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The effects of exposure to sexism on cognitive performance: The role of shifting in contingencies of self-worth

Kendra J. McLaughlin

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Bachelor of Arts Honours in Psychology

Department of Psychology

Faculty of Arts

UNIVERSITY OF NEW BRUNSWICK

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Abstract

Benevolent sexist attitudes purport that women are pleasant but physically and psychologically weak (Glick & Fiske, 1996). These messages have been found to have detrimental effects on women's cognitive performances partly because they reduce women's sense of competence (Dardenne, Dumont, & Bollier, 2007; Dumont, Sarlet, & Dardenne, 2010). We hypothesised that the effect of benevolent sexist messages on women's performance is, at least in part, due to the impact of these messages on women's contingencies of self-worth (Crocker & Wolfe, 2001). Contingencies of self-worth, simply put, are bases of self-esteem. Female students ($N = 69$) were randomly assigned to read a benevolent-, hostile-, or non-sexist message, and then complete measures of contingencies of self-worth and perform an intellectual task. We observed that gender identity significantly moderates the effects of sexism on appearance CSW. Specifically, women with low gender identity are less likely to base their self-worth on their appearance when they are exposed to BS. In addition, female students who strongly identified as women, as well as female students who identified with their student role were significantly more likely to base their self-worth on their academic competence. Basing self-worth on academics was positively associated with better performance on an intellectual task. Implications of these findings are discussed.

Dedication

To Mum, Dad, and Gomer, thanks for all your jokes and guidance throughout the years. I'm finally on my way to "getting an education". Academia is one of the most important things in my life because of your whole-hearted encouragement and inspiration. Thank you for all of the love and support!

To my love Andrew, who has also always been tremendously supportive and caring. You make me laugh, and you have more patience than anyone I know. You have helped me so very much through these trying and rewarding times.

I love you all greatly. This is a tribute to the three of you. xox

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The effects of exposure to sexism on cognitive performance: The role of shifting in contingencies of
self-worth

There has been a substantial increase in the number of women entering and graduating from university over the last three decades. In fact, there are now more women than men who enroll in post-secondary education programs; women account for over 60% of undergraduates in Canada (Statistics Canada, 2011). Additionally, women account for approximately half of employed Canadian workers (Statistics Canada, 2010). Nonetheless, women still hold less management and leadership positions than men; for the past 20 years, women have maintained less than half of the senior management positions that men hold (Conference Board of Canada, 2011). It is not to say that women are less professionally ambitious, or holding themselves back, however. It is suggested that the sexism women face in the workplace, and their fear of being called a “bitch”, may actually cause women to hesitate from taking on influential, leadership roles (Chittal, 2012). In fact, according to Dyke (2012), while women may now be more achievement-oriented and interested in pursuing professional careers, traditional gender stereotypes still remain within the workforce. That is, women who demonstrate strong leadership behaviours are often evaluated as “less likable” and hostile by their colleagues (Dyke, 2012).

In this respect, some gender role stereotypes encourage women to be “likable” and modest from a very young age. These gender roles and gender schemas influence how society evaluates women, the opportunities that are available to them, and in turn, what women may choose to value for themselves. Perhaps women reconcile their professional goals and such gender messages by opting to shift their self-worth and interests to more likely sources of esteem. Essentially, sexism may influence what women choose to value. Women who are subjected to work place sexism, may not only decide to stray from professional roles because of social pressures, but also because due to an intrinsic desire to maintain the ingrained virtue of social attractiveness. Perhaps, women realize

that when faced with sexism, gender consistent attitudes and behaviours are a likelier source of collegial approval. Women's "fear" of "being a bitch" demonstrates how strong of an influence sexism may have on their professional confidence and pursuits (Chittal, 2012). Nevertheless, some women do hold professional leadership roles. We are particularly interested in discovering what personal mechanisms assist these women in maintaining and pursuing their professional ambitions and succeeding in these roles, despite sexist opposition.

Context

Types of Sexism

Sexism is understood as negative attitudes and behaviours, typically directed towards women, on the basis of their gender. Additionally, sexism is diversified in its presentation and intention. Glick and Fiske (1996) proposed that sexism has two primary components, hostile and benevolent sexism, these are strongly interrelated, but can nevertheless be distinguished by their manifestations.

For instance, hostile sexism (HS) is very evidently antagonistic towards women, in attitudes and actions. This form of sexism usually casts women as loathsome and manipulative towards men (Dumont, Sarlet, & Dardenne, 2010). Because HS is grounded in the belief that men are more intelligent and abled than women, and therefore, deserving of a higher status, HS is typically directed towards women who challenge stereotypical gender roles, patriarchy, or the societal status quo (Becker & Wright, 2011). The women who are targets of hostile sexism are typically feminists, or women who hold authoritative professions. Conversely, benevolent sexism (BS) is sympathetic and protective of women. This seemingly positive attitude towards women casts them as warm, sweet, delicate, but also less abled than men. These sentiments and behaviours are usually directed

towards women who are domestic, subordinate, and generally conforming to male authority (Dumont et al., 2010).

BS effects on Task Performance

Although BS seems to hold women in a positive light and would seemingly benefit them, BS is actually detrimental to women's cognitive performance (Barreto et al., 2010; Dardenne, Dumont, & Bollier, 2007; Dumont, Sarlet, & Dardenne, 2010). These effects may occur because BS is quite ambivalent towards women; BS simultaneously flatters women while also expressing that they are inferior and less capable than men. Dardenne and colleagues (2007) hypothesised that because BS implicitly (and even congenially) suggests women's professional inferiority to men, this subtle form of sexism may lead women to doubt their own abilities and lowers their self-esteem, which in turn leads them to perform poorly on tasks. Researchers have demonstrated that exposure to BS attitudes (e.g. women are pleasant and friendly but incompetent) can have detrimental effects on women's task performance (Dardenne et al., 2007; Dumont, et al., 2010). For example, when women encountered BS comments in the context of a job interview scenario, their performance on a subsequent memory task was diminished (Dardenne et al., 2007). Conversely, perhaps BS is more detrimental to women's task performance not solely due to its apparent ambiguity, but because it implicitly attacks women's competence. Glick and Fiske's (1996) definitions of BS emphasize women as pure and fragile, whereas HS implies that women are selfish and controlling. In any case, there remain unanswered questions as to how BS is particularly influential to women's performance other than it's being insidious (Dardenne et al., 2007; Dumont et al., 2007). In our study, we chose to examine how the competence component of BS may independently influence task performance. To better understand whether BS truly affects cognitive performance more than HS, we created a HS prime that also included a competence attack (e.g., women tend to experience more difficulty

with complex material).

Sexism inherently prescribes roles and expectations of women; for instance, women are typically perceived as having good relational (e.g., caring, nurturing) characteristics, but poor task-related (e.g., leadership, organization) capacities (Barreto & Ellemers, 2005; Barreto et al., 2010). Researchers have demonstrated that women's self-descriptions and career-related aspirations are lessened when they are exposed to BS; women are particularly less likely to be willing to delegate duties to males (Barreto et al., 2010). Therefore, women may perform poorly on cognitive tasks upon exposure to sexism because they become less focused on their task performance outcome, and more on their relational appearance and qualities (Barreto et al., 2010).

Moreover, since BS has ambivalent motives and expressions, women may have difficulty distinguishing BS attitudes and intentions compared to HS attitudes and behaviours (Barreto & Ellemers, 2005). Women's doubt and rumination on the motives of BS is hypothesised as resulting in unpleasant "mental intrusions" that interfere with women's working memory, and consequently impair their cognitive performance (Dardenne et al., 2007). Women may experience mental intrusions about their ability because BS implicitly suggests that women are less capable than men (Dardenne et al., 2007; Dumont et al., 2010). Intrusive thoughts have primarily been found to occur when BS is presented (Dardenne et al., 2007). Mental intrusions may be less likely to occur when women are exposed to HS, since this form of sexism is more explicitly malicious. In such cases, women are more easily able to see that men are being spiteful towards them because of their sex when exposed to HS attitudes (Dardenne et al., 2007). Additionally, Dumont and colleagues (2010) have proposed that intrusive thoughts brought on by BS may be uncomfortable and that women may use strategies to suppress their intrusive thoughts. Women may try to actively suppress unwanted thoughts, or concentrate on something other than the unwanted thoughts, or use these in

any combination (Dumont et al., 2010). Distractive suppression may, for instance, involve focusing on endeavors that one is good at. In this regard we predict that sexism will likely also influence the effort women put towards an academic task. Moreover, we anticipate that sexism will influence women to become less focused on the task itself and in turn perform poorly on an academic task, in comparison to women not exposed to sexism.

BS effects on Contingencies of Self-Worth

Contingencies of self-worth (CSW) are bases of self-worth, or categories of personal beliefs on how to behave to secure and maintain self-worth and self-esteem (Crocker & Wolfe, 2001). There are seven CSW (e.g., family support, competition, appearance, god's love, academic competence, virtue, and approval from others; Crocker, Luhtanen, Cooper, and Bouvrette, 2003). The theory and measure of contingencies of self-worth demonstrate that overall, self-worth and esteem are not necessarily jeopardized when an individual meets failure or criticism. In fact, the CSW model demonstrates that a person may hold multiple contingencies at varying personal significances (Crocker & Wolfe, 2001). These contingencies are hierarchally organized, some may be held at superordinate or subordinate importance (Crocker & Wolfe, 2001). In this sense, a person who stakes a great deal of self-worth in their appearance will not be entirely depleted of self-esteem if their academic performance is attacked. This happens because their self-worth is not contingent on their academic performance; the attacks to this self-worth category do not affect this individual's superordinate self-worth (appearance). For the purposes of our study, we are particularly interested in how sexism influences women's academic- and appearance-focused CSW. As research has demonstrated that academic-focused and appearance-focused CSW are particularly salient to women (Overstreet & Quinn, 2012). We predict that sexism may not only influences intrusive or distracting thoughts, but also prompt women to be less concerned with their

performance as a means to satisfy their self-worth. In this sense, to maintain a positive self-worth women may shift their CSW.

CSW mediate prejudices' effects on task performance

CSW are significant directors of peoples' self-worth, and in turn, individuals' task efforts (Major, Spencer, Schmader, Wolfe, & Crocker, 1998). Moreover, exposure to prejudice can lead to lessening concerns for task performance (Major et al., 1998). For instance, when Black students learned that an academic test might be biased or racist, they ceased to aim for academic success on this test and appeared to disengage from their interest and self-esteem in performing well on the academic task (Major et al., 1998). These students' psychological withdrawal from the academic goals resulted from their disengagement from the academic CSW. This likely occurred because they anticipated not being able to satisfy their self-esteem through their academic competence (Crocker & Wolfe, 2001). In this regard, CSW acted as a mediator of prejudices influences on task efforts. According to Crocker and Wolfe (2001), CSW may motivate particular behaviours that help satisfy the individuals' superordinate CSW, or at least allow individuals to avoid a low self-worth. Essentially, individuals generally try to avoid negative effects and drops in their self-esteem. That is, when they suspect that their self-worth cannot be fulfilled within a particular contingency because of prejudices or biases at play, individuals can shift their worth to a subordinate CSW, to affirm and maintain a stable self-esteem (Steel, 1988, as cited in Major et al., 1998). We predict that a similar shift in CSW will also occur for women when they are exposed to sexism, particularly BS. Moreover, we suspect that much like in Major *et al.* (1998), participants' CSW will mediate how prejudice (i.e., sexism) affects effort and performance on an academic task.

CSW effects on Task Performance and Effort

According to Crocker and colleagues (2003), CSW influence the domains towards which individuals direct their behavioural energy and effort. Additionally, contingencies have a self-regulatory purpose, keeping behaviours in line with outcomes that will maintain self-worth. In this regard, contingencies influence how individuals organize their lives, and in what domains they put forth the most effort (Crocker et al., 2003). Therefore, we predict that in order to maintain a positive self-worth, women who have high academic self-worth will put forth the most effort towards an academic task, and in turn, have a higher score on this task. Contrarily, women who greatly value their appearance, will put less effort towards academics (not a source of self-worth), and thus will demonstrate a poorer performance on an academic task.

Gender Identity moderates sexism's effects on CSW

Gender identity has been found to guard women from the negative effects of HS, but not BS (Dardenne et al., 2007). As, women who highly identify as women have likely given a great deal of thought to their identity; these same women likely have stable and positive views on their gender identities (Dardenne et al., 2007). Additionally, since these women have strongly formed opinions about their gender, they are more likely to reject derogatory (i.e., hostile) comments and discrimination towards their gender (Dardenne et al., 2007). Nevertheless, these women are not as likely to reject BS, as it is more ambiguous (Dardenne et al., 2007). We anticipate that because sexism not only attacks the individual woman, but her entire social group (i.e., women), that an individual's gender identity may moderate how sexism influences their CSW, and in turn their performance.

Purpose of Study

Sexism has detrimental effects on women's cognitive performances and professional goals (Dardenne, Dumont, & Bollier, 2007; Dumont, Sarlet, & Dardenne, 2010; Barreto, Ellemers, Piebinga, & Moya, 2010). Sexism and gender stereotypes may have this influence because they emphasize the importance of women having a docile and affable nature (Chittal, 2012). Yet, not all women are equally affected by sexism, and not all forms of sexism proportionately affect women's cognitive and professional performance. Although a few studies have examined the effects of sexism on women's cognitive performance, none have examined how the effects of sexism on task performance may be mediated by another variable. The main purpose of this study was to determine what mechanisms regulate sexism's effects on women's academic/professional task performance. By first examining how sexism influences women's contingencies of self-worth, and in turn how these influence their academic task performance, the current study extends from past research on sexism's influence women's thoughts, and cognitive task performance (Dardenne et al., 2007). Based on previous research, we predict:

1. Women's exposure to sexism predicts poorer scores on the LSAT word logic test.
2. Women's exposure to sexism influences their appearance CSW scores. Specifically, BS will influence women to value appearance CSW more.
3. Women's exposure to sexism influences them to derive their self-worth on their academic competence less. Specifically, BS will influence women to value their academic CSW less.
4. CSW will mediate the effects of BS on academic performance.
5. Higher appearance CSW scores and lower academic CSW scores should predict lower LSAT scores.

6. The relation between exposure to BS and LSAT scores is moderated by gender identity, such that exposure to BS affects lower LSAT scores for women with low gender identity scores but not for women with high gender identity.
7. The effect of BS on appearance CSW is moderated by gender identity, such that being exposed to sexism affects higher appearance CSW scores for women with lower gender identity scores.
8. The effect of BS on academic CSW is moderated by gender identity, such that exposure to sexism affects lower academic CSW scores for women with lower gender identity scores.

Methods

Participants

Participants were recruited from an undergraduate participant pool (TAPS) at the University of New Brunswick. We collected data from a total of 104 participants, however only 69 participants were used in our analyses. Fourteen participants were excluded from analyses due to their suspicion on the purpose of our study. 100% of the analyzed participants were women, 24 men were excluded, because we are only interested in women's results. The ages of the participants ranged from 18 to 49 years ($M = 20.80$, $SD = 6.63$). Participants received 1% in grade-raising credit towards their introductory psychology course for completing the computerized questionnaires and test. The most commonly endorsed ethnicities were North American (93%), followed by Asia (3%), Africa (3%), and Europe (1%). The Mean cumulative GPA was 3.39 ($SD = 0.60$).

Procedure

A White, male experimenter, who spoke English, conducted all experimental sessions. Participants were informed that their responses would be anonymous and confidential. The

questionnaire was completely conducted and generated using Qualtrics software, Version 37894 of the Qualtrics Research Suite (2013). Participants were asked to complete a personality scale before reading one of four fabricated excerpts about professors' opinions on what "makes a successful undergraduate student". These excerpts served to manipulate our independent variables, which will be discussed in the materials section. Three of these excerpts conveyed a sexist attitude from the subscales of the Ambivalent Sexist Inventory (Glick & Fiske, 1996), while the control condition excerpt conveyed non-sexist attitudes. Participants were randomly assigned to read one of four passages. Previous research has found this procedure to be an effective means of priming sexist attitudes (Dumont et al., 2010; Barreto et al., 2010). Participants were then asked to complete a questionnaire on their contingencies of self-worth (Crocker et al., 2003), and an academic task, which was a short series of logic games from the Law School Admissions Test (LSAT). Participants also completed some additional personality scales and a demographic questionnaire; these however, are beyond the scope of this study and will not be referenced any further. Lastly, participants were thoroughly debriefed of the true nature of the study and given the opportunity to exclude their responses from the analysis via a post-debriefing consent form.

Materials

Sexism Manipulations: Sexist Attitude Prime

Awareness of sexist prejudices was primed by asking participants to read one of four fabricated passages about a professor's opinions on men and women's potential for success in university. These passages were fabricated by sampling the hostile and benevolent sexism subscales of the Ambivalent Sexism Inventory (ASI; Glick & Fiske, 1996). The control variable reflected no sexist attitudes. These passages were randomly presented and generally stated the following: a) the benevolent sexist passage characterized women as not intellectual but sweet (i.e., "*while women*

have more difficulty with complex material, they are usually really pleasant, and often very helpful in my classes and labs”), b) the hostile sexist passage, characterized women as manipulative (i.e., “*women will often use their physical appearance to get better grade*”), c) the competence attack passage attacked women’s integrity and competence (i.e., “*women tend to experience more difficulty with complex material, they manage to do well in the courses because they know how to use their physical appearance to get better grades*”), and d) the non-sexist (control) passage did not judge women or men (i.e., “*some interesting differences in men and women’s success in university*”). See Appendix D for the complete passages.

Dependent Measures

Social Identity

Before manipulating the IV (i.e., sexist attitudes), we measured participants’ gender and social identities, which we predict may moderate sexism’s influence on CSW. This scale was used to measure how strongly participants identify with their gender and student identity. Gender and student identity were measured using a modified version of the Importance to Identity subscale from the Collective Self-Esteem Scale (Luhtanen & Crocker, 1992). This modified version was first effectively used for the same purpose in Schmader (2002). Participants were asked to rate 4 items from 1 (*strongly disagree*) to 5 (*strongly agree*). Extraneous items involving nationality, religious affiliations were also added to this questionnaire, as filler items. Questions for each section were worded exactly as those about gender identity, except with the replacement of the relevant social group: “*Being a woman/man is an important reflection of who I am*” would have been replaced with “*Being a student is an important reflection of who I am*”). First, two variables in each social identity subscale were reversed scored (i.e., items 2 and 4). Then, we averaged the items for gender identity subscale ($\alpha = 0.77$) and for student identity ($\alpha = 0.81$). From these averaged scores we used the top

(high gender/student identity) and bottom (low gender/student identity) third of the gender identity averaged scores. These were then denoted as either 1 (high gender/student identity) or 0 (low gender/student identity). Higher scores indicated that participants' the particular social identity is more substantial to their personal identity (see Appendix C for full scale).

Contingencies of Self-Worth Scale

Contingencies of self-worth, the categories in which participants based their self-worth, were measured using the Contingencies of Self-Worth Scale (Crocker et al., 2003). For this modified self-report scale participants were asked to respond to various statements using the scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Participants were asked to respond to the statements about their self-worth based on their current personal state, the scale was modified to measure how participants feel "right now". The two subscales that were of particular interest in this study were those of the appearance CSW ($\alpha = 0.66$) and the academic competence CSW ($\alpha = 0.69$). These scores were based on the averaging of participants' responses for each of the individual subscales. Subscale scores could thus range from 1 to 7. For these subscales, we used 2 of the 5 variables (i.e., 4, 30), which were both reverse scored for the appearance CSW score and, 4 of the 5 variables of the academic competence CSW, of this 1 variable (i.e., 13) was reverse scored. Higher scores in a subscale demonstrate that participants' self-worth is more dependent on that particular factor.¹ (See Appendix E for full CSW scale).

¹ Due to having incorrectly modified three items on the CSW scale, we found a very low internal consistency on the appearance CSW subscale ($\alpha = 0.06$). To yield a more accurate measure of appearance CSW, we subsequently included only the two unmodified original items from the subscale in the analysis ($\alpha = 0.66$). Similarly, to yield a more accurate measure of academic CSW, we included only the four unmodified original items from the subscale in the analysis ($\alpha = 0.69$)

LSAT Logic word games

In order to measure task performance, we used a sampled series of preparatory Law School Admission Test (LSAT) analytical reasoning questions. These were sampled from an LSAT preparation book (McGraw-Hill, 2011). Participants were asked to answer eight analytical thought questions (see Appendix F for question utilized). Scoring was done by hand, and was based on participants' average number of correct responses on the logic test. Since the LSAT has been demonstrated as a useful aptitude test that predicts success in law school, we trusted that it would also be a useful for predicting academic success.

Results*Data Analysis*

Analyses focused on participants' LSAT score, appearance CSW scores, and academic CSW scores from after they had been exposed to sexist messages. We collapsed the Competence attack and HS prime conditions, as these did not differ in their effect on any of the dependent variables. We were also interested in how women's gender and student identity would moderate the effects of sexism on CSW. Appearance CSW and academic CSW have a moderate positive correlation, $r(67) = .45, p < .001$.

Hypothesis 1: Sexism primes influences LSAT scores. Specifically, BS will influence women to perform poorly on the LSAT.

To test the hypothesis that sexism influences women's performance on the academic task (LSAT word logic task), we performed a one-way ANOVA. We used the sexism primes as the independent variables and the LSAT performance scores as the dependent variable. We found a marginally significant effect for sexism prime, $F(2, 66) = 2.78, p = 0.07$. $M_{BS} = 4.47, SE_{BS} = 0.21$; $M_{HS} = 3.47, SE_{HS} = 0.33$; $M_C = 4.28, SE_C = 0.35$. A post hoc test indicated that the mean LSAT

scores for those exposed to the HS condition are marginally significantly lower ($p = 0.10$) than those women in the BS condition. No other significant differences were found. Next, we tested the specific hypothesis that exposure to BS influences lower LSAT scores. To test this hypothesis we performed a planned-contrast comparing the BS condition to the control condition with LSAT scores as the dependent variable. We found no significant difference between the BS and control condition, $t(33) = 0.46, p = 0.65$. Hence, hypothesis 1 is not supported.

Hypothesis 2: Sexism primes influences appearance CSW scores. Specifically, BS will influence women to value appearance CSW more.

To test the hypothesis that sexism influences women's appearance CSW, we performed a one-way ANOVA. Using the sexism primes as the independent variable and the appearance CSW score as the dependent variable. The result of this analysis was non-significant $F(2, 66) = 0.05, p = 0.95, M_{BS} = 4.74, SE_{BS} = 0.31; M_{HS} = 4.84, SE_{HS} = 0.23; M_C = 4.75, SE_C = 0.27$. Next, to test the hypothesis that exposure to BS leads to higher appearance CSW scores, we performed a planned-contrast comparing the BS condition to the control condition with appearance CSW scores as the dependent variable. We found no significant difference between the BS and control condition, $t(33) = -0.04, p = 0.97$. Hence, hypothesis 2 is not supported.

Hypothesis 3: Sexism primes influences academic CSW scores. Specifically, BS will influence women to value their academic CSW less.

To test the hypothesis that sexism influences women's academic CSW, we performed a one-way ANOVA. We used the sexism primes as the independent variable and the academic CSW score as the dependent variable. The result of this analysis was non-significant $F(2, 66) = 1.84, p = 0.17, M_{BS} = 5.76, SE_{BS} = 0.21; M_{HS} = 5.32, SE_{HS} = 0.13; M_C = 5.49, SE_C = 0.18$. To test the specific

hypothesis that BS influences women to value their academic CSW less, we also performed a planned-contrast: We compared the BS condition to the control condition, and used the academic CSW as the dependent variable. BS did not significantly affect academic CSW scores more than the control condition did, $t(33) = 1.02, p = 0.31$. Therefore hypothesis 3 is not supported.

Hypothesis 4: CSW will mediate the effects of BS on academic performance.

As BS effects on CSW scores were non-significant, we did not perform a mediation analysis. Hence, hypothesis 4 is not supported.

Hypothesis 5: Higher appearance CSW scores and lower academic CSW scores should predict lower LSAT scores.

To test the hypotheses that higher appearance CSW scores, and lower academic CSW scores predict lower LSAT scores, we conducted a regression analysis. We entered appearance CSW and academic CSW as simultaneous predictors and LSAT scores as criterion. While we found that appearance CSW was not a significant predictor of LSAT scores, ($\beta = -0.14, t(66) = -1.09, p = 0.28$), we also found that academic CSW was a significant predictor of LSAT scores, ($\beta = 0.32, t(66) = 2.45, p < 0.05$). These results indicate that participants with lower academic CSW scores also tend to have lower LSAT scores. Therefore, there is some support for hypothesis 5.

Hypothesis 6: Gender identity moderates the effect of BS on LSAT performance. Specifically, exposure to BS leads to poorer performance on LSAT for women with low gender identity, but not for women with high gender identity.

To test the prediction that gender identity moderates the effect of BS on LSAT scores we conducted a 2 (Gender identity: high vs. low) x 3 (sexism prime: BS, HS, Control) two-way ANOVA, with the LSAT score as the dependent variable. We averaged the gender identity scores,

and used the top and bottom third of these scores as the independent variable. There was no significant main effects for sexism primes, $F(2, 45) = 1.57, p = 0.22$, ($M_{BS} = 4.37, SE_{BS} = 0.56$; $M_{HS} = 3.46, SE_{HS} = 0.35$; $M_C = 4.31, SE_C = 0.46$) or for gender identity, $F(1, 45) = 0.060, p = 0.81$, ($M_{HGI} = 3.98, SE_{HGI} = 0.31$; $M_{LGI} = 4.11, SE_{LGI} = 0.43$). There was also a non-significant interaction between sexism primes and gender identity, $F(2, 45) = 0.05, p = 0.95$ (see Figure 1 for means). Thus, hypothesis 6 is not supported.

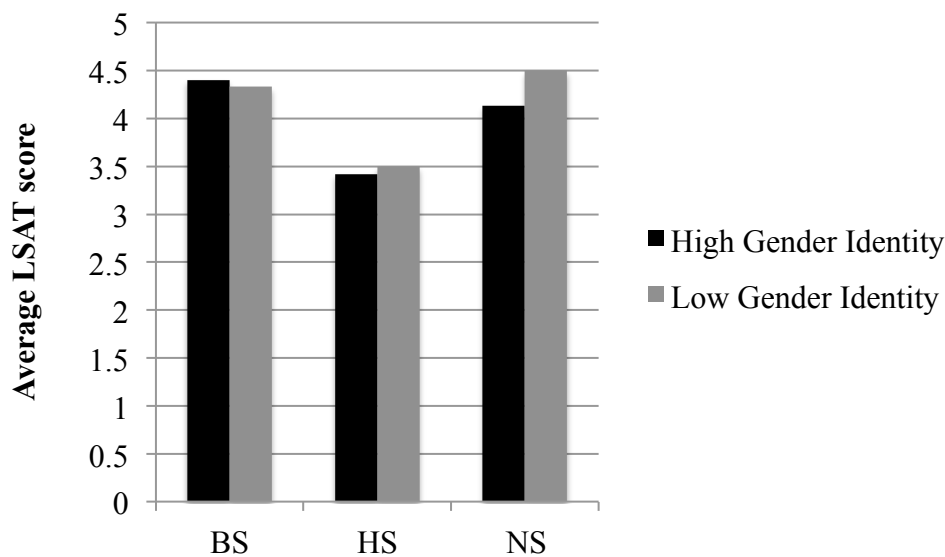


Figure 1. Gender identity and sexism's effects on LSAT scores.

Hypothesis 7: The effect of BS on appearance CSW is moderated by gender identity, such that being exposed to sexism affects higher appearance CSW scores for women with lower gender identity scores.

We predicted that the effects of BS on appearance CSW is moderated by women's gender identity. Such that, being exposed to sexism, influences women with lower gender identity scores to produce higher appearance CSW scores. We conducted a 2 (Gender identity: high vs. low) x 3 (sexism prime: BS, HS, Control) two-way ANOVA, with appearance CSW scores as the dependent

variable. We found non-significant main effects for gender identity, $F(1, 45) = 1.62, p = 0.21$, ($M_{HGI} = 4.82, SE_{HGI} = 0.22; M_{LGI} = 4.35, SE_{LGI} = 0.30$) and a non-significant main effect for sexism prime, $F(2, 45) = 2.41, p = 0.10$, ($M_{BS} = 4.05, SE_{BS} = 0.39; M_{HS} = 5.04, SE_{HS} = 0.24; M_C = 4.66, SE_C = 0.32$). Interestingly, the interaction effect of sexism prime and gender identity was significant, $F(2, 45) = 4.07, p < 0.05$ (see Figure 2 for means).

To break down the interaction, we conducted two separate one-way ANOVAs for women with high gender identity and low gender identity. For those with high gender identity, the effect of sexism primes on appearance CSW was non-significant, $F(2, 27) = 1.68, p = 0.21$, ($M_{BS} = 5.10, SE_{BS} = 0.38; M_{HS} = 5.04, SE_{HS} = 0.29; M_C = 4.31, SE_C = 0.25$). Therefore, women with a high gender identity did not change their appearance CSW in response to sexist messages. For the women with a low gender identity, the differences between conditions were marginally significant, $F(2, 18) = 2.70, p = 0.09$. The mean score for the BS condition ($M = 3.00, SE = 0.29$) was marginally lower than the HS ($M = 5.04, SE = 0.42$), $p = 0.09$, and lower than those in the control condition ($M = 5.00, SE = 0.62$), albeit non-significantly, $p = .14$. Therefore, hypothesis 7 has partial support.

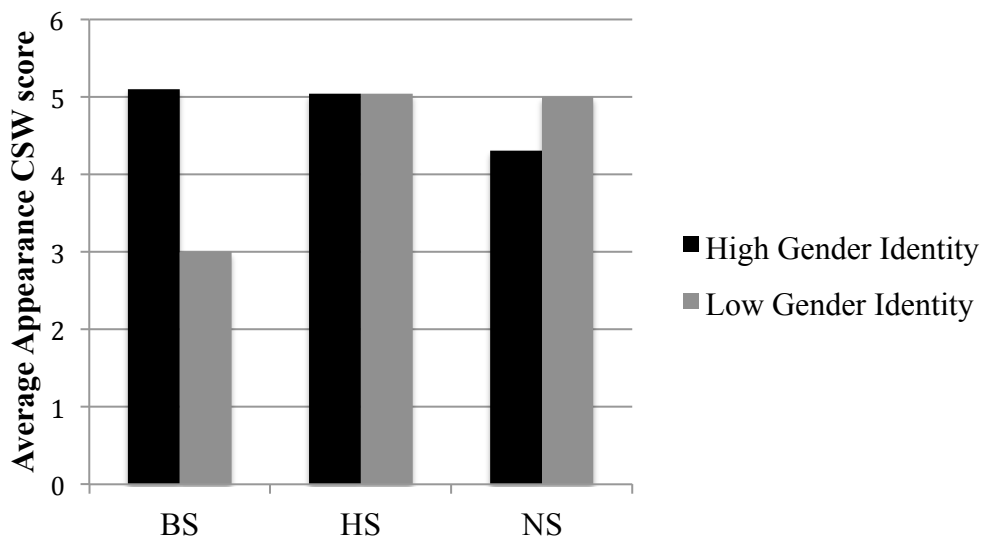
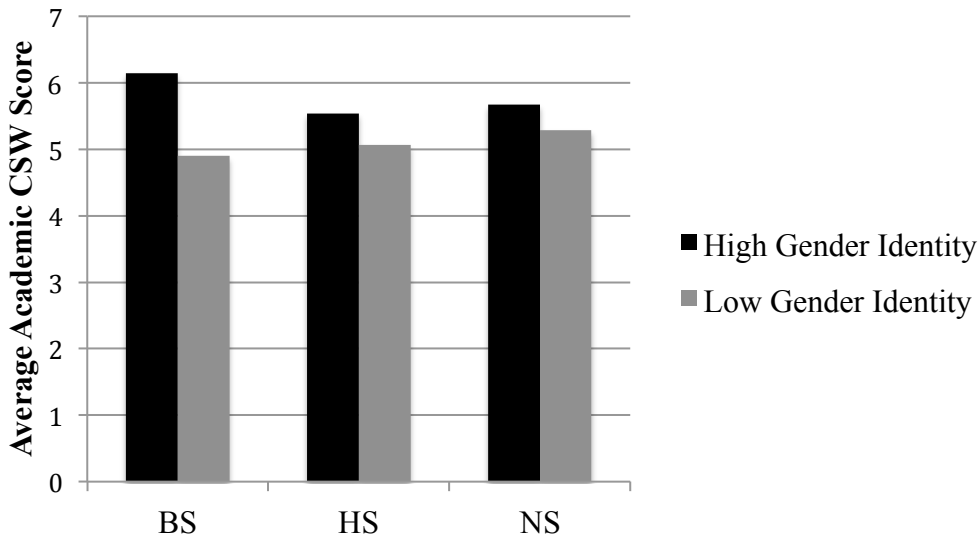


Figure 2. Gender identity and sexism's effects on appearance CSW scores.

Hypothesis 8: The effect of BS on academic CSW is moderated by gender identity, such that exposure to sexism affects lower academic CSW scores for women with lower gender identity scores.

To test the hypothesis that gender identity moderates the effects of sexism on academic CSW scores. We conducted a 2 (Gender identity: high vs. low scores) x 3 (sexism prime: BS, HS, Control) two-way ANOVA, with academic CSW as the dependent variable. We found no significant main effect for sexism prime, $F(2, 45) = 0.023, p = 0.98$, ($M_{BS} = 5.40, SE_{BS} = 0.25$; $M_{HS} = 5.38, SE_{HS} = 0.15$; $M_C = 5.43, SE_C = 0.20$). Interestingly, we found a main effect for gender identity, $F(1, 45) = 11.22, p < 0.01$. Women with a high gender identity ($M = 5.80, SE = 0.14$) scored higher on academic CSW than women with low gender identity ($M = 5.01, SE = 0.19$).² However, we did not find a significant interaction effect, $F(2, 45) = 1.97, p = 0.15$ (see Figure 3 for means). Therefore, hypothesis 8 is not supported.



² A correlation analysis, including all 69 participants, examining the association between gender identity and academic CSW shows similar findings; gender identity is positively associated with academic CSW.

Figure 3. Gender identity and sexism's effects on academic CSW scores.

The role of student identity in the effect of sexism on LSAT, appearance, academic CSW

Recall that we were generally interested in how social identity moderates sexism's influence on CSW. In addition to gender identity, we tested if student identity moderates the effect of sexism on LSAT scores, appearance CSW, and academic CSW. We planned to do these analyses, but did not have any specific predictions on student identity's moderating effects. No extant research has indicated a specific relationship between sexism endorsement and student identity. On the one hand, student identity may buffer the effects of sexism on CSW; women with a strong student identity may be more likely to be guarded against sexist attacks to their student identity because they want to maintain their identity and their positive feelings towards their gender. Thus, these women become more resistant to the harmful effect of BS on academics. On the other hand, student identity may exaggerate the effects of sexism on CSW; women with a strong student identity could also be less guarded against sexist attacks that they perceive as directly targeting them. Sexist comments might especially affect women with strong student identities because they are already very attuned to their academic self and the stereotypes women face in academics (e.g., less intelligent). Therefore, to avoid the negative feelings of being directly targeted, these women may begin value their student self less and other personal aspects more. To explore which one of these reasoning are more plausible, we examined the moderating effect of student identity on the relationship between sexism and LSAT scores, appearance CSW, and academic CSW.

Student identity moderates sexism's effect on LSAT scores

We first averaged the student identity scores (as we did for gender identity scores) and used the top and bottom third of these scores (as high identifier/low identifier) as the independent variable. We conducted a 2 (student identity: high vs. low) x 3 (sexism prime: BS, HS, Control) two-way ANOVA, with LSAT scores as the dependent variable. We found no significant main

effects for sexism prime, $F(2, 50) = 2.33, p = 0.11$, ($M_{BS} = 4.38, SE_{BS} = 0.42$; $M_{HS} = 3.61, SE_{HS} = 0.30$; $M_C = 4.67, SE_C = 0.45$), or for student identity, $F(1, 50) = 0.28, p = 0.60$, ($M_{HSI} = 4.10, SE_{HSI} = 0.30$; $M_{LSI} = 4.34, SE_{LSI} = 0.35$). Nor did we find a significant interaction, $F(2, 50) = 0.51, p = 0.95$ (see Figure 4 for means). Therefore, student identity does not significantly moderate the effect of sexism on LSAT scores.

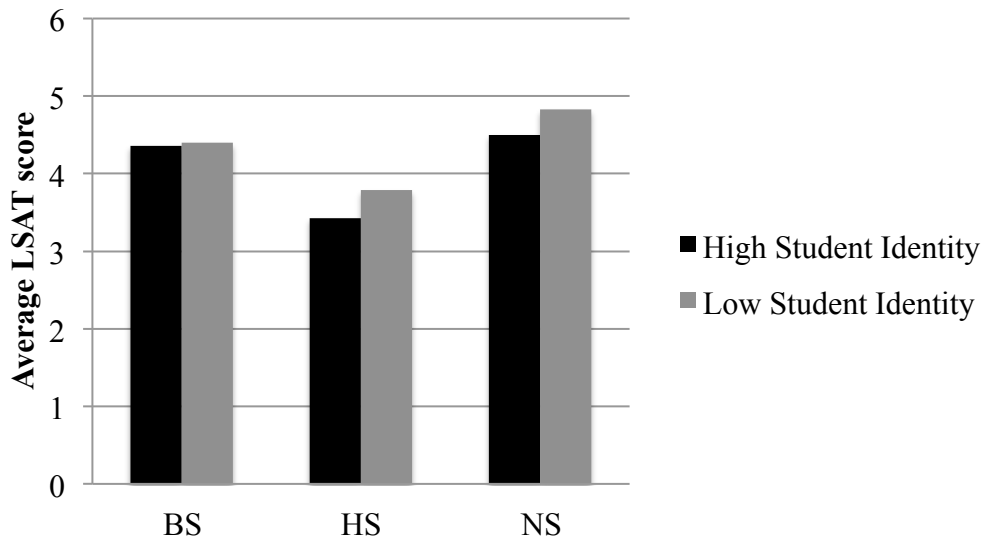


Figure 4. Student identity and sexism's effects on LSAT scores.

Student identity moderates sexism's effect on appearance CSW

To test the possibility that student identity moderates sexism's effect on appearance CSW, we averaged the student identity scores, and used the top and bottom third of these scores as the independent variable. We conducted a 2 (student identity: high vs. low) x 3 (sexism prime: BS, HS, Control) two-way ANOVA with appearance CSW as the dependent variable. The main effect for sexism prime was non-significant, $F(2, 50) = 0.11, p = 0.89$, ($M_{BS} = 4.45, SE_{BS} = 0.35$; $M_{HS} = 4.63, SE_{HS} = 0.24$; $M_C = 4.67, SE_C = 0.37$) and for student identity was also non-significant, $F(1, 50) = 2.19, p = 0.15$, ($M_{HSI} = 4.86, SE_{HSI} = 0.25$; $M_{LSI} = 4.30, SE_{LSI} = 0.28$). Additionally, we found a non-

significant interaction between the sexism prime and student identity, $F(2, 50) = 0.50, p = 0.61$ (see figure 5 for means).

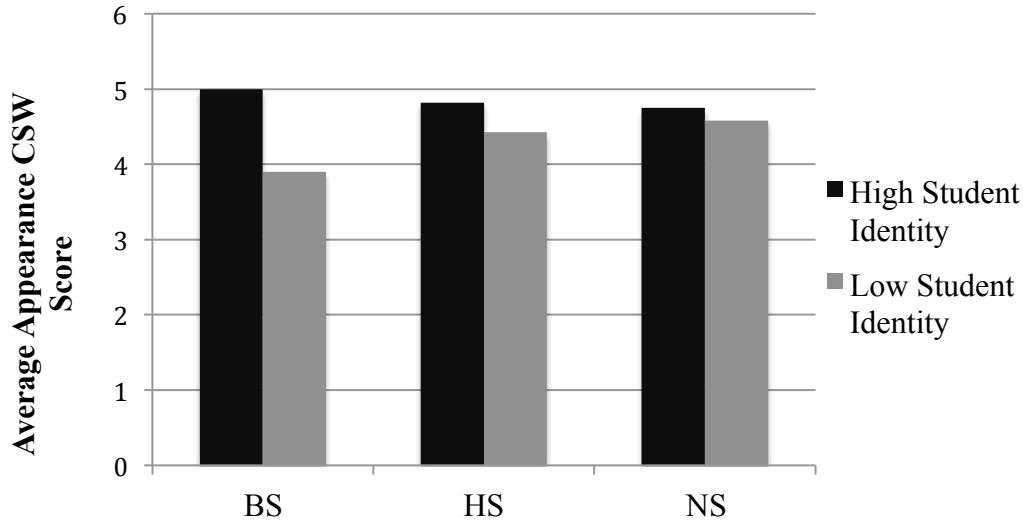


Figure 5. Student identity and sexism's effects on appearance CSW scores.

Student identity moderates sexism's effect on academic CSW

Additionally, a 2 (student identity: high vs. low) x 3 (sexism prime: BS, HS, Control) two-way ANOVA was conducted with academic CSW as the dependent variable. There was a significant main effect for student identity, $F(1, 50) = 9.95, p < 0.01$, showing that women who have a strong student identity ($M = 5.78, SE = 0.14$) have significantly higher academic CSW scores than women with a low student identity ($M = 5.09, SE = 0.17$).³ Moreover, we found no significant main effect for sexism prime, $F(2, 50) = 0.45, p = 0.64$, ($M_{BS} = 5.52, SE_{BS} = 0.20$; $M_{HS} = 5.31, SE_{HS} = 0.14$; $M_C = 5.48, SE_C = 0.22$). There was also a non-significant interaction between the sexism and student identity, $F(2,50) = 1.44, p = 0.25$ (see Figure 6 for means) Therefore, while student identity

³ A correlation analysis including all 69 participants examining the association between student identity and academic CSW shows similar finding, that student identity is positively associated with academic CSW, as well as appearance CSW.

is significantly related to academic CSW, it does not moderate the effects of sexism on academic CSW.

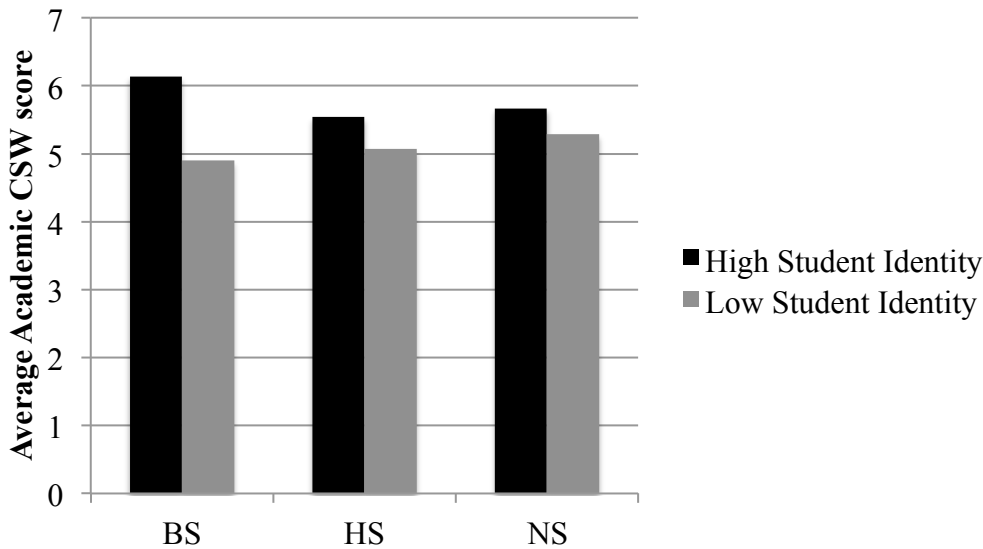


Figure 6. Student identity and sexism's effects on academic CSW scores.

Since gender identity and student identity consistently predicted appearance and academic CSW scores, we have decided to include all participants (rather than the top and bottom third, as in previous analyses) to see whether there is a significant correlation between social identity and each of the dependent variables we have used throughout our study (i.e., LSAT, appearance CSW, and academic CSW). Each of the correlations between gender identity and the LSAT and appearance CSW are all non-significant. Nevertheless, we found that higher gender identity is significantly associated with higher academic CSW, $r(67) = 0.28, p < 0.05$. We found that higher student identity is significantly associated with higher appearance CSW, $r(67) = 0.25, p < 0.05$ and higher academic CSW, $r(67) = 0.40, p < 0.01$. Both of these significant correlations are positive correlations meaning that when student identity scores are high, appearance and academic CSW scores are also higher.

Discussion

We proposed that CSW, specifically academic- and appearance-focused CSW, would mediate the effect of BS on women's academic task performance. Extant literature suggests that sexism's effects on task performance are mediated by intrusive thoughts (Dumont et al., 2010). We, however, hypothesized that the effects of sexist messages on women's task performance is at least, in part due to a shift in CSW. With a sample of undergraduate women, we examined how various sexism primes (i.e., sexist messages) influenced their CSW and in turn, their task performance. Sexist messages did not cause women to shift from academic to appearance CSW. Moreover, we found that academic and appearance CSW are significantly positively correlated, meaning that they are not likely to switch as a result of any sexist prime. That is, appearance CSW scores are not likely to be higher when academic CSW are lower, and vice versa. Interestingly, contrary to extant research (Dardenne et al., 2007; Dumont et al., 2010), we found that HS, rather than BS marginally predicts lower task performance scores.

Ultimately, we were not able to establish that CSW mediates the effects of sexism on academic tasks. In addition to examining how sexism, CSW, and academic performance relate we examined how social identity (gender identity and student identity) may moderate the effects of sexism on CSW. We found that gender identity moderates the effects of sexism on appearance CSW, such that women who do not strongly identify with their gender are less likely to have their self-worth contingent on their appearance when they are exposed to BS. This finding is interesting, however counter to our predictions. Thus, we can only speculate an explanation for why these women base their worth on appearance less rather than more when exposed to BS. Perhaps, it is the case that women's self-worth becomes more contingent on their social approval, rather than appearance, under such circumstances (see *Future Directions* for further discussion). Moreover, women who have a strong gender identity do not significantly change their value of their

appearance when exposed to sexism, meaning that a strong gender identity may buffer the effects of sexism on appearance CSW.

Additionally, we found that both higher gender identity scores and higher student identity scores significantly predict higher academic competence CSW. That is, high gender identity is related to high academic CSW scores, and high student identity predicts both higher academic, as well as, higher appearance CSW scores. One possible explanation for the relationship between gender identity and academic CSW is that women who strongly identify with their gender have likely given a great deal of thought to their identity; these same women likely have stable and positive views of their social identity and their values (Dardenne et al., 2007). We also found that higher academic CSW predicted more correct responses on an academic task. Since all of our participants were undergraduate students, it makes sense that a strong student identity is related to higher academic CSW scores, and in turn a stronger academic performance. Perhaps a strong student identity results from having established self-worth in academic CSW. That is, perhaps women feel most strongly about being a student when their self-worth is defined by their academic competence (academic CSW), or vice versa, perhaps a women's academic CSW is consequent to an already established student identity. The direction or cause of this pathway is not definite at this point, as we have only found a positive correlational relationship. Nevertheless, it makes sense that social identity is related to contingencies of self-worth, as Crocker et al. (2003) also found that experiences related to social identity can shape the contingencies that are relevant to one's self-worth.

In sum, while this study did not demonstrate that sexism influences a shift in CSW, or that CSW mediate the effects of sexism on task performance, we were able to find that having a strong gender and student identity is significantly related to higher academic and appearance CSW scores, and that a strong academic CSW predict better scores on an academic task.

Limitations

Some limitation for the current research should be considered. First, our BS prime may have been too blatantly sexist. In this regard, women may not have endorsed or internalized the sexist comments. Perhaps when they were exposed to the BS prime (e.g., “*while women have more difficulty with complex material, they are usually really pleasant, and often very helpful in my classes and labs*”), women retaliated by responding to the CSW questionnaire in a manner that reduced expressed a reduced value of stereotypical feminine CSW (e.g., lower appearance concerns).

Another limitation of our study was the lack of a manipulation check, to understand what women thought of the sexism prime. Our study is limited by the fact that we did not measure participants’ pre- and post-test sexist attitudes (in order to see if the sexism prime influenced stronger sexist views). In this regard, we have no way to gather whether women believed and internalized the sexist primes, and whether their confidence and academic self-worth was diminished, or intensified after the sexism prime.

Also, attacking women’s academic identity with sexism may not have been suitable for this particular sample of participants, since they are all post-secondary students. These participants may have been more apt to react against statements that attack student identity and abilities because these participants were in an academic environment. According to Crocker and Wolfe (2001), when participants are in an academic environment, where academic competence is one of the primary shared values, participants will likely maintain a strong academic-focused CSW; however, should these participants leave the academic environment for an environment with varied values, they may be more likely to shift their CSW away from academic competence. In this regard, it may be helpful to collect a sample of participants from the community in future studies.

Additionally, we incorrectly modified our CSW scale, which resulted in a very low internal consistency for the appearance CSW subscale. In order to strengthen the internal consistency of the appearance CSW subscale, we maintained the 2 non-modified items from the 5-item scale. Similarly, we removed one incorrectly modified item from the academic competence CSW scale to strengthen its internal consistency. In turn, we were left with very few usable variables for our analyses, which has likely impacted the strength of our findings.

Finally, another limitation of our study is that the dependent variable, the academic task (LSAT), may have not been precise enough to capture academic performance, we only used 8 word logic questions. In order to get a more precise estimate of academic performance, future studies may benefit from using a longer test for academic performance.

Future Directions

We have confidence that our model is correct, and that future studies could learn from our limitations by using more ambivalent or implicit sexist primes, and a more precise measure of academic performance. It may also be helpful to use a larger and more diverse sample of word logic questions for the academic performance measure.

Lastly, the CSW scale has a total of seven subscales; we only examined how sexism affects two of these subscales. It is possible that the other subscales may have more of a significant effect in mediating how sexism affects academic performance. Future research could examine how the other subscales are affected by sexist primes. It may also be interesting to compare how sexist messages influence more socially-oriented CSW (e.g., Family Support CSW, Approval from Others CSW, Competition CSW) compared to personally-oriented CSW (e.g., Appearance CSW, Academic Competence CSW). As discussed in the introduction, for years women have consistently been reminded that their stereotypical value is in their sociability, and that their “likability” is of

utmost importance. As a result, women may experience a fear of being called a “bitch” if they are too professional, competitive, or even personally-oriented (Chittal, 2012). Perhaps when women are reminded of the sexism that exists in the professional world (or in university) they are more likely to focus on their social capacities (e.g., acceptance from others) rather than their personal abilities (e.g., academic competence). Future research could decipherer how sexism may differently influence the various CSW.

Conclusion

The current study extends from past research on sexism’s influence on women’s thoughts, and in turn on their cognitive task performance (Dardenne et al., 2007). Extant research has demonstrated that sexism has detrimental effects on women’s cognitive performances and professional goals (Dardenne, Dumont, & Bollier, 2007; Dumont, Sarlet, & Dardenne, 2010; Barreto, Ellemers, Piebinga, & Moya, 2010). The main purpose of our study was to determine what mechanisms arbitrate sexism’s effects on women’s academic/professional performance. We predicted that sexism’s influence on academic performance is mediated by a shift in women’s CSW. Our results did not replicate past findings. Nonetheless, we established that gender identity moderates the effects of sexism on appearance CSW, and that social identity significantly predicts academic CSW. This research serves as a novel extension of extant research on the how sexism influences identity and contingencies of self-worth, and a promising look into how women’s identities can moderate the personal effects of sexism.

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Appendices

Appendix A – Informed Consent Form

Dr. Elaine Perunovic
Department of Psychology
University of New Brunswick
Fredericton, New Brunswick
E3B 6E4
(506) 458-7689



INFORMED CONSENT FORM

PROJECT NAME: Personality and cognitive performance

Introduction: You are invited to participate in a research study involving the influences of personality, gender attitudes, and worldviews on life goals and success. As part of this research, we are interested in looking at the relationship between people's personality and the potential for success in university.

Researcher Information: This study is conducted by Kendra J. McLaughlin (kendra.jennie@unb.ca) under the supervision of Dr. Elaine Perunovic (458-7689; eperunov@unb.ca) and Timothy Hachey (w471y@unb.ca), from the department of Psychology at the University of New Brunswick.

Procedure: There are three parts to this session. During the first part, you will be asked to complete a questionnaire that asks you for your attitudes about yourself, your personality, and worldviews. During the second part, you will be asked to read a series of passages relating to academic success, and complete a questionnaire about your personal attitudes. Finally, you will be asked to complete a working-memory task, and answer a few demographic questions.

Participation Information: The study will take approximately 1 hour, and you will receive 1.0 participation point for your Introductory Psychology. Please note that your participation is voluntary and you may withdraw at any time without loss of compensation. In Introductory Psychology, you are given the opportunity to participate in Psychology experiments for additional course credit. In some cases, the course instructor is either the investigator or the supervisor of a student-investigator. You can choose to participate (or not) in studies that are associated with your course instructor; your course instructor will not know who participates or withdraws from these experiments. Therefore, there is no additional benefit or cost to you of participating in one of these studies (as compared to participating in another researcher's study). It is not expected that you will face any risks or discomfort during your participation. The benefit of participating in this research is that you will earn firsthand experience with psychological research.

Confidentiality: All of your information will be kept confidential and will be stored securely in Dr. Perunovic's laboratory. Your name will be kept separate from the data. Interpretation of the data depends on averaging responses over many different people, so results related to this study will be reported in combined form. All data will be stored until five years after publication.

Additional Contact Information: If you have ethical concerns about your participation in this study and would like to speak with someone who is not involved in this research, then you may contact the director of the Psychology Ethics Committee, **Dr. Daniel Voyer** (voyer@unb.ca, 506-453-4974)

SIGNATURE. I confirm that I have read the information on the INFORMED CONSENT FORM and have had the opportunity to have my questions answered to my satisfaction, and that I am aware that all records are entirely confidential, and that I may discontinue my participation at any point in the study without loss of compensation. By filling out the information below,

I _____ (print your name here) indicate that I volunteer to participation in this study.

Participant's Signature: _____

Date: _____

Appendix B – Introduction

Personality and Worldview Questionnaire

Participant #: _____

To Participant: All of your responses will remain completely confidential and anonymous. Therefore, please try to be as honest as you can.

Please read each instruction carefully, and fill out the surveys in the order they are presented. Do not skip forward or backward.

Appendix C- Gender Identity

Survey 1

First, we ask that you fill out a personality survey. Please read the instructions carefully and answer the survey as honestly as possible. Consider your memberships in these particular groups, and respond to the following statements on the basis of how you feel about these groups.

Being a Canadian is an important part of my self-image.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree	Neutral	Agree	Agree	Strongly Agree
		Somewhat		Somewhat		

Being a Canadian is unimportant to my sense of what kind of person I am.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree	Neutral	Agree	Agree	Strongly Agree
		Somewhat		Somewhat		

Being a Canadian is an important reflection of who I am.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree	Neutral	Agree	Agree	Strongly Agree
		Somewhat		Somewhat		

Being a Canadian has very little to do with how I feel about myself.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree	Neutral	Agree	Agree	Strongly Agree
		Somewhat		Somewhat		

Being a woman/man is an important part of my self-image.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree	Neutral	Agree	Agree	Strongly Agree
		Somewhat		Somewhat		

Being a woman/man is unimportant to my sense of what kind of person I am.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree	Neutral	Agree	Agree	Strongly Agree
		Somewhat		Somewhat		

Being a woman/man is an important reflection of who I am.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree	Neutral	Agree	Agree	Strongly Agree
		Somewhat		Somewhat		

Being a woman/man has very little to do with how I feel about myself.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree	Neutral	Agree	Agree	Strongly Agree
		Somewhat		Somewhat		

Being a member of a religious group is unimportant to my sense of what kind of person I am.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree	Neutral	Agree	Agree	Strongly Agree
		Somewhat		Somewhat		

Being a member of a religious group is an important reflection of who I am.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree	Neutral	Agree	Agree	Strongly Agree
		Somewhat		Somewhat		

Being a member of a religious group has very little to do with how I feel about myself.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
Being a student is an important part of my self-image.						
1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
Being a student is unimportant to my sense of what kind of person I am.						
1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
Being a student is an important reflection of who I am.						
1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
Being a student has very little to do with how I feel about myself.						
1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
Being a member of a religious group is an important part of my self-image.						
1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree

Appendix D- Sexist Attitudes Prime

Task 1

Next, please read the following passage and be certain to remember the reported findings of the passage. **Please, remember the reported findings. Later in this study, you will be asked to do a memory task about these findings.**

Benevolent Sexism

Previous research has shown that various individual factors with success in university. In a recent study (Moore, 2011), looked at the opinions of university professors. The following is an excerpt from the interviews with a professor.

Please, remember the reported findings. Later in this study, you will be asked to do a memory task about these findings:

“I’ve seen lots of differences between students in terms of personality, study habits, and attitudes. I’ve also observed some interesting differences in men and women’s success in university: while women have more difficulty with complex material, they are usually really pleasant, and often very helpful in my classes and labs.”

Hostile Sexism- No competence attack

Previous research has shown that various individual factors with success in university. In a recent study (Moore, 2011), looked at the opinions of university professors. The following is an excerpt from the interviews with a professor.

Please, remember the reported findings. Later in this study, you will be asked to do a memory task about these findings:

“Students can definitely succeed in university. I’ve seen lots of differences between students in terms of personality, study habits, and attitudes. I have also observed some interesting differences in men and women’s success in university: specifically, how women will often use their physical appearance to get better grades.”

Hostile Sexism – Competence attack

Previous research has shown that various individual factors with success in university. In a recent study (Moore, 2011), looked at the opinions of university professors. The following is an excerpt from the interviews with a professor.

Please, remember the reported findings. Later in this study, you will be asked to do a memory task about these findings:

“Students can definitely succeed in university. I’ve seen lots of differences between students in terms of personality, study habits, and attitudes. I’ve also observed some interesting differences in men and women’s success in university: while women tend to experience more difficulty with complex material, they manage to do well in the courses because they know how to use their physical appearance to get better grades.”

Non-Sexist

Previous research has shown that various individual factors with success in university. In a recent study (Moore, 2011), looked at the opinions of university professors. The following is an excerpt from the interviews with a professor.

Please, remember the reported findings. Later in this study, you will be asked to do a memory task about these findings:

“I’ve seen lots of differences between students in terms of personality, study habits, and attitudes. I’ve also observed some interesting differences in men and women’s success in university”

Appendix E – Contingencies of Self-Worth Scale

Now that you are familiar with some past findings about student success, we ask you to complete another personality scale. Please follow the instructions carefully.

Survey 2

Using the following scales, please indicate how much each of the following statements reflects how you feel **right now**.

1. I feel good about myself, because I look attractive. *REMOVED FROM ANALYSES

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

2. My self-worth is based on God's love.

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

3. I feel worthwhile because I perform better than others on a task or skill.

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

4. My self-esteem is unrelated to how I feel about the way my body looks.

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

5. I lose my self-respect because I have done something I know is wrong.

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

6. I don't care if other people have a negative opinion about me.

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

7. I know that my family members love me, and that makes me feel good about myself.

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

8. I feel worthwhile because I have God's love.

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

9. I can't respect myself, because others don't respect me.

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

10. My self-worth is not influenced by the quality of my relationships with my family members.

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

11. My sense of self-respect is boosted, because I follow moral principles.

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

12. I know that I am better than others on a task, and that raises my self-esteem.

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

13. My opinion about myself isn't tied to how well I do in school.

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

14. I don't respect myself because I don't live up to a moral code.

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

15. I don't care what other people think of me.

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

16. My sense of self-worth is high, because my family members are proud of me.

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

17. My self-esteem is high because I think my face or facial features are attractive. * REMOVED FROM ANALYSES

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

18. My self-esteem suffers because I don't have God's love.

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

19. My sense of self-respect comes from doing well in school.

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

20. My sense of self-respect comes from doing better than others.

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

21. My sense of self-worth is low because I don't look good. *REMOVED FROM ANALYSES

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

22. I feel better about myself when I know I'm doing well academically.

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

23. What I think about myself is not influenced by what others think of me.

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

24. My self-esteem is down, because I don't feel loved by my family.

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

Appendix F – LSAT Logic Word Games

Task 2

Next, we ask you to complete a few questions from an aptitude test that is used to **predict academic success**: Please read each description and question carefully and choose the response that most accurately answers each question. You are free to use a piece of paper to help you answer these.

1. At a local boat race, six boaters, Anna, Ben, Chris, Dan, Emily, and Fanny, are competing for the watercourse title. Each boater has his or her boat in one of six starting slots.

Every boat starts in a slot, and no boat shares a slot with any other boat.

The starting slots are numbered from 1 to 6.

Chris is in a slot three numbers below Dan's.

Ben is in a slot three numbers below Anna's.

Fanny is in a slot with a lower number than Emily's.

Which of the following is a possible order for the boaters to start in?

(A) Fanny, Ben, Chris, Emily, Dan, Anna

(B) Chris, Fanny, Ben, Dan, Emily, Anna

(C) Ben, Anna, Emily, Dan, Fanny, Chris

(D) Chris, Ben, Fanny, Anna, Dan, Emily

(E) Ben, Chris, Emily, Anna, Dan, Fanny

2. There are seven members of a social club, the Nissu Warriors: Ameer, Britt, Carolyn, Dean, Elba, Kalee, and Marisa. Some members are more outgoing than others, and a few members do not like each other. They will attend a party in accordance with the following conditions:

Elba attends if Britt attends.

Neither Carolyn nor Ameer will attend if Elba attends.

If Kalee does not attend the party than Ameer will.

Britt attends if Dean attends.

If Dean and Marisa both go to the party, then exactly how many of the other club members must also attend the party?

(A) one

(B) two

(C) three

(D) four

(E) five

3. A Girl Scout troop of seven girls, A, B, C, D, E, F, and G, is broken up into three groups to distribute cookies. Each scout is in a group and no scout is in more than one group. Group 1 has two scouts, group 2 has three, and group 3 has two. Due to interpersonal difficulties, the scout master arranges the groups according to the following constraints:

A is in a group with G.

B is not in a group with C or D.

E is not with C or D.

If A is in group 2, then which of the following could be true?

(A) C is in group 1, and D is in group 3.

(B) B is in group 1, and E is in group 3.

(C) F is in group 2 with A and G.

(D) G is in group 3 with B.

(E) C is in group 1, and E is in group 1.

4. A squash league has seven members: A, B, C, D, E, F, and G. In order to accommodate everyone's schedule, players are divided into two groups to play. The makeup of the groups is determined by the following constraints:

Group 2 has four people, and group 1 has three people.

- A is not in a group with F or E.
- G is in a group with B.
- If A is in group 2, then C is in group 1.

If C and D do not share a group, then which of the following people must NOT be in the same group?

- (A) G, B
- (B) B, A
- (C) F, C
- (D) E, G
- (E) A, D

5. Exactly three films—Greed, Harvest, and Limelight—are shown during a film club’s festival held on Thursday, Friday, and Saturday. Each film is shown at least once during the festival but never more than once on a given day. On each day at least one film is shown. Films are shown one at a time. The following conditions apply:

- On Thursday Harvest is shown, and no film is shown after it on that day.
- On Friday either Greed or Limelight, but not both, is shown, and no film is shown after it on that day.
- On Saturday either Greed or Harvest, but not both, is shown, and no film is shown after it on that day.

Which one of the following could be a complete and accurate description of the order in which the films are shown at the festival?

- (A) Thursday: Limelight, then Harvest; Friday: Limelight; Saturday: Harvest
- (B) Thursday: Harvest; Friday: Greed, then Limelight; Saturday: Limelight, then Greed
- (C) Thursday: Harvest; Friday: Limelight; Saturday: Limelight, then Greed
- (D) Thursday: Greed, then Harvest, then Limelight; Friday: Limelight; Saturday: Greed
- (E) Thursday: Greed, then Harvest; Friday: Limelight, then Harvest; Saturday: Harvest

6. A cruise line is scheduling seven week-long voyages for the ship Freedom. Each voyage will occur in exactly one of the first seven weeks of the season: weeks 1 through 7. Each voyage will be to exactly one of four destinations: Guadeloupe, Jamaica, Martinique, or Trinidad. Each destination will be scheduled for at least one of the weeks. The following conditions apply to Freedom’s schedule:

- Jamaica will not be its destination in week 4.
- Trinidad will be its destination in week 7.
- Freedom will make exactly two voyages to Martinique, and at least one voyage to Guadeloupe will occur in some week between those two voyages.
- Guadeloupe will be its destination in the week preceding any voyage it makes to Jamaica.
- No destination will be scheduled for consecutive weeks.

Which one of the following is an acceptable schedule of destinations for Freedom, in order from week 1 through week 7?

- (A) Guadeloupe, Jamaica, Martinique, Trinidad, Guadeloupe, Martinique, Trinidad
- (B) Guadeloupe, Martinique, Trinidad, Martinique, Guadeloupe, Jamaica, Trinidad
- (C) Jamaica, Martinique, Guadeloupe, Martinique, Guadeloupe, Jamaica, Trinidad
- (D) Martinique, Trinidad, Guadeloupe, Jamaica, Martinique, Guadeloupe, Trinidad
- (E) Martinique, Trinidad, Guadeloupe, Trinidad, Guadeloupe, Jamaica, Martinique

7. There are exactly three recycling centers in Rivertown: Center 1, Center 2, and Center 3. Exactly five kinds of material are recycled at these recycling centers: glass, newsprint, plastic, tin, and wood. Each recycling center recycles at least two but no more than three of these kinds of material.

The following conditions must hold:

- Any recycling center that recycles wood also recycles newsprint.
- Every kind of material that Center 2 recycles is also recycled at Center 1.

Only one of the recycling centers recycles plastic, and that recycling center does not recycle glass.

If Center 2 recycles three kinds of material, then which one of the following kinds of material must Center 3 recycle?

- (A) glass
- (B) newsprint
- (C) plastic
- (D) tin
- (E) wood

8. Three men (Tom, Peter and Jack) and three women (Eliza, Anne and Karen) are spending a few months at a hillside. They are to stay in a row of nine cottages, each one living in his or her own cottage. There are no others staying in the same row of houses:

Anne, Tom and Jack do not want to stay in any cottage, which is at the end of the row.

Eliza and Anne are unwilling to stay besides any occupied cottage.

Karen is next to Peter and Jack.

Between Anne and Jack's cottage there is just one vacant house.

None of the girls occupy adjacent cottages.

The house occupied by Tom is next to an end cottage.

Which among these statement(s) are true?

I. Anne is between Eliza and Jack.

II. At the most four persons can have occupied cottages on either side of them. .

III. Tom stays besides Peter.

- (A) I only
- (B) II only
- (C) I and III only
- (D) II and III only
- (E) I, II and III

We would like to know what your future goals are. Please respond to each of the following questions with as much detail as possible.

9. What would you like your life to look like in 4 years? (Please describe in detail)

10. What are your academic goals for the next 4 years? (Please describe in detail)

Appendix G - State Self-Esteem Scale

Next, this survey will ask you a few more questions about yourself. Please take your time and answer as carefully and honestly as you can. There are no right or wrong answers.

Survey 3

Using the following scales, please indicate how much you agree with each of the following statements.

1. I feel confident about my abilities.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

2. I am worried about whether I am regarded as a success or failure.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

3. I feel satisfied with the way my body looks right now.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

4. I feel frustrated or rattled about my performance.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

5. I feel that I am having trouble understanding things that I read.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

6. I feel that others respect and admire me.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

7. I am dissatisfied with my weight.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

8. I feel self-conscious.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

9. I feel as smart as others.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

10. I feel displeased with myself.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

11. I feel good about myself.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

12. I am pleased with my appearance right now.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

13. I am worried about what other people think of me.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

14. I feel confident that I understand things.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

15. I feel inferior to others at this moment.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

16. I feel unattractive.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

17. I feel concerned about the impression I am making.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

18. I feel that I have less scholastic ability right now than others.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

19. I feel like I'm not doing well.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

20. I am worried about looking foolish.

1	2	3	4	5
Not at all	A little bit	Somewhat	Very Much	Extremely

Appendix H – Ambivalent Sexism Inventory

This survey will ask you about your worldviews, attitudes, and how you think and feel about yourself. Please take your time and answer as carefully and honestly as you can.

Survey 4

Using the following scales, please indicate how much you agree with each of the following statements.

1. No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

2. Many women are actually seeking special favours, such as hiring policies that favour them over men, under the guise of asking for "equality."

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

3. In a disaster, women ought not necessarily to be rescued before men.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

4. Most women interpret innocent remarks or acts as being sexist.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

5. Women are too easily offended.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

6. People are often truly happy in life without being romantically involved with a member of the other sex.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

7. Feminists are not seeking for women to have more power than men.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

8. Many women have a quality of purity that few men possess.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

9. Women should be cherished and protected by men.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

10. Most women fail to appreciate fully all that men do for them.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

11. Women seek to gain power by getting control over men.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

12. Every man ought to have a woman whom he adores.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

13. Men are complete without women.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

14. Women exaggerate problems they have at work.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

15. Once a woman gets a man to commit to her, she usually tries to put him on a tight leash.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

16. When women lose to men in a fair competition, they typically complain about being discriminated against.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

17. A good woman should be set on a pedestal by her man.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

18. There are actually very few women who get a kick out of teasing men by seeming sexually available and then refusing male advances.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

19. Women, compared to men, tend to have a superior moral sensibility.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

20. Men should be willing to sacrifice their own well being in order to provide financially for the women in their lives.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

21. Feminists are making entirely reasonable demands of men.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

22. Women, as compared to men, tend to have a more refined sense of culture and good taste.

0	1	2	3	4	5
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly

Appendix I – Post-Test Manipulation Checks

Next, we ask you to write how you felt about your performance on the memory task and what you remember from the passage you read about professors' opinions on student success.

Please answer these questions as fully and carefully as possible.

Task 3 – Perceived Performance

Please answer and elaborate on the following questions as much as possible.

- How well do you think you did on the memory test?

I performed well on the test I just completed.

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

I am content with how well I did on the test.

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

- Please explain why you think you performed well/not well on the test.
- What questions did you find the most difficult and the easiest? Why? Please explain.
- What would you do differently if you were to do the task again? Please explain.
-

Task 4 – Negative Self-Cognitions

Instruction: Please describe the thoughts and feelings you felt while you were doing the test. Use whatever information you think is important to providing a clear picture of your reactions during and after doing the test. For example, while you did the test where you reflecting on your own academic performance? Where you questioning your performance on the test? Did you feel confident or lost when you did the test? Please feel free to use as many or as few of these suggestions as you like.

Task 5 – Manipulation Check

Next, we will ask you about the passage you read.

- What were the professor's opinions on student success in university? Please describe what the professor said in as much detail as possible.
- What do you think was the specific purpose for asking you to read the passage on professors' opinions?
- What do you feel was the purpose of our entire study?

Appendix J – Demographics

Finally, we ask you to answer some demographics questions.

Background Information

1. Age: _____

2. Your gender: _____

3. In what region were you born? (Please \checkmark)

- _____ 1. North America (Canada & USA)
 _____ 2. Central America
 _____ 3. Caribbean Islands
 _____ 4. South America
 _____ 5. Asia
 _____ 6. Middle East
 _____ 7. Eastern Europe & Russia
 _____ 8. Western Europe & Scandinavia
 _____ 9. Africa
 _____ 10. Other

4. Is English your first language, or one of your first languages? (Please select)

Yes No

5. If English is not your first language, what language is your first language?

6. What is your religion? (Please select)

- _____ 1. Christian
 _____ 2. Baha'i
 _____ 3. Buddhist
 _____ 4. Hindu
 _____ 5. Jewish
 _____ 6. Muslim
 _____ 7. Sikh
 _____ 8. Zoroastrian
 _____ 9. Other

7. If you indicated "other" above, what is your religion?

8. How religious do you consider yourself?

1	2	3	4	5
not at all	a little	religious	very	extremely
religious	religious		religious	religious

9. What is your major or intended major?

10. What year of study are you in?

11. What is your cumulative GPA?

12. Please indicate on the following scale your political affiliation ranging from 0 (strongly conservative) to 5 (moderate) to 10 (strongly liberal).

0	1	2	3	4	5	6	7	8	9	10
Conservative				Moderate						Liberal

13. What do you consider your political party affiliation?

Appendix K – Educational Feedback Form

Dr. Elaine Perunovic
Department of Psychology
University of New Brunswick
Fredericton, New Brunswick
E3B 6E4
(506) 458-7689

*Personality and cognitive performance*Educational Feedback

Thanks for participating! The purpose of this study was to investigate the effects of sexism on contingencies of self-worth, and cognitive performances.

Past studies have shown that exposure to sexist attitudes can decrease women's performance on cognitive tasks (Dardenne, Dumont, & Bollier, 2007). We predict that women's performance on cognitive tasks decreases due to a shifting in their contingencies of self-worth. Contingencies of self-worth are a set of personal beliefs about what one must be and do to secure and maintain their sense of self-worth and self-esteem; these beliefs can, in turn, influence one's motivations and behaviours (Crocker & Wolfe, 2001). For instance, some people base their personal worth on academic performance and success; since some individuals may use their schoolwork as a means to maintain their self-worth, this contingency motivates them to work very hard in school.

We hypothesise that when women are exposed to sexism, their contingencies of self-worth temporarily become more appearance-focused. As a result, women will become more likely to base their self-esteem on appearance and less on other tasks. In this case, women's performance on a task may decrease because the cognitive task may no longer be as important to their self-worth.

Participants were randomly assigned to read one of four fabricated passages on professors' opinions on student success in university. These passages were either framed as egalitarian, benevolent (women as sweet but incompetent), hostile sexist (women are manipulative), or hostile-competence (women are manipulative and incompetent) attitudes.

Please be aware that all of these excerpts and opinions were completely fictional and did not contain any true-recorded statements or attitudes of any professor here at the University of New Brunswick, or any other post-secondary institution. Instead, they were created solely for the purpose of investigating the effects of exposure to sexist messages on women's performance and contingencies of self-worth. It would have been impossible for the researchers to investigate these effects if participants had known that the scenarios were fictitious. It was also necessary not to fully disclose the nature of the study because knowing it would have affected participants' responses.

Participant responses make a valuable contribution to research that demonstrates the harmful and insidious effects of sexism. We are also interested in how demographics and individual differences may play a role in the effects of sexism on contingencies of self-worth and task performance. This research may contribute to the development of interventions to help to those who have experienced sexism, and your contribution is truly appreciated

If you have any questions about your participation in this study, or would like to get a summary of results (between April 2013-May 2013) please contact the investigator, **Kendra J. McLaughlin** at p6950@unb.ca. If you have any concerns about your participation in this study and would like to speak with someone unrelated to this research, you may contact the director of the Psychology Ethics Committee, **Dr. Daniel Voyer** (506-453-4974, voyer@unb.ca)

U.N.B Counselling Services offers individual counselling for personal and mental health issues. If you wish to contact them call: 453-4820, e-mail: counsel@unb.ca, or visit them on the 2nd floor of the C.C. Jones Student Services Centre

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