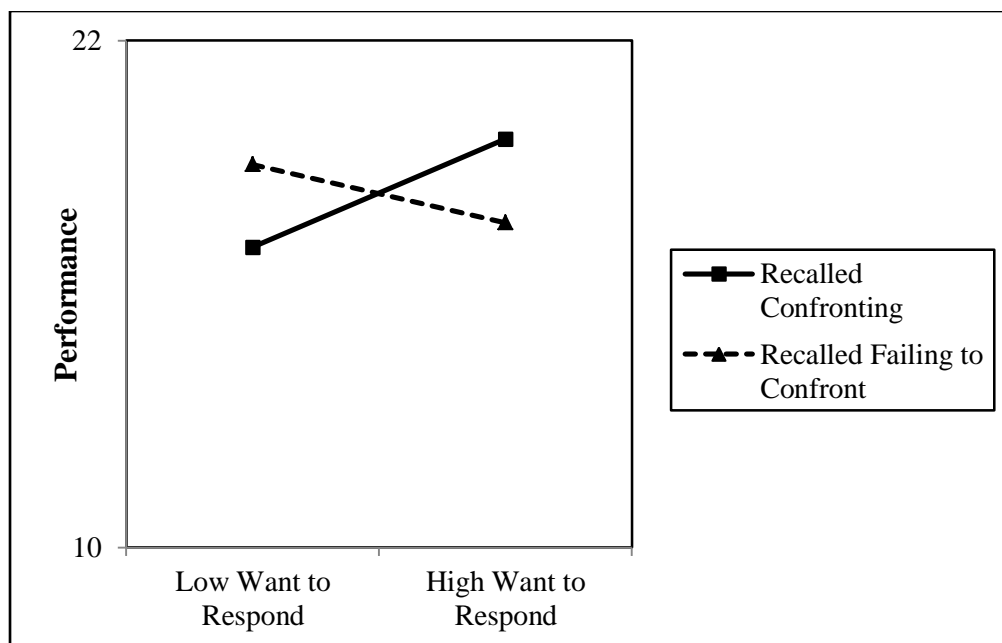Figure 5. Interaction between Recall Condition and Want to Respond for Working Memory

Figure 6. Interaction between Recall Condition and Want to Respond for Performance
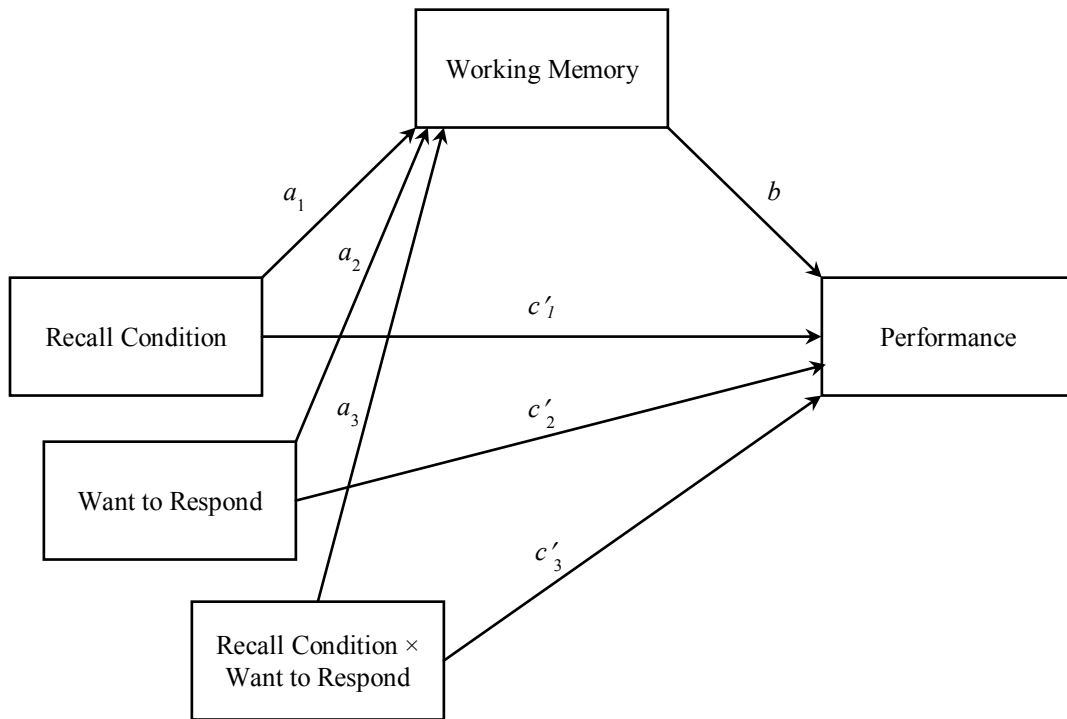
Figure 7. Modified Conditional Process Model

APPENDICES

Appendix A: Proposal Introduction

Discrimination is alive and well despite the recent election of an African American president and beliefs in a so-called post-racial America (Kaiser, Drury, Spalding, Cheryan, & O'Brien, 2009). For stigmatized individuals who are targets of discrimination, perceptions of discrimination in the workplace can lead to a host of negative consequences, including negative work attitudes (e.g., job satisfaction, organizational commitment) and fewer promotions (Ragins & Cornwell, 2001).

Because discrimination persists and is detrimental to those who experience it, targets of discrimination often wish to address discrimination for reasons such as to educate the perpetrator or change the perpetrator's beliefs (Hyers, 2007). As a result, targets are many times faced with the decision of whether or not to confront perpetrators of discrimination. This decision to confront is critical because research has shown that confronting discrimination can prevent future prejudiced responses from occurring (Czopp, Monteith, & Mark, 2006).

Despite a desire to confront, targets of discrimination often fail to express their disapproval to the perpetrator fully or fail to address the perpetrator at all (Swim & Hyers, 1999; Woodzicka & LaFrance, 2001). Failure to confront discrimination can lead to various negative consequences for targets as well; for example, it can suggest a target condones the discriminatory behavior, which may lead to continued expressions of bias. Additionally, the target can experience various affective and cognitive effects (Shelton, Richeson, Salvatore, & Hill, 2006). The proposed study centers on the negative consequences associated with targets of discrimination failing to confront perpetrators of

discrimination, and how these consequences can affect outcomes in the workplace, namely future task performance.

Discrimination

    Form and prevalence. Swim, Hyers, Cohen, and Ferguson (2001) give insight into the prevalence of discrimination and the forms it takes. The authors asked female participants to record all incidents of sexism they experienced or observed over a two-week period, and results indicated women experienced on average about two incidents considered to be probably or definitely prejudiced, or about one incident per week. These sexist incidents were fairly evenly distributed amongst three categories: traditional gender role prejudice and stereotypes (e.g., comments that women possess stereotypic traits or that certain roles are more appropriate for men or women), demeaning or derogatory comments or behaviors (e.g., using sexist jokes or negative attitudes towards equality), and sexual objectification (e.g., offensive comments or behaviors of a sexual nature).

    A second study by Swim et al. (2001) compared sexism experienced by men and women and included less feminist-oriented and male participants, as participants in Study 1 were recruited from a Psychology of Gender course and presumably could have been more likely to endorse feminist beliefs and consequently report more sexist incidents. Results of Study 2 revealed that men reported 80% of sexist incidents directed at men occurred as traditional gender role prejudice and stereotypes and 20% occurred as demeaning comments. No incidents of sexual objectification of men were reported. This second study also demonstrated even greater numbers of sexist incidents, as women reported witnessing an average of 3.45 incidents directed at women, or about one or two per week, and men reported an average of 2.06 directed at women, or about one per week.

Both women and men reported an average of one incident every other week directed at men. Additionally, Kaiser and Miller (2004) found that when asked to report the two most recent instances in which they were discriminated against because of their gender, female participants cited traditional gender role stereotypes, demeaning and derogatory comments and behaviors including sexist jokes and negative attitudes towards women, being ignored in conversations, and being subjected to sexually objectifying incidents such as catcalls.

Similar incidence of discrimination has been found in regards to race and sexual orientation. For example, African Americans experience discrimination in various forms, ranging from avoidance actions, to rejections in customer service situations, to physical threats and harassment (Feagin, 1991). Some estimates show incidents of racism occur on average about once every other week (Swim, Hyers, Cohen, Fitzgerald, & Bylsma, 2003).

Reports of discrimination according to sexual orientation have demonstrated that gay, lesbian, and bisexual participants reported experiencing an average of two heterosexist "hassles" per week, defined as comments or behaviors that reflected hostile or denigrating attitudes toward gay men, lesbians, or bisexuals and included jokes, insults, stereotypes, threats of violence, exclusion from events or conversations, hostile treatment, and fear of having one's sexual identity revealed (Swim, Johnston, & Pearson, 2009). As a whole, this evidence suggests discrimination is fairly prevalent and manifests in both traditional (more overt) and subtler forms.

Effects of discrimination. Experiencing discrimination can result in a range of negative consequences. Among these consequences are negative effects on psychological and physical well-being and job performance. In terms of psychological well-being,

experiencing a sexist incident can decrease a woman's comfort level (Swim et al., 2001).

Individuals who report more sexist incidents have also been shown to experience more

anger, depression, and decreased state social esteem (Swim et al., 2001). Moreover, racist

stressful events, which include the frequency and appraisal of racist events, were found to

be a better predictor of total symptoms, somatization, and anxiety than education, income,

age, gender, and generic stressful events for Black individuals (Klonoff, Landrine, &

Ullman, 1999). Klonoff, Landrine, and Campbell (2000) found that women who

experienced more frequent sexist incidents had significantly greater symptoms of

somatization, obsessive-compulsive thoughts and behaviors, interpersonal sensitivity,

depression, and anxiety than women with low scores on this measure and compared to

men. The number of symptoms did not differ between women with a low frequency of

experiencing sexist incidents and men. Experiencing exclusion from work-related or

social interactions because of one's ethnicity has also been shown to be associated with

lower life satisfaction and worse health conditions (Schneider, Hitlan, & Radhakrishnan,

2000).

Discrimination can also negatively affect job performance. Evidence of the

potential effect of experiencing discrimination on performance has been illustrated in

research on work teams. For example, Raver and Gelfand (2005) found that higher

measures of ambient sexual harassment, or harassment directed towards women

committed by supervisors or co-workers in the last 24 months prior, were found to be

significantly positively associated with relationship conflict and task conflict. Ambient

sexual hostility, which was defined as insulting and explicitly sexual verbal and

nonverbal behaviors, was also found to be significantly negatively related to team

cohesion. Ambient sexual hostility was significantly negatively related to team financial performance (Raver & Gelfand, 2005). These results suggest that if members of work teams are experiencing discrimination, the team can be negatively affected in various ways, including performance. This research is especially important because work teams are increasingly prevalent in organizations today.

Why Organizations Should Care About Discrimination

Organizations must be concerned with discrimination. Legal issues can arise (e.g., lawsuits, adverse impact allegations), which could be costly and tarnish an organization's public image and potentially affect employee morale. If a target of discrimination encounters discrimination on the job, he or she may also experience decrements in performance. This is a great concern for any organization, as reduction in performance is detrimental, whether by resulting in loss of productivity, reduced profits, or other negative outcomes.

Discrimination can also influence the work environment, making it less inviting to target group members, which could prevent the fostering of a diverse workforce. An environment that condones discrimination can also make the targeted individual feel less of a sense of belonging, which could also decrease performance (Walton & Cohen, 2007). An employee who experiences discrimination is less likely to feel welcome among his or her co-workers, and may even look poorly on the organization as a whole if efforts are not put in place to reduce or discourage discrimination. The target may feel as though he or she is not respected among peers or supervisors, and may feel less attachment to the organization and feel disengaged. Such feelings could even result in increased counterproductive workplace behaviors or decreased desire to perform at his or her

potential. Consequently, such outcomes can serve to perpetuate negative stereotypes of the target's group. The workplace is more diverse today than ever before, therefore employers must realize the differences among employees and respect them in order to be successful. Perceptions of discrimination can negatively affect employee perceptions of economic need fulfillment (e.g., pay and benefits and equity of outcomes), interpersonal-related need fulfillment (e.g., dignity, respect shown to employees), and deontic-based need fulfillment (e.g., perceptions of ethical behavior and practice). This is important because these types of needs fulfillment have been found to be positively related to job satisfaction and organizational commitment, and high job satisfaction and organizational commitment have been found to be positively associated with fewer turnover intentions (Goldman, Slaughter, Schmit, Wiley, & Brooks, 2008).

Responding to Discrimination

Because the aforementioned negative consequences can arise when discrimination exists or is perceived in the workplace, organizations can implement a variety of practices in attempts to reduce it. Wentling and Palma-Rivas (1998) outlined diversity training, organizational policies, and mentoring as such practices. Diversity training involves increasing awareness and educating employees about cultural differences and the importance of valuing diversity in the workplace. Diversity training can also help build skills for how to work with diverse groups of people. In addition, the authors discussed implementing organizational policies that ensure equity across groups, such as in recruitment practices, as another strategy. Further, providing mentoring or career development programs can help ensure equity in opportunities for all employees and foster encouragement and trust.

Despite such efforts by organizations to reduce discrimination, due to its prevalence, it is likely targets will at some point experience discrimination at work. Therefore, when discrimination occurs, targets must decide how to react to it. One possibility is confronting the perpetrator. Confrontation often conjures up images of an intense or even hostile lashing out against another individual, but it does not have to be very intense. Confrontation is defined in this case as "verbally or nonverbally expressing one's dissatisfaction with prejudicial and discriminatory treatment to the person who is responsible for the remark or behavior" (Shelton et al., 2006, p. 67). Hence, confrontation can range from an eye rolling to a heated diatribe.

Confrontation. Research demonstrates that targets of discrimination do in fact want to respond to it by confronting the perpetrator. For example, Hyers (2007) found that targets of discrimination want to respond in order to educate the perpetrator and attempt to change their beliefs, or for self-validation (e.g., to release anger or show defiance). Confrontation is an important tool for use against discrimination, as research shows confrontation can influence perpetrators' thoughts and feelings (e.g., arouse guilt and negative self-directed affect; Czopp & Monteith, 2003), reduce future stereotypic responses from occurring, and decrease prejudiced attitudes (Czopp et al., 2006).

Likelihood and types of confrontation. Swim and Hyers (1999) investigated targets' reactions to sexism and found that although 45% of the female participants publicly confronted a male confederate who made sexist comments, only 16% confronted him with direct verbal comments. Of those who did not publicly confront, 75% reported privately that they saw the confederate as prejudiced, and 91% reported that they privately held negative thoughts and feelings about him. Additionally, in a second study,

female participants were less likely to report that they would confront when they

imagined a scenario in which a male made sexist comments and when confronting was

too risky, when they would be perceived as impolite, and when there were other women

present compared to if they were the only woman in the group. Participants indicated the

likelihood that they would definitely give a particular response. Forty-seven percent

anticipated definitely questioning the sexist response, whereas only 25% actually

questioned such a response. Furthermore, 81% anticipated definitely giving at least one

confrontational response while only 45% actually did so. These results demonstrate that

although targets of discrimination do not always actively and publicly confront

perpetrators of discrimination, they often wish to do so and privately hold negative views

of the perpetrator.

In addition, Woodzicka and LaFrance (2001) found that when asked to indicate

how they thought they would react to an interviewer who asked sexually harassing

questions, 62% of female participants indicated they would confront the harasser by

either asking him why he asked the question or telling him the question was inappropriate.

Additionally, 28% reported they would leave the interview or rudely confront the

interviewer, and 68% said they would refuse to answer at least one of the harassing

questions. The women cited anger as the most prominent emotion they felt when

anticipating these harassing questions. Anger was also significantly associated with

confronting. The authors then investigated female participants' responses to sexually

harassing questions in a laboratory experiment with a male confederate as the interviewer.

Results demonstrated that none of the participants refused to answer any of the questions.

Fifty-two percent ignored the harassment by answering the question as they were asked,

36% politely asked the interviewer why he asked the question, but 80% of these participants asked this at the end of the interview, not immediately after the question was asked. Not a single participant confronted the interviewer in a negative manner, and not one left the interview. These results suggest that when actually in a discriminatory situation, the costs of confronting may become more salient and can hinder confrontational responses.

   Reasons for not confronting. The previous section described targets' desire to confront discrimination, yet it is evident that targets often do not react as they intend, or sometimes even do not confront at all. One possible explanation for this hesitancy to confront is that individuals weigh the costs and benefits of confronting before taking action to confront. The Confronting Prejudiced Responses (CPR) Model is one framework for understanding the process through which individuals decide to confront discrimination (Ashburn-Nardo, Morris, & Goodwin, 2008). The CPR Model helps explain the factors that predict the likelihood individuals who experience or observe discrimination will confront it, as well as the challenges involved in the decision to confront. It is proposed that individuals face at least five hurdles to confronting discrimination: interpreting an event as discrimination, determining whether the event is an emergency, deciding whether to take responsibility to confront, deciding how to confront, and deciding whether to take action based on the assumed costs versus benefits of confronting (Ashburn-Nardo et al., 2008). As can be inferred from the CPR Model, the decision to confront discrimination is no simple task, and this decision is further muddled by its associated risks.

Of the costs of confronting that targets of discrimination must consider are the social costs of confronting. Individuals contemplating confrontation may perceive confrontation to not be socially desirable or that it may make them disliked among others. This perception is not unfounded, as stigmatized group members who stand up to discrimination are often labeled complainers. Kaiser and Miller (2001) found that an African American who attributed a failure to discrimination was evaluated less favorably and seen as more of a complainer than an African American who attributed a failure to his answer quality. These results held regardless of the certainty that discrimination occurred. Furthermore, the authors found that when the target blamed failure on an external factor other than discrimination (i.e., difficulty of the test), he was not seen unfavorably or as a complainer. Apparently, the attribution of a failure to an external source was not enough in itself to elicit negative impressions from others. Shelton and Stewart (2004) found a similar effect for gender, as the more often women confronted a male interviewer who asked sexist questions, the more the women were seen as complainers by a male participant who acted as the interviewer. Conversely, women who confronted a male interviewer who asked offensive but not sexist questions did not influence the male interviewer's perceptions of them. It is clear from these examples that targets that confront discrimination are often viewed unfavorably. Generalizing these results to the workplace, perceptions of high social costs of confronting in the workplace (e.g., fear of losing one's job, fear of unfavorable performance reviews, or fear of loss of promotion by confronting a supervisor) can potentially serve to impede targets from confronting discrimination in organizations.

Another reason targets of discrimination may not follow through and confront is that they have difficulty gauging the power of the situation when an opportunity to confront actually arises. As Woodzicka and LaFrance (2001) found, one explanation could be increased fear, as 40% of targets were significantly more likely to report feeling afraid when actually facing sexism compared to 2% when imagining confronting. Those who actually were faced with the sexually harassing situation also felt less anger. Furthermore, as levels of fear increased, the likelihood of confronting decreased significantly. Similarly, targets of discrimination may view confrontation as threatening. As a result, in the case of sexism, for example, viewing confronting as more threatening can make a female target less likely to report they had confronted recent discrimination they faced (Kaiser & Miller, 2004).

Effects of Not Confronting Discrimination

Just as confronting discrimination can be costly to a target, failing to confront can also carry costs. As mentioned previously, confrontation can reduce future prejudiced responses (Czopp et al., 2006), therefore it follows that failing to confront can allow for continued prejudicial attitudes or discriminatory treatment because perpetrators of the negative treatment are not made aware of the effects of their behavior on targets and others in the environment. In addition, failing to confront can negatively influence the cognition and affect of a target. Little research to date has investigated the *intra*personal costs (e.g., cognitive and affective) of targets failing to confront discrimination. Two studies by Shelton et al. (2006) are some of the few studies dealing explicitly with the intrapersonal costs of targets not confronting.

Study 1 of Shelton et al. (2006) revealed some affective consequences of failing to confront. Specifically, the authors examined the interplay between one's level of commitment to challenging sexism and discrimination-related should-would discrepancies (the degree of the discrepancy between how one feels they *should* respond versus how they *would* respond to a perpetrator of discrimination), and how these factors influence affect. To elicit these should-would discrepancies, participants were asked to report their personal standards for how they felt they should respond to various situations involving discrimination based on gender (all participants were female), followed by their responses to how they felt they would respond to the same discriminatory situations.

Results revealed a significant interaction between discrepancy scores and commitment to challenging sexism for negative self-directed affect, such that for women with greater commitment, larger discrepancies were associated with more negative self-directed affect. Conversely, for women with lower levels of commitment, discrepancies scores were unrelated to negative self-directed affect. Essentially, this means women who felt more obligated to fighting or standing up to sexism were more likely to experience feelings of guilt or shame about themselves when they failed to do something to let the perpetrator know they disapproved of their sexist behavior. The underlying idea here is that failing to confront is not consistent with one's high personal standards for fighting sexism, thus the associated negative effects occurred.

In Study 2 of Shelton et al. (2006), the authors focused on the cognitive costs of targets not confronting. Female participants were asked either to recall a situation in which they experienced sexism, felt they should have responded to the perpetrator and *did not*, or recall a situation in which they experienced sexism, felt they should have

responded to the perpetrator and *did* respond. Participants then completed measures of affect they experienced during the situation, obsessive thoughts they had about their behavior during the situation they recalled, and their commitment to challenging sexism.

Similar to Study 1, results showed that when participants recalled a sexist situation in which they felt they should have responded but *did not* respond, the more committed to challenging sexism the participant was, the more negative self-directed affect they experienced and the more obsessive thoughts they had during the situation.

An important point to emphasize is that the results of the two studies by Shelton et al. (2006) were qualified by the participants' commitment to challenging sexism. That is, a greater obligation to stand up for women and to fight sexism was what led to greater negative self-directed affect and obsessive thoughts, as these effects were not seen in women with low commitment to challenging sexism. Therefore, the proposed study will sample women who, through their scores on a prescreening measure, will be identified as highly committed to challenging sexism; the same relationships are proposed to occur.

The theoretical framework Shelton et al. (2006) drew from to explain these consequences of not confronting was Higgins' self-discrepancy theory. Higgins' theory states that transgressing a personal standard for behavior leads to negative affective consequences. Higgins conceptualized three domains of the self: the actual, ideal, and ought self. Discrepancies between the actual and ought self can lead to guilt, self-contempt, and uneasiness directed to the self (Higgins, 1987). Research has supported Higgins' theory, for example, demonstrating that individuals with larger should-would discrepancies report greater global discomfort and negative self-directed affect than individuals with small discrepancies (Devine, Monteith, Zuwerink, & Elliot, 1991). Thus,

in Shelton et al. (2006), targets' discrepancies between wanting to confront (e.g., high commitment to challenging sexism) and their actual behavior (e.g., failing to confront) were explained in association with the greater negative self-directed affect they reported. Although Higgins did not include cognitive consequences of should-would discrepancies in his theory, Shelton et al. (2006) addressed this issue rationalizing that it is reasonable to believe not living up to one's personal standards can impair cognitive functioning, as targets who failed to confront were likely engaging in suppressing and concealing their negative emotions when facing the perpetrator during the sexist incident.

The cognitive costs of not confronting can also reasonably be explained using cognitive dissonance theory. Cognitive dissonance theory posits that when an individual's thoughts are not in line with his or her behavior, a state of discomfort occurs, leading to a drive to take action to reduce the discrepancies, by changing thoughts or behaviors (Festinger, 1957). As such, targets may experience a disconnect between their beliefs about discrimination and actions to reduce discrimination, creating a drive to reduce that discrepancy. One way to reduce this discrepancy is to change one's cognitions so they are consistent.

One purpose of the proposed study is to replicate the findings of Study 2 of Shelton et al. (2006). Applying Higgins' self-discrepancy theory and cognitive dissonance theory, the following hypotheses are proposed:

Hypothesis 1: Participants who are highly committed to challenging sexism and recall a past discriminatory situation in which they failed to confront the perpetrator of the discrimination will experience greater negative self-directed

affect than participants who recall a past discriminatory situation in which they confronted the perpetrator.

Hypothesis 2: Participants who are highly committed to challenging sexism and recall a past discriminatory situation in which they failed to confront the perpetrator of the discrimination will have experienced greater obsessive thoughts during the recalled situation than participants who recall a past discriminatory situation in which they confronted the perpetrator.

A second purpose of the proposed study is to extend Shelton et al. (2006) by applying these intrapersonal effects of failing to confront to a tangible workplace outcome—job performance. Based on the evidence that targets of discrimination experience negative self-directed affect and ruminate about not confronting, these consequences should theoretically have deleterious effects on a target's job performance, as the target's cognitive resources are being taxed. Literature on stereotype threat and working memory can be helpful in understanding how these cognitive effects influence later performance.

Stereotype Threat and Working Memory

Stereotype threat occurs when an individual experiences anxiety over the possibility of confirming a negative stereotype about his or her group, and has been shown to negatively affect performance (Steele & Aronson, 1995). Schmader, Johns, and Forbes (2008) proposed an integrated process model of stereotype threat to understand its effects on performance. In this framework, *working memory* is identified as the core cognitive faculty involved in stereotype threat effects. Working memory capacity is conceived of as a limited memory store with executive and attentional components. In

other words, working memory capacity represents the ability to maintain memory to be used to focus attention on temporarily activated task-relevant information while inhibiting other, task-irrelevant information (Engle, Tuholski, Laughlin, & Conway, 1999). Included in Schmader, Johns, and Forbes (2008)'s model is stereotype threat acting as a psychological stressor, a prime of the imbalance of self-concept, and a suppressor of thoughts as the individual attempts to regulate negative thoughts and feelings. These are proposed to be the main mechanisms contributing to the taxing of working memory resources in responses to stereotype threat.

Several studies have investigated the effects of stereotype threat on working memory capacity. For example, women placed in a stereotype threat condition in which they completed an operation span task by evaluating mathematical equations while memorizing words to be recalled later recalled fewer words than men in the stereotype threat condition and fewer words than women in the control condition. The operation span score was not significantly different for men across conditions (Schmader & Johns, 2003). Working memory capacity can also have an effect on the degree to which a stereotype affects performance. For example, Régner et al. (2010) found that women who scored low on measures of working memory performed worse than men who measured low on working memory when they were told a test was diagnostic of logical reasoning ability. However, women low on working memory performed just as well as men low on working memory when told the test was diagnostic but gender-fair. Low working memory women in the gender-fair condition also outperformed low working memory women in the diagnostic condition. High working memory women were not affected by the stereotype threat condition. These results suggest that if a stigmatized individual's

working memory capacity is already lower, he or she may be more susceptible to the effects of stereotype threat or discrimination, and those effects can negatively affect performance.

Evidence suggests the effects of stereotype threat can be pervasive. Beilock, Rydell, and McConnell (2007) demonstrated that the effects of stereotype threat can "spill over" to other, unrelated tasks. In their study, participants under the stereotype threat condition completed an arithmetic-type task of varying demands followed by either a verbal or spatial two-back working memory task. To complete these tasks, participants were asked to indicate whether a stimulus (a cluster of letters inside of a box presented at different spatial locations on the computer screen) presented on the current trial matched the stimulus presented in two trials previous to the current trial. The verbal condition focused only on matching the letters, whereas the spatial condition focused only on matching the spatial location of the letters. Results showed that those who performed worse on the arithmetic task performed worse on the verbal two-back task, but no effect was found for performance on the spatial two-back task. The authors suggested this effect was found only for the verbal two-back task because it required verbal working memory resources, just as the high-demand arithmetic problems required phonological resources, while the spatial task did not require such resources. This evidence is noteworthy, given that stereotype threat was activated for a math-related stereotype yet spilled over to a verbal domain. Stereotype effects have also been found to spill over to other domains such as exhibiting aggression, eating behaviors, and making risky decisions (Inzlicht & Kang, 2010). The implications for such findings are great, suggesting performance can suffer in various, unrelated domains following activation of stereotype threat.

Despite the aforementioned negative effects of stereotype threat on performance, there is encouraging evidence that the negative effects of stereotype threat on cognition can be mitigated. Research shows that changing target group members' conceptions of a stereotype can eliminate the effects of stereotypes on working memory capacity depletion. Forbes and Schmader (2010) found that retraining women on a stereotype increased working memory capacity and performance when in a stereotype threat condition. Women who were trained to associate women with being good at math exhibited higher working memory capacity than women who were trained to associate men with being good at math. When in a stereotype-neutral condition, however, stereotype retraining did not have an effect on working memory capacity. These results again underscore the importance of working memory for task performance.

Taken together, the stereotype threat literature reveals that when participants wanted to succeed on a task and were made aware that their membership in a particular group meant they stereotypically should fail, their cognitive resources were depleted and their subsequent performance suffered. Similarly, if targets of discrimination recall a situation involving negative treatment based on their gender, this memory could conjure up similar feelings as those that occur when a target experiences stereotype threat. Following recall of this memory, the individual may then ruminate about failing to confront this negative treatment. As a result, their working memory may be diminished and their subsequent performance may suffer.

Based on evidence from Study 2 of Shelton et al. (2006) demonstrating that targets ruminate and experience obsessive thoughts when they fail to confront discrimination and research demonstrating stereotype threat reduces working memory

capacity and consequently reduces future performance, the following hypotheses are proposed:

Hypothesis 3: Participants who are highly committed to challenging sexism and recall a past discriminatory situation in which they failed to confront the perpetrator of the discrimination will exhibit lower working memory capacity than participants who recall a past discriminatory situation in which they confronted the perpetrator of the discrimination.

Hypothesis 4: Participants who are highly committed to challenging sexism and recall a past discriminatory situation in which they failed to confront the perpetrator of the discrimination will exhibit lower task performance scores than participants who recall a past discriminatory situation in which they confronted the perpetrator.

Hypothesis 5: Obsessive thoughts will mediate the relationship between failure to confront discrimination and task performance.

Hypothesis 6: Working memory capacity will mediate the relationship between failure to confront discrimination and task performance.

How the current study will compare to Shelton et al. (2006)

The proposed study will replicate Study 2 of Shelton et al. (2006), using similar methodology, but will extend their findings to include additional measures and apply the outcomes to the workplace. More specifically, the proposed study will extend Shelton et al. (2006) by including a more objective and sensitive measure of the cognitive costs of not confronting (e.g., the operation span task) rather than only relying on a subjective, self-report measure of obsessive thoughts. The proposed study will also include a

measure of task performance—the Wonderlic Personnel Test (Wonderlic Inc., 2002). The inclusion of task performance will extend Shelton et al. (2006) by measuring the effects failing to confront has on a specific outcome applicable to the workplace. See Figure 1 in Appendix D for a depiction of all hypothesized relationships.

With these extensions, the proposed study will contribute to the prejudice confrontation literature by helping to better understand how failing to confront discrimination can affect important and tangible real world outcomes for targets, as well as the mechanisms through which failing to confront affects performance. Understanding these underlying mechanisms can help give insight into the value of confrontation as an effective intervention for reducing discrimination.

Appendix B: Materials

Demographics

The following questions are about you. Your responses will help us determine whether our sample is representative of students at IUPUI. We appreciate your cooperation in providing this information, which will be held in confidence.

What is your age? _____ years old

With which gender do you identify? (select one)

_____ Male

_____ Female

_____ Transgender

What is your ethnicity? (select one)

_____ Hispanic or Latino

_____ Not Hispanic or Latino

What is your race? (if more than one race, please select as many as apply)

_____ American Indian or Alaska Native

_____ Asian

_____ Native Hawaiian or Other Pacific Islander

_____ Black or African American

_____ White

_____ Other (please specify:_____)

Affect

INSTRUCTIONS: Think about the situation you just described in the recall exercise.
Please indicate the degree to which the following words describe how you were feeling
WHEN THAT SITUATION OCCURRED on a scale of 1 = "Does not apply at all" to 7
= "Applies very much."

	Does not Apply at all						Applies Very Much
1. friendly	1	2	3	4	5	6	7
2. angry at myself	1	2	3	4	5	6	7
3. frustrated	1	2	3	4	5	6	7
4. content	1	2	3	4	5	6	7
5. annoyed at myself	1	2	3	4	5	6	7
6. energetic	1	2	3	4	5	6	7
7. disappointed with myself	1	2	3	4	5	6	7
8. shame	1	2	3	4	5	6	7
9. self-critical	1	2	3	4	5	6	7
10. concerned	1	2	3	4	5	6	7
11. distressed	1	2	3	4	5	6	7
12. anxious	1	2	3	4	5	6	7
13. uneasy	1	2	3	4	5	6	7
14. uncomfortable	1	2	3	4	5	6	7
15. threatened	1	2	3	4	5	6	7
16. depressed	1	2	3	4	5	6	7
17. calm	1	2	3	4	5	6	7
18. guilty	1	2	3	4	5	6	7
19. embarrassed	1	2	3	4	5	6	7
20. angry at others	1	2	3	4	5	6	7
21. optimistic	1	2	3	4	5	6	7
22. regretful	1	2	3	4	5	6	7
23. disgusted with myself	1	2	3	4	5	6	7
24. disgusted with others	1	2	3	4	5	6	7
25. negative	1	2	3	4	5	6	7
26. tense	1	2	3	4	5	6	7
27. happy	1	2	3	4	5	6	7
28. bothered	1	2	3	4	5	6	7
29. good	1	2	3	4	5	6	7
30. irritated with others	1	2	3	4	5	6	7
31. fearful	1	2	3	4	5	6	7
32. sad	1	2	3	4	5	6	7

Obsessive Thoughts I

INSTRUCTIONS: Please rate each item according to how you felt or behaved DURING OR IMMEDIATELY FOLLOWING the situation you described at the beginning of this experiment using the following scale:

1	2	3	4
I did not do this at all	I did this a little bit	I did this a medium amount	I did this a lot

1. I tried to put the incident out of my mind.
2. I thought about how much the incident got to me (e.g., hurt me, angered me).
3. I tried to think of the event as a single, isolated incident.
4. I replayed the scene over and over in my mind.
5. I was intensely aware of my internal physical reactions (e.g., heartbeat, sweaty palms).
6. I felt it intensely and I kept feeling it—I wouldn't let it go.
7. I tried to keep cool. (R)
8. I turned to work or other activities to take my mind off of things.
9. I got emotional support from others.
10. I became violent.
11. I tried to see it in a different light, to make it seem more positive.
12. I tried to change my emotions.
13. I blamed someone else involved in the situation for things that happened.
14. I got help and advice from other people.
15. I looked for something good in what was happening.
16. I made jokes about it. (R)
17. I expressed my negative feelings to someone not in the situation.
18. I became angry with other people around me.
19. I blamed myself for things that happened.
20. I got comfort and understanding from someone.
21. I carried on with my day and stopped thinking about what happened. (R)

*(R) denotes reverse-coded item

Obsessive Thoughts II

INSTRUCTIONS: For the following items, please rate the degree to which you experienced these reactions FOLLOWING the situation you described at the beginning of this experiment using this scale:

1	2	3	4
I did not experience this at all	I experienced this a little bit	I experienced this a medium amount	I experienced this a lot

1. Perform poorly on the next thing I did
2. Was angry at myself
3. Felt empowered
4. Couldn't get going
5. I was worried about whether I was regarded as a success or failure
6. Was annoyed with myself
7. I was proud of myself
8. Felt energized
9. I felt self-conscious
10. Couldn't remember what I was supposed to be doing
11. I felt displeased with myself
12. Felt guilty
13. I thought I acted in a way that was consistent with my values
14. Felt stronger
15. I stopped thinking about what happened (R)
16. I was worried about what other people thought of me
17. I felt inferior to others at that moment
18. Couldn't concentrate
19. I had positive thoughts about myself
20. I felt concerned about the impression I made
21. Was self-critical
22. I felt a sense of relief
23. I had very little energy
24. I was happy with how I handled the situation
25. Ruminated about (i.e., dwelled on) how I behaved during the situation
26. Had negative thoughts about myself
27. Ruminated about (i.e., dwelled on) the situation
28. Was disappointed with myself

*(R) denotes reverse-coded item

How much did you want to respond to the situation you described?

I did not do this at all	I did this a little bit	I did this a medium amount	I did this a lot

How much did the situation bother you?

Not at all	A little bit	A medium bit	A lot

Rate the extent to which the situation was prejudiced against women.

Definitely not prejudiced	Probably not prejudiced	Uncertain	Probably prejudiced	Definitely prejudiced

Commitment to Challenging Sexism

INSTRUCTIONS: For this section, please indicate the extent to which you agree with each of the following items using the following scale:

1	2	3	4	5	6
Very strongly disagree	Strongly disagree	Moderately disagree	Moderately agree	Strongly agree	Very strongly agree

1. I use my knowledge about sexism to make a difference in my life.

2. I teach people ways to overcome gender role conflict and sexism.

3. I have taken some actions in my personal life to reduce sexism.

4. I reflect on any feelings about gender role conflict and then act on them.

5. I use my anger about sexism in positive ways.

6. I feel inner strength and power because of my gender role freedom.

7. I can face my personal pain about sexism and act on it.

8. I am responsible for changing restrictive gender roles.

9. I feel less restricted because of gender role changes I am making.

10. I express my anger and frustration due to sexism.

11. I structure my life to be free of gender role stereotypes.

12. When I get angry about sexism, I want to fight back.

13. I feel powerless to do anything to prevent sexism. (R)
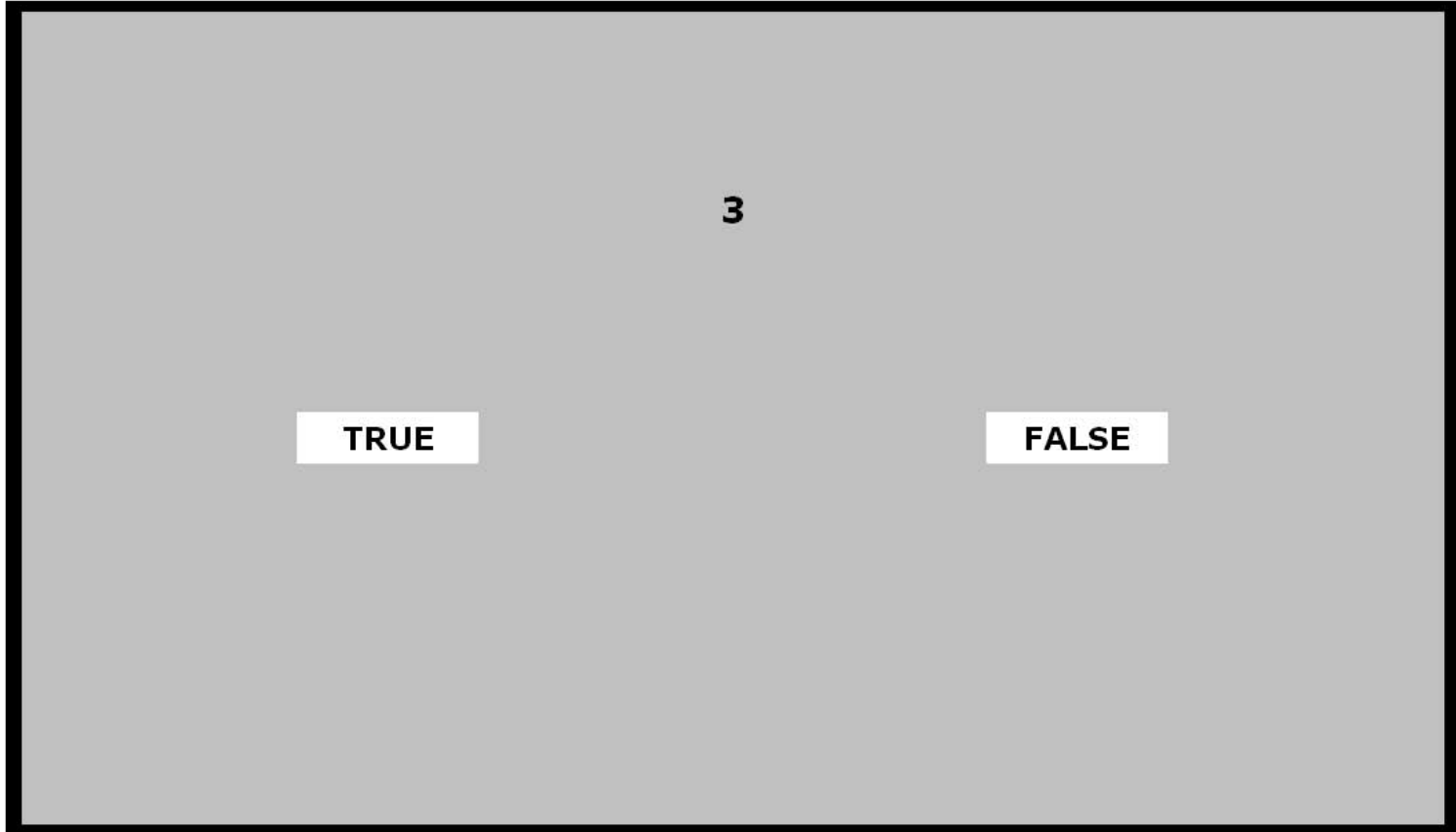
*(R) denotes reverse-coded item

(1*2) + 1 = ?

When you have solved the math problem,
click the mouse button to continue.

OSPAN Sample Math Solution

3

TRUE   FALSE

OSPAN Sample Word Stimulus

school

OSPAN Word Matrix

book	church	glass
plant	horse	tree
school	street	hand
floor	wall	bridge

BLANK

CLEAR

EXIT

OSPAN Sample Feedback Screen

0%

You recalled 0 out of 2 letters correctly.

You made 2 math error(s) on this set of trials.

Reading Passage

INSTRUCTIONS: Please read the following passage carefully and check for any spelling or grammatical errors. Circle any errors you find.

Note: You do not have to correct the errors, only identify them.

Sea ice is a part of Earth's biosphere. It forms from seawater that freezes below the freezing point of pure water at -1.8°C. Although sea ice is formed from seawater, it looses it's salt during the process of formation and thus eventually is as pure as freshwater iceburgs. The most concentrated locations of sea ice are in the arctic Ocean and the Southern Ocean (Antarctica). Sea ice has a significant impact on the global changes in climate.

Sea ice have a bright surface, so much of the sunlight that strikes it it reflected back into space. As a result, areas covered by sea ice do not absorb much solar energy, so temperatures in the Polar Regions remain relatively cool Sea ice also effects the movement of ocean waters. When sea ice forms, most of the salt is pushed into the ocean water below the ice, although some salt may becomes trapped in small pockets among ice crystals. Water below sea ice has a higher conversation of salt and is denser than surrounding ocean water, and so it sinks. In this way, sea ice contributes to the ocean's global "conveyor-belt" circulation. Cold, dense, polar water sinks and moves along the ocean bottom toward the equador, while warm water from mid-depth to the surface travels from the equator toward the poles. Chances in the amount of sea ice can disrupt normal ocean circulation, thereby leading to changes in global climate.

According to scientific measurements, arctic sea ice has declined dramatically over at least the passed 30 years, with the most extreme decline seem in the summer melt

season. The first comprehensive history of Arctic ice, carried out by a teams of scientists from five countrys, found that the recent retreat is the worst in thousands of years. Scientists have highlighted declining Arctic sea ice as and indicator of global warming. The NSIDC (The U.S. National Snow and Ice Data Center) has said that the Arctic Ocaen could be largely ice-free during the summer by year 2030. NSIDC scientists use the 1979 to 2000 average because its provides a consistent baseline for year-to-year comparisons of sea ice extent. scientists call this long-term average over a data series a climatology.

"The ice loss that we see today—the ice loss that started in the early 20th Century and speed up during the last 30 years—appears to be unmatched over at least the last few thousand years," said Mr. Gregery, a reserch scientist. "The Arctic sea ice melted 50% faster then the avreage melting rates," Mr. Gregery added.

For decades, scientists have strived to collect sediment cores from the difficult-to-access Arctic Ocean floor to discover what the Artic was like in the past. Their most recent goal is to bring a long-term perspective to the ice loss we sea today. Now, the team has re-examined data the from past and ongoing studies and combined them to from a big-picture view of the pole's climate history streching back millions of years. "Satellites can provide detailed measures of how much ice is covering the poll right now, but sediment cores are like fossils of the ocean's history," said Mr. Gregery. "Sediment core are essentially a record of sediments that settled at the sea floor, layer by layer, and they record the conditions of the ocean system during the time they settled. Scientists can search for a bio-chemical marker that is tied to certain species of algea that live only in ice. If that marker is present in the sediment, than that location was likely covered in ice at the time," he explained

While knowing the loss of surface area the of ice is important, Mr. Gregery said this work cannot yet reveel an even more important fact: how the total volume of ice (i.e., thickness and surface area) has changed over time. "Underneath the surface, the ice can be thick or think. The newest satellite techniques and field observations allow us to see that the volume of ice is shrinking much faster than its area today. The picture is very trubbling. We are losing ice very fast," he said.

The decline of seasonal sea ice is puting the survival of Arctic species such as ringed seals and poler bears at risk. Polar bears, whales, walruses and seals are changing there feeding and migration patterns, making it harder for native poeple to hunt them. Along Arctic coastlines, entire villages will be uprooted becuse they are in danger of being swamped. The retreat of the arctic ice cap has global ramifications, and given the complexity of the climate, and its sensitivity to even small changes, it is difficult for scientists to gave even unqualified predictions of just what the effects on the global climate will be in response to these changes taking place the Arctic. Both the atmospheric currents and the ocean currents can be expected to change.

Suspicion Check

The Psychology Department is interested in students' perceptions of the studies in which they participate. In your own words, please describe what you believe was/were the purpose(s) of the study/studies in which you just participated.

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Participant Compensation Form

Protocol #: _____

Principal Investigator: <u>Leslie Ashburn-Nardo</u>

Account Number: _____

Date: _____

Participant's Name: _____
(please print legibly)

Participant's
Address:_____

_____

Amount: <u>$25.00</u>

PI signature verifying that study was completed: _____

Disbursement Voucher #: _____

Date Disbursement Voucher entered into FIS: _____