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ORIGINAL ARTICLE

Hiring Decisions: The Effect of Evaluator Gender and Gender Stereotype Characteristics on the Evaluation of Job Applicants

Lindsay Rice[1] · **Joan M. Barth**[2]

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Abstract This study examined how the gender and gender stereotype characteristics of an evaluator influenced a hypothetical hiring decision, and the effects of automatically activating gender stereotypes prior to a hiring decision. One hundred and twenty-nine undergraduates (80 female) completed a priming manipulation that activated gender stereotype-congruent or stereotype-incongruent associations, followed by an evaluation of a male or female job applicant. Results indicated that the gender and masculinity of an evaluator were related to the evaluations. After stereotype-congruent priming, men rated male applicants higher than female applicants and men's masculinity was associated with less favorable ratings. After stereotype-incongruent priming, male participants extended a more positive evaluation toward female applicants than when stereotype-congruent gender ideas were primed. Female participants were less affected by the priming and showed more egalitarian evaluations. Findings underscore the importance of having gender-balanced search committees and interventions that address implicit gender biases in hiring decisions.

Keywords Gender stereotypes · Gender roles · Hiring decisions · Priming

All participants for the current study were recruited from The University of Alabama.

✉ Lindsay Rice
lindsay.greenlee@citadel.edu

[1] Psychology Department, The Citadel, 171 Moultrie Street, Charleston, SC 29409, USA

[2] Institute for Social Science Research, University of Alabama, Box 870216, Tuscaloosa, AL 35487-0216, USA

Introduction

Gender stereotypes are prominent throughout many cultures, and even though societies change over time, these stereotypes have remained fairly firm. Chief among these are that men, in contrast to women, are more prominent and competent in the workforce. Gender disparities in the workforce, are more evident in some fields than others. For example, there is still a strong under-representation of women in science, technology, engineering, and math fields (STEM; [4]), as well as in business and corporate positions requiring strong leadership skills [6, 19]. Recently, technology leader, Google, released demographic data on their employees. Not surprisingly, only 30 % of the total workforce was female [28]. Hiring and promotion biases that favor men are also evident in higher education [5, 29, 39, 41]. In addition to the low representation of women in some workforce sectors, women seem to be subject to different evaluative standards than men. For example, recently the first female editor of the New York Times was relieved of her position, and there has been some speculation this may be partially due to the fact that she was described as behaving in ways that were incongruent with feminine gender role stereotypes [1]. Gender biases in the modern workforce are well-known and companies and universities often try to correct for them, but the biases stubbornly still exist at the hiring level and beyond. This study focuses on factors that might influence gender biases in hiring decisions for an academic position.

Previous research has highlighted possible discrepancies in workplace decisions based on applicant or employee gender, but little attention has been given to the gender and the gender stereotype characteristics (e.g., masculinity) of evaluators and managers as possible contributing factors to the gender disparity in the workplace. Since many work-related traits (e.g., competence, leadership ability) are stereotypically associated with men [20], an evaluator's adherence to gender stereotypes may color his or her views in the workplace. In addition, gender stereotypes are prominent and well-learned, so it is possible that they may become activated with little awareness from the individual evaluating a job applicant. Research focused on the automatic activation of gender stereotypes has typically examined how activation affects peoples' perceptions of themselves [10, 12, 13, 37]. There has been relatively little research considering how gender stereotype activation may affect the perception of others. The current study investigated whether an evaluator's gender and gender stereotype characteristics played a significant role in the initial impression of a hypothetical job applicant. In addition, this research examined if the activation of gender stereotypical traits using a priming manipulation affected an evaluator's decisions concerning job applicants.

Gender Stereotypes

According to Social Role Theory [17], gender role stereotypes were originally formed when women were primarily engaged in caregiving of children, which requires traits that are now commonly associated with being more feminine (e.g.,

warmth, friendliness, and being socially-oriented). Conversely, men were needed for protector and provider roles, which required traits that are now often associated with being more masculine (e.g., assertiveness and dominance). These stereotypes continue to proliferate as societies advance because not only are they descriptive of men's and women's behaviors, but they are also prescriptive, meaning people are expected to behave in accordance with these stereotypes [18, 23, 34].

Within the context of these expectations, the increasing move of women into the workforce and into higher status positions has created a predicament for working women. Many of the skills valued in the workplace can be considered more masculine, and research has shown that working women are often viewed as exhibiting more masculine traits when compared to non-working women [15, 38]. Yet, Role Congruity Theory [14, 16, 18], an extension of Social Role Theory, predicts that individuals may be subject to negative consequences for behaving counter to prescribed gender roles. In support of this theory, previous research indicates that when women take leadership positions, they are perceived as less likeable and less socially skilled [18]. Similarly, Phelan, Moss-Racusin, and Rudman [33] showed that when female job applicants were presented as having more masculine traits, they were viewed as highly competent, but lacking social skills. Similarly, Heilman et al. [24] found that women portrayed as successful in the workplace were seen as interpersonally hostile and subsequently, less likeable. In this study, the mere association between a woman and success seemed to produce the same negative evaluation as research purposefully presenting women in a masculine manner. At the same time, feminine women are commonly viewed as holding traits that are not desirable in the workplace, such as dependency, incompetence, and a lack of ambition [22]. Thus, working women can experience a double bind: if they exhibit masculine traits associated with competence, they are seen as gender role incongruent; but if women behave more feminine, they may be seen as incompetent at work [8, 9, 21].

Investigators of hiring bias have widely shown that male applicants are preferred over female applicants for positions requiring masculine traits, such as managerial positions even after controlling for differences in qualifications (see [11] for review). Masculine traits are those that we typically associated with characteristics like being assertive, competent, or analytical [15]. For example, Milkman, Akinola, and Chugh [27] sent fictitious emails seemingly from female, male and minority students to a large sample of professors inquiring about possible research opportunities. They discovered that Caucasian male students received the most responses compared to female students and minority students. Since conducting research typically requires analytical and logical thinking, which are considered more masculine traits, it makes sense that male students would receive a larger number of responses. A similarly designed study focusing on academic hiring and promotion found that both male and female professors were more likely to hire a male applicant over a female applicant with an identical academic record, although gender discrepancies were not evident for promotion review [39].

Interestingly, although there have been a number of studies on the effects of an applicant's gender, there has been little discussion concerning whether the gender of the evaluators or variability in the evaluators' own adherence to gender stereotypical

traits moderate these effects, even though there are logical reasons to take these variables into account. For example, compared to women, men have been known to place greater importance on following traditional gender role stereotypes, specifically in the workplace [25]. Also, men, in comparison to women, have been shown to hold more gender stereotypical views in the workplace, especially in terms of leadership roles [26]. Bosak and Sczesny [7] added to the scant literature on this topic by showing that in an absence of leadership information, when male research participants were asked to make hiring decisions they more often selected the male applicants over similarly qualified female applicants. However, when female applicants were presented as having leadership experience, there was no statistical difference in applicant selection. Female research participants showed little difference in their selection of male and female applicants. This suggests that unless explicitly told to the contrary, men may assume that male applicants have certain traits that make them more suitable for the workplace over female applicants. On the other hand, it might be the case that people who hold stereotypical masculine personality and cognitive characteristics, such as being analytical and competitive, regardless of their gender, would be biased toward male candidates, perhaps because they might assume that men are more likely to also hold similar attributes. Consequently, in this study we examined two characteristics of the evaluator, their gender and masculinity.

Activation of Gender Role Stereotypes

Research conducted on the activation of gender stereotypes confirms that there is an automatic association between gender and gender stereotypical traits [3, 31, 35, 36]. For example, people have been shown to be much faster when associating gendered characteristics with masculine and feminine occupations rather than neutral characteristics [2, 3]. More recently, Devos et al. [13] found that men more quickly identified with the concept of "college education" than women when these ideas were measured implicitly. However, when asked explicitly, men and women indicated equal commitment to their educational goals. These studies show that sometimes implicit and explicit beliefs do not necessarily match, and can lead to different conclusions about gender differences in social roles.

Much of the research examining the implicit activation of gender role stereotypes focuses on how these beliefs might alter self-evaluations and perceptions. For example, [Rudman and Phelan [37] found that activating traditional gender role stereotypes led women to have lower interest in masculine stereotyped occupations. Another line of research showed that simple priming using stereotypical advertisements had a negative effect on women's self-reported leadership ability [12]. Similarly, Dasgupta and Asgari [10] discovered that priming women with pictures of female leaders resulted in a weakening in the association of men with the traditional masculine stereotyped concept of a leader. This research leads us to conclude that the activation of gender stereotypes should influence judgments of others in a hiring situation, but to our knowledge there is little research documenting these effects.

The Current Study

The research presented here fills a gap in the literature by examining how the gender and masculinity of an evaluator can play a role in workplace decision-making. It also extends research on the automatic activation of gender stereotypes, which has primarily examined their effects on self-assessments, by examining how their activation affects the perceptions of others in a hiring decision. Participants completed a measure of their personal adherence to masculine attributes (personality and cognitive characteristics). In a separate session they completed a priming task designed to activate either gender stereotype congruent or gender stereotype incongruent associations (e.g., women with gentle vs. women with assertive). Afterward, they evaluated a hypothetical male or female job applicant on several work-related skills, including a Hiring Recommendation. Hiring decisions after the activation of gender stereotype congruent associations should reflect what might typically happen in work place settings, since these associations reflect the social norms of the larger society. Priming with counter-stereotypical associations (incongruent with prevailing stereotypes) should disrupt these automatic associations. Thus comparisons across the two priming conditions should reveal the effects of the automatic activation of gender stereotypes on hiring. Specifically, consistent with Role Congruity Theory, we predicted that when stereotype-congruent associations were primed, participants would give more favorable evaluations to male applicants than female applicants than when stereotype incongruent associations were primed.

In addition, since it has been previously shown that men tend to place more weight on gender stereotypes in the workplace [25, 26] and many workplace skills are considered masculine, we expected that men and those with higher self-reported masculinity would give more positive evaluations to male applicants compared to female applicants and tend to favor male applicants in hiring decisions. Evaluators who were women or had lower levels of masculinity were expected to show less of a gender bias in their ratings.

Method

Participants

Participants were recruited from the Introductory Psychology Subject Pool and were awarded partial credit toward fulfilling a course requirement for taking part in the study. A total of 141 participants (89 females, 52 males) completed the current study. Participants were primarily Caucasian (75.4 %) with 16.2 % indicating they were African-American/Black and 8.4 % indicating another or mixed ethnicity. Participants ranged in age from 19 to 35 years with the average being 19.7 years of age. Twelve participants (nine female) were excluded from data analysis after failing the manipulation check (see "Measures" section).

Design

The design of the current study was a 2 (applicant gender) × 2 (priming condition: stereotype-congruent or stereotype-incongruent) × 2 (participant gender). In addition, participant's self-reported masculinity was used as a continuous predictor.

Procedure

Pre-screening

All Introductory Psychology students were offered the option of participating in a pre-screening questionnaire. This questionnaire was an online survey comprised of questionnaires completed outside any particular study. Included in this questionnaire was the *Dimensions of Gender Stereotypes* [15], which measures a participant's self-reported conformity to gender stereotypes. This measure was presented during the pre-screening so that participant responses did not influence behavior during the experimental session and vice versa.

Experimental Session

Upon arrival for the study, participants were seated at a large table with other participants. First, participants were asked to complete a simple demographic measure assessing gender, age, ethnicity, and year in school. Next, participants completed the priming manipulation, described in detail below. This was followed by the hiring task, which consisted of reading a single applicant's cover letter for a generic professor position (field of study unspecified) and then rating the job applicant on several dimensions. After completing the evaluation, participants were debriefed and dismissed.

Priming

Participants were randomly assigned to either the stereotype-congruent or stereotype-incongruent priming. For all of the conditions, participants were given a sheet of paper with 12 names (all male or all female), each paired with a masculine or feminine descriptive trait word. They were instructed to memorize the list of words for 2 min. After 2 min passed, participants were asked to turn over their paper. A recall sheet was handed out to participants and they were asked to write down as many words as they could remember.

There were two stereotype-congruent priming conditions, one for participants who later received a male applicant to evaluate (masculine-congruent) and one for participants who later received a female applicant to evaluate (feminine-congruent) traits. In these conditions, participants viewed either male or female names paired with gender stereotype consistent trait descriptors (e.g., Bob-assertive or Mary-caring). There were also two stereotype-incongruent priming conditions, masculine-incongruent (for participants who later evaluated a male applicant) and feminine-incongruent (for participants who later evaluated a female applicant), in which

Table 1 Examples of priming condition stimuli

Masculine stereotype-congruent	Feminine stereotype-congruent	Masculine stereotype-incongruent	Feminine stereotype-incongruent
Mike–Competent	Lucy–Nurturing	Mike–Nurturing	Lucy–Competent
Joe–Assertive	Sara–Kind	Joe–Kind	Sara–Assertive
Bob–Leader	Anna–Cooperative	Bob–Cooperative	Anna–Leader

participants viewed the same male or female names paired with trait descriptors that are inconsistent with traditional gender stereotypes (e.g., Mary-assertive or Bob-caring). See Table 1 for example priming items.

Job Applicant Evaluations

After the priming manipulation, participants were asked to evaluate a hypothetical job applicant for a professor position. A generic professor position was chosen because hiring new professors is relevant to the college sample used in the current study. The applicant was either male or female, and the cover letter was identical for both applicants except for the name listed at the top and bottom of the letter (Amy or Alan Smith). In addition, the letter detailed experience, but indicated no area of academic specialization so that there were no defined gender stereotyped ideals concerning the professor position. Participants evaluated only one applicant matching the gender of the names given in the priming condition. For example, if a participant viewed female names in the priming condition, they were asked to read and evaluate the cover letter for Amy Smith.

After they read the cover letter, participants turned it over and were asked to complete ratings scales indicating how they thought the applicant faired on different skills commonly valued in the workplace. The scale is detailed further below.

Measures

Participant Masculinity

As indicated earlier, each participant completed the *Dimensions of Gender Stereotypes* [15] measure before arriving for the experimental session of this study. This measure asks participants to rate the degree to which 56 different characteristics describe their own personality, cognitive, and physical characteristics using a 7-point scale from strongly disagree (1) to strongly agree (7). From these ratings, six different scales can be calculated including a broad masculinity and femininity scale. A shortened version of this scale excluding the physical characteristics was used since these traits were less related to the concepts in this study. The scale used in the current study included 42 items ($\alpha = .84$) and was scored to examine broad masculinity since previous research [25] suggests that men tend to more heavily endorse gender role stereotypes, especially in the workplace, and many work-related traits are stereotypically masculine. We expected that those

with higher self-reported masculinity would extend more positive evaluations to male applicants when compared to those with lower levels of masculinity. This scale was scored so that higher values indicate higher self-reported masculinity.

Manipulation Check

Before the applicant rating scales, participants were asked to write the name of the applicant. This was to ensure that the participants were aware of the gender of the applicant they were rating. Participants who did not provide a name consistent with the gender of the applicant were eliminated from the analyses. There were four participants that indicated the wrong gender on this item and eight participants that did not complete this item and thus were excluded from the data.

Applicant Ratings

Each participant was asked to rate an applicant on 19 dimensions related to holding a job as a university professor. These items were derived from common university student opinions of instruction surveys, as well as items that frequently appear on employment ratings at large companies. There was a mix of items commonly considered masculine (e.g., competence, capable) and items considered feminine (e.g., mentoring ability, helpful). Participants were asked to rate how much they agreed that the applicant exemplified these traits on a 5-point scale ranging from not at all (1) to very much (5). A data reduction analysis of these items is presented in the results section.

Hiring Recommendation

The final question on the ratings scales sheet asked participants to rate how likely it would be that they would recommend the applicant for the position. The same 5-point scale was used with higher scores indicating more favorable evaluations. Each participant reviewed just on application (either Amy or Alan), and consequently made just one hiring recommendation.

Results

Data Reduction

The 19 items included in the applicant ratings were consolidated into three distinct categories, each including different skills sets related to successful employment as a professor. A factor analysis was conducted with a varimax rotation. It is important to note that an orthogonal rotation was used in this case for several reasons. Best practices suggest conducting an oblique rotation if the factors are expected and hypothesized to be correlated [32, 40]. In our case, the masculine and feminine work-related skills were expected to be separate constructs, so an orthogonal

rotation was most appropriate. Three factors were revealed using eigen values greater than one as the criterion (Table 2). Factor 1 (General Competence) explained 41.70 % of the variance. Factor loadings greater than .40 included skills typically considered to be more masculine such as leadership ability and being knowledgeable. Items loading on Factor 2 (Student-Orientation) at .40 or greater included behaviors typically considered to be more feminine, such as being more understanding and mentorship ability. This factor explained 12 % of the variance. Two scales were created by averaging the items that loaded on each factor. Work Skills ($\alpha = .92$) and Student-Orientation ($\alpha = .85$) both showed high reliability. A third factor, labeled Work Attitude, consisting of four items (commitment to research, enthusiasm for teaching, being an engaging teacher, and dominance) explained approximately 6 % of the variance. Items on this factors showed low internal consistency ($\alpha = .55$), and ultimately, this factor was dropped from analyses due to low reliability.

Table 2 Factor loadings for applicant evaluations

Rating characteristic	General competence	Student-orientation	Work attitude
Is well-qualified	**.814**	−.010	.115
Is very capable for this position	**.806**	.259	.093
Is excellent	**.771**	.206	.128
Seems well-prepared and organized	**.737**	.111	.109
Knows what they are talking about	**.723**	.263	.134
Fits with University standards	**.716**	.222	.050
Is competent in their field	**.697**	.170	.246
Will do a good job at this university	**.663**	.352	.219
Is an effective communicator	**.619**	.258	.346
Is understanding of student needs	.182	**.793**	−.051
Is good at mentoring students	.216	**.729**	.365
Is helpful when students have issues	.234	**.728**	.090
Cares about students	−.036	**.691**	.438
Is likeable	.306	**.636**	.089
I would like to have this applicant as a teacher	.484	**.551**	.148
Is committed to their research	.238	.066	**.707**
Is enthusiastic about teaching	.090	.388	**.671**
Would be an engaging teacher	.184	.452	**.585**
Is somewhat dominant	.387	−.225	**.415**
Eigenvalue	7.92	2.28	1.17
% of Total variance explained	41.70	12.00	6.17
Total variance explained	59.87		

Items in bold within a column loaded on the same factor

Preliminary Analyses

Words Remembered

Participants accurately recalled an average 14.18 ($SD = 3.88$) individual words from the priming task out of the possible 24 words (12 names and 12 descriptors). There was a significant difference between men and women in the amount of words remembered, $t\,(137) = -2.75$, $p < .01$. Women ($M = 14.87$, $SD = 3.92$) tended to remember more words than men ($M = 13.02$, $SD = 3.72$).

Correlations Among Dependent Variables

A correlation analysis revealed that all three dependent variables: General Competence, Student-Orientation, and Hiring Recommendation, were significantly correlated with each other (Table 3). A multivariate approach was taken in the analyses since these constructs were examining the same broad idea (suitability for the job) and the correlation analysis revealed these items were related.

Main Analysis

Analyses were conducted in two stages in order to address both of our hypotheses separately and fully understand the significant effects in terms of those hypotheses. First, a multivariate analysis of covariance (MANCOVA) was conducted to examine our hypothesis related to evaluator characteristics, including effects of participant gender and masculinity. Then, a second MANCOVA was conducted to investigate the effects of implicitly activating gender stereotypes.

Participant Gender and Masculinity

A MANCOVA with participant gender as a between subjects factor and participant masculinity as a continuous predictor was conducted to examine their effects on applicant ratings (General Competence, Student Orientation and Hiring Recommendation). There was a significant main effect of participant gender on the overall perception of the applicants, Wilks' $\lambda = .93$, $F(3, 117) = 3.11$, $p = .03$, $\eta_p^2 = .07$. Women ($M = 4.24$, $SD = .73$) gave more favorable ratings overall, on all three dependent variables combined, than men ($M = 4.13$, $SD = .70$). Follow-up

Table 3 Correlations among dependent variables

	General competence	Student orientation	Hiring recommendation
General competence	1.00	.51*	.78*
Student-orientation	.51*	1.00	.51*
hiring recommendation	.78*	.51*	1.00

* $p < .01$

Table 4 Means for evaluation ratings for participant gender

Evaluation scale	Participant gender	*M*	*SD*
Hiring recommendation	Male	4.22	.85
	Female	4.19	.92
General competence	Male	4.05	.64
	Female	4.18	.73
Student-orientation	Male	4.11	.62
	Female	4.36	.55

Sampled were 49 males and 80 females. All variables were indicated on a scale from 1 = not at all (applicant does not exemplify this trait) to 5 = very much (applicant does exemplify this trait)

univariate analyses revealed that although the means for men and women for both General Competence and Student Orientation showed this same pattern (Table 4), the difference was only significant for Student-Orientation, $F(1, 123) = 6.91$, $p = .01$, $\eta_p^2 = .06$.

The participant gender effect was qualified by a significant interaction between participant gender and participant masculinity, Wilks' $\lambda = .88$, $F(6, 236) = 2.59$, $p = .02$, $\eta_p^2 = .06$. Univariate analyses showed that this multivariate effect was primarily driven by ratings for General Competence, $F(2, 119) = 3.37$, $p = .04$, $\eta_p^2 = .05$, and the Student-Orientation, $F(2, 119) = 5.56$, $p < .01$, $\eta_p^2 = .08$. To visualize this interaction, a median split on masculinity was conducted and the means for each gender were graphed (Figs. 1 and 2). Compared to women evaluators who rated themselves higher on masculine attributes, women with lower masculinity scores gave more favorable ratings to applicants on both General Competence and Student Orientation. For men, the reverse pattern was seen for Student Orientation (higher masculine scores were associated with higher ratings), but masculinity had little effect on their ratings of General Competence.

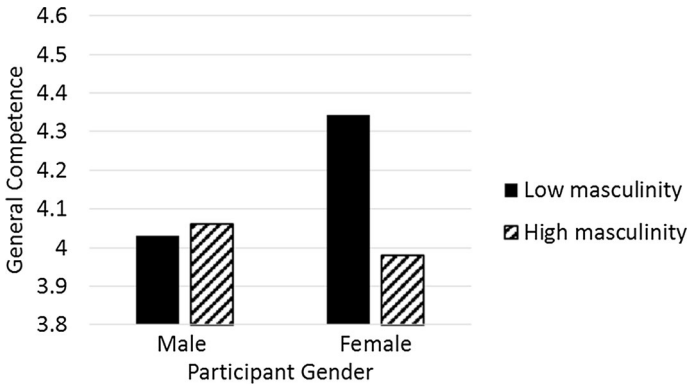

Fig. 1 Two-way interaction between participant gender and participant masculinity for General Competence. This variable was scored on scale from likelihood of holding the trait being 1 = not at all to 5 = very much

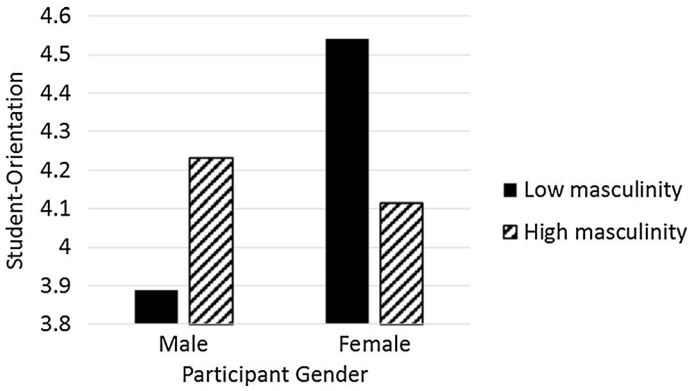

Fig. 2 Two-way interaction between participant gender and participant masculinity for Student-Orientation. This variable was scored on scale from likelihood of holding the trait being 1 = not at all to 5 = very much

Effects of Priming Condition

To examine possible effects stemming from the activation of gender stereotypes, a 2 (applicant gender) × 2 (Prime: stereotype congruent or incongruent) × 2 (participant gender) MANCOVA was conducted using participant masculinity as a continuous predictor. Similar to the above analyses, there was a significant main effect for participant gender, Wilks' $\lambda = .92$, $F(3, 105) = 3.23$, $p = .03$, $\eta_p^2 = .08$, and a marginally significant two-way participant gender and masculinity interaction, Wilks' $\lambda = .93$, $F(3, 113) = 2.77$, $p = .05$, $\eta_p^2 = .07$. Univariate analyses indicated that these effects were only significant for Student Orientation, $F(1, 107) = 9.40$, $p < .01$, $\eta_p^2 = .08$ for participant gender; $F(1, 113) = 8.01$ $p < .01$, $\eta_p^2 = .07$, for the participant gender by masculinity interaction.

The significant effects with participant gender were qualified by a significant three-way interaction between participant gender, applicant gender, and priming condition, Wilks' $\lambda = .92$, $F(3, 111) = 3.42$, $p = .02$, $\eta_p^2 = .09$. Although the means across the conditions show similar patterns between conditions (Table 5), examination of the univariate effects indicated that this effect was primarily driven by a significant effect for Hiring Recommendation, $F(3, 113) = 9.82$, $p = .022$, $\eta_p^2 = .08$, along with a marginal effect for ratings given on General Competence, $F(3, 113) = 3.80$, $p = .054$, $\eta_p^2 = .03$ (see Figs. 3 and 4). In the stereotype-congruent priming conditions, male evaluators gave higher ratings to male applicants than female applicants. Also, in the stereotype-congruent conditions male evaluators gave higher ratings than female evaluators to male applicants on Hiring Recommendation, but lower ratings to female applicants on General Competence. These findings support our hypothesis that men would show a favorable bias toward male applicants. Male evaluators' ratings of female applicants were higher after the incongruent prime compared to the congruent prime, although the simple effects indicated that this difference was only marginally significant for

Table 5 Means for evaluation measures for participant gender and priming condition

Evaluation measure	Participant gender	Applicant gender	Priming condition	*M*	*SD*
Hiring recommendation	Male	Male	Congruent	4.64	.50
			Incongruent	4.38	.74
		Female	Congruent	3.69	1.03
			Incongruent	4.21	.80
	Female	Male	Congruent	4.00	.84
			Incongruent	4.32	.89
		Female	Congruent	4.26	.93
			Incongruent	4.19	1.03
General competence	Male	Male	Congruent	4.29	.49
			Incongruent	3.97	.69
		Female	Congruent	3.74	.63
			Incongruent	4.14	.70
	Female	Male	Congruent	4.10	.66
			Incongruent	4.27	.73
		Female	Congruent	4.32	.71
			Incongruent	4.07	.83
Student-orientation	Male	Male	Congruent	4.37	.55
			Incongruent	4.03	.72
		Female	Congruent	3.82	.70
			Incongruent	4.16	.48
	Female	Male	Congruent	4.10	.66
			Incongruent	4.27	.73
		Female	Congruent	4.32	.71
			Incongruent	4.07	.83

All variables were indicated on a scale from 1 = not at all (applicant does not exemplify this trait) to 5 = very much (applicant does exemplify this trait)

general competence. These differences suggests that activating counter stereotypical gender associations might decrease men's biases against women.

Finally, there was also a significant four-way interaction between participant gender, applicant gender, priming condition, and participant masculinity, Wilks' $\lambda = .91$, $F(3, 113) = 3.68$, $p = .014$, $\eta_p^2 = .09$. As with the analysis above, this effect was primarily driven by the Hiring Recommendation, $F(1, 113) = 10.73$, $p < .001$, $\eta_p^2 = .09$, and General Competence variables, $F(1, 113) = 4.51$, $p = .04$, $\eta_p^2 = .04$. In decomposing this effect, our goal was to understand how masculinity of the participant affected the three-way interaction between participant gender, applicant gender, and priming condition. To achieve this, a series of regression analyses were conducted in which Hiring Recommendation and General Competence ratings were regressed separately on masculinity. Analyses were conducted separately for male and female participants for each of the four priming-applicant gender conditions. We then examined the coefficients for masculinity by gender and

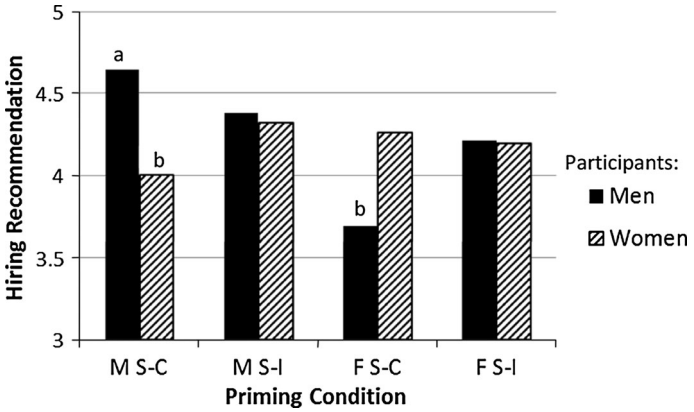

Fig. 3 Three-way interaction between participant gender, applicant gender and priming condition for Hiring Recommendation. Conditions with *different letters* above the bar were significantly different from each other at $p < .05$: M S-C men > M S-C women; M S-C men > F S-C men. For the priming conditions: *M* masculine names, *F* feminine names, *S-C* stereotype-congruent traits, *S-I* stereotype-incongruent traits

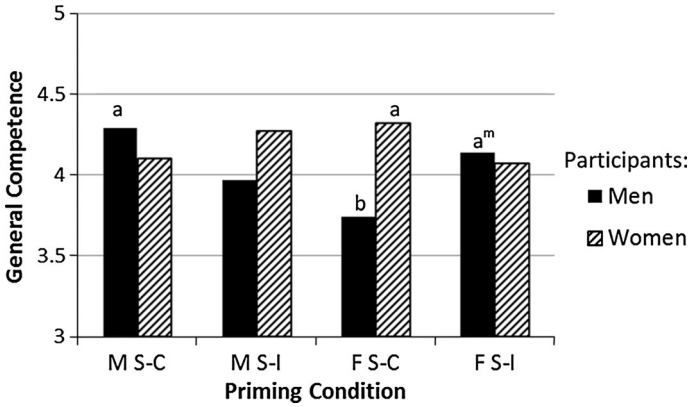

Fig. 4 Three-way interaction between participant gender, applicant gender and priming condition for General Competence. Conditions with *different letters* above the bar were significantly different from each other at $p < .05$: M S-C-men > F S-C-men; F S-C-men < F S-C-women; F S-C-men < F S-I-men (marginal). For the priming conditions: *M* masculine names, *F* feminine names, *S-C* stereotype-congruent traits, *S-I* stereotype-incongruent traits

across the different priming conditions. For male participants the relationship between masculinity and both Hiring Recommendation and General Competence ratings was negative (higher levels of masculinity are associated with poorer ratings), except in while rating a male applicant in the stereotype-incongruent condition. Figure 5 graphs these relationships. For female participants, the relationship between masculinity and General Competence and Hiring Recommendation was somewhat similar to what was found for men; nearly all of the coefficients were negative, except for ratings for the male applicant in the

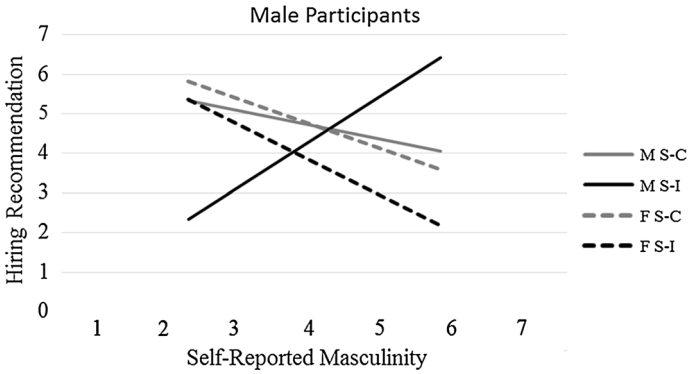

Fig. 5 Four-way interaction between participant gender, applicant gender, stereotypical gender of the traits used during priming, and participant masculinity for Hiring Recommendation, male participants. For applicant gender: *M* male applicant, *F* female applicant. For priming condition: *S-C* stereotype-congruent priming, *S-I* = stereotype-incongruent priming

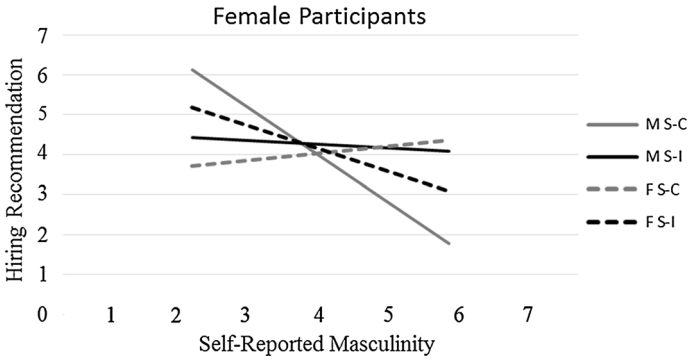

Fig. 6 Four-way interaction between participant gender, applicant gender, stereotypical gender of the traits used during priming, and participant masculinity for Hiring Recommendation, female participants. For applicant gender: *M* male applicant, *F* female applicant. For priming condition: *S-C* stereotype-congruent priming, *S-I* stereotype-incongruent priming

stereotype-congruent condition. Thus, masculinity might operate differently for men and women when male applicants are being considered. Another difference was that for hiring decisions in the feminine congruent condition, the coefficient for masculinity was near zero. Thus for women in this condition, masculinity did not seem to influence their hiring ratings. Figure 6 graphs these relationships.

Discussion

This study examined whether the gender and gender stereotyped characteristics of evaluators influenced their perception of a hypothetical job applicant, and explored the effects of automatically activating gender stereotypes on hiring decisions and

evaluations. Previous research on Role Congruity Theory [14, 16, 18] has focused on how others are evaluated when they act counter to the stereotypical gender roles prescribed by Social Role Theory [17]. The current research extended these theories by showing that the gender characteristics of an evaluator can be important in evaluating men and women in hiring situations. In addition, previous research has been concerned with how the automatic activation of gender stereotypes affects self-perceptions. The current study adds to this literature and is among the first to show, in a laboratory setting, that the automatic activation of stereotypes can also affect perceptions of an applicant in a hiring decision. Because the effects of evaluator gender and masculinity are embedded in the priming conditions, the effects of the automatic activation of gender stereotypes will be summarized first.

The stereotype-congruent priming condition should reflect the effects of gender stereotypes activated in a typical hiring situation. In contrast, the stereotype-incongruent priming condition provides a glimpse into what might happen to gender biases when evaluators are reminded that women can hold masculine characteristics (e.g., analytical, leadership ability) and men can hold feminine characteristics (e.g., works well with others, warm). After stereotype-congruent priming, when compared to female evaluators, male evaluators tended to show a positive bias for male applicants and negative bias toward female applicants. When considering female applicants, male evaluators tended to give better ratings after stereotype-incongruent priming.

To summarize, consistent with our hypotheses, results revealed that variability in the evaluation of job applicants was partially due to an evaluator's own gender. We hypothesized that men may especially favor male applicants over female applicants. Thus, we expected that participants experiencing gender stereotype-congruent priming would behave more in line with gender stereotype norms. In these conditions, male evaluators showed a preference for male applicants, which was expected given the tendency for males to adhere more to gender stereotypes [25]. Our findings also suggest that making counter-stereotypical gender characteristics salient may alter male evaluators' biases toward women. It is notable, that female evaluators' ratings did not appear to be greatly influenced by either the priming condition or the gender of the applicant. This suggests that women may be more egalitarian in their beliefs about gender stereotypes in the workplace.

With respect to masculinity, some interesting findings were revealed. Ignoring applicant gender and priming condition, findings initially suggested that for women, masculinity either had no effect or a positive one on overall evaluation. However, these relationships were qualified by a four-way interaction between masculinity, participant gender, applicant gender, and priming condition. The stereotype-congruent priming condition most closely represented what might transpire in real-world circumstances when the prevailing gender stereotypes may dictate behavior. In these conditions, for male evaluators, masculinity was associated with less favorable hiring and General Competence ratings, regardless of applicant gender. Female evaluators showed no consistent relationship between masculinity and applicant ratings after stereotype-congruent priming.

Interestingly, for men, the stereotype-incongruent priming condition seemed to reverse the negative relationship between masculinity and ratings when considering

only the male applicants. Women showed a negative relationship between masculinity and ratings, regardless of applicant gender, after stereotype-incongruent priming. There is no parsimonious explanation for these effects but they do underscore the importance of studying evaluator characteristics, beyond gender in future research.

Assuming that the stereotype-congruent priming conditions reflect the status quo in terms of gender norms, our findings suggest that men who hold stereotypical masculine personality and cognitive traits might be more critical in their evaluations of others, in general. This might be especially detrimental to female applicants in hiring situations since men showed less favorable ratings toward them overall. Thus, the current study showed that evaluator gender and gender stereotype characteristics interact with the gender of an applicant and are more important than research has previously considered.

It is important to note that most of the significant effects for priming condition were due to only two of the factors in the applicant ratings: Hiring Recommendation and General Competence. Ratings on Student-Orientation were not as strongly affected by priming condition or the applicant's gender, although women generally gave more positive evaluations on this scale than men. Though the applicant letter was meant to be gender neutral, it did mention favorable course evaluations and other interactions with students. Perhaps this explicit reference to students in the letter made Student-Orientation less vulnerable to priming condition. Nevertheless, this suggests that gender biases in hiring decisions may depend on exactly what attributes of an applicant are being rated.

Implications

In higher education, there is a great deal of concern about explicit and implicit biases against women in hiring decisions, especially for women in STEM fields [5, 29, 41]. Indeed, there are now a plethora of workshops and educational material on how to reduce these biases (e.g., *Breaking the Bias Habit* from the Women in Science and Engineering Leadership Institute; *Gender Bias Learning Project* from the Center for WorkLife Law UC Hastings College of the Law). The findings from this study suggest that it is important to have a gender balance in hiring committees to counteract the same-gender bias effect. The National Research Council [30] report on women in STEM in higher education echoes this suggestion, indicating that the odds of a woman being interviewed for a STEM position increase with the number of women on the hiring committee. In addition, our research suggests that making counter-stereotypical gender-trait associations salient to those conducting the evaluations can reduce these biases. This bodes well for interventions that target faculty awareness of implicit biases.

Theoretically, the findings provide some refinement and perhaps challenges for Social Role Theory and Role Congruity Theory. Although men's evaluations seemed to fall in line with these theories' expectations, women's ratings often did not. It is possible that college women are more career-oriented than other women, and may hold less stereotypical beliefs about gender. Women in this study tended to

report being less masculine than men, so it seems likely that those individuals who are less masculine may be more egalitarian when considering individuals in the workplace. Thus, the gendered expectations for others might vary considerably for men and women.

Our findings have several practical implications for a person seeking employment. Previous research by Bosak and Sczesny [7] concluded that the framing of a job applicant is important for evaluation. In their research, applicants presented as leaders were rated highly, but in the absence of this information, males were given preference. Our research partially supports this idea since the framing of the applicant through gender stereotype priming had an effect on how the applicant was evaluated. Taken together, the current research along with the research conducted by Bosak and Sczensy provides practical implications concerning how applicants may want to highlight their strengths when applying for a job. It seems important to consider emphasizing masculine traits like leadership ability while also considering the gender stereotype characteristics of an evaluator.

Limitations

While the results of our research are compelling, there are some limitations that should be discussed. First, the participants in the current research were college students and this may limit the generalizability of the current research. College-aged individuals have not likely been requested to review or hire potential employees before and this may limit their knowledge of the process. Although many of the students may not have participated in real-world hiring decisions, the effects of gender role stereotypes should be universal. Students should have experienced other situations where gender role stereotypes may play a role in evaluations (e.g., completing course evaluations, voting for student government leaders). Second, many hiring decisions are made through a committee process as opposed to a single individual, and group dynamics could results in different biases and outcomes. Third, as with much gender research, this study included more females than males, but we feel that the number of males included in the study is still large enough to provide a representative sample, and as noted above, some of the results are consistent with previous research. Finally, this study was conducted in a controlled laboratory setting. Though the controlled lab environment is advantageous because everyone experiences the same situation, real-world environments additional factors would no doubt come into play. Nevertheless, gender stereotypes are ubiquitous and well-documented making it likely that they transcend laboratory and real-world settings.

Future Directions

Our research identified some areas of concern for future research. In the current study, males were less likely to recommend the female applicant, particularly after stereotype-congruent priming, and this is concerning. The mere act of putting a name on a resume, email or a description of a previous job could serve as a priming

mechanism (e.g., [39]). However, there is still a question of how minimal of a cue might be necessary to produce a similar result. Moving forward in this line of research, it will be necessary to identify the degree of stereotype activation required to affect the overall outcome in a hiring situation. For example, is it possible to give an evaluator little more than a gender-salient name and have just that cue affect the overall evaluation? In addition, it may be possible to combine these ideas and utilize priming while giving minimal information about the applicant to examine whether these minimal cues will show the same effect.

The current research also requested that students "hire" a professor, but participants were given no indication of the professor's field of study. Typically, in academic hiring situation, field of study is never omitted. Although the current research focused more on masculinity and priming mechanisms, future research should consider whether participant masculinity or the automatic activation of stereotypes can interact with the type of position for which an applicant is hired. For example, our research indicated that stereotype-incongruent priming can lessen some of these implicit biases, so it would be interesting to consider whether this might also be the case if the available position was distinctly masculine.

In conclusion, this research indicates that rater characteristics and the activation of gender stereotypes have the potential to impact hiring decisions and employee evaluations. The findings provide empirical evidence to suggest that those concerned about gender biases can intervene by having a gender balanced hiring process and reminding evaluators that men and women can hold counter-stereotypical characteristics. Finally, this research also supports the idea that employee training targeting the awareness of implicit biases and counter-stereotypical gender ideals may aid in hiring decisions and employee evaluations.

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