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Evidence That Gendered Wording in Job Advertisements Exists and Sustains Gender Inequality

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Social dominance theory (Sidanius & Pratto, 1999) contends that institutional-level mechanisms exist that reinforce and perpetuate existing group-based inequalities, but very few such mechanisms have been empirically demonstrated. We propose that gendered wording (i.e., masculine- and feminine-themed words, such as those associated with gender stereotypes) may be a heretofore unacknowledged, institutional-level mechanism of inequality maintenance. Employing both archival and experimental analyses, the present research demonstrates that gendered wording commonly employed in job recruitment materials can maintain gender inequality in traditionally male-dominated occupations. Studies 1 and 2 demonstrated the existence of subtle but systematic wording differences within a randomly sampled set of job advertisements. Results indicated that job advertisements for male-dominated areas employed greater masculine wording (i.e., words associated with male stereotypes, such as *leader*, *competitive*, *dominant*) than advertisements within female-dominated areas. No difference in the presence of feminine wording (i.e., words associated with female stereotypes, such as *support*, *understand*, *interpersonal*) emerged across male- and female-dominated areas. Next, the consequences of highly masculine wording were tested across 3 experimental studies. When job advertisements were constructed to include more masculine than feminine wording, participants perceived more men within these occupations (Study 3), and importantly, women found these jobs less appealing (Studies 4 and 5). Results confirmed that perceptions of belongingness (but not perceived skills) mediated the effect of gendered wording on job appeal (Study 5). The function of gendered wording in maintaining traditional gender divisions, implications for gender parity, and theoretical models of inequality are discussed.

Keywords: inequality, intergroup relations, gender inequality, social dominance, belongingness

Despite widely touted egalitarian ideals, women in North America continue to be underrepresented in many areas of employment including high levels of business, the natural sciences, and engineering. In Canada, for example, less than 20% of engineering undergraduates and only 9% of registered professional engineers are women (Engineers Canada, 2010). A similar picture emerges in the United States. Women comprise only 2.4% of Fortune 500 chief executive officers (Catalyst, 2008a), 20% of full professors in the natural sciences (Catalyst, 2008b), and 11% of engineers

(U.S. Department of Labor, 2007). Why do women continue to be underrepresented in these areas?

Individual-level factors that serve to keep women out of male-dominated areas are well documented. Such factors manifest within individuals in the form of beliefs, attitudes, and other motivated tendencies. For example, system justification research (see Jost & Banaji, 1994; Jost, Banaji, & Nosek, 2004) has demonstrated that injunctification—people’s tendency to defend the status quo via construing whatever currently is as natural and desirable, and the way that things ought to be (Kay, Gaucher, et al., 2009; Kay & Zanna, 2009)—is an individual-level process that can account, at least in part, for women’s continued underrepresentation in male-dominated areas. Female participants who learned about prevailing inequality (i.e., women’s underrepresentation in the domains of business and politics) subsequently defended this inequality as desirable and natural, an effect that was most pronounced when system justification concerns were experimentally heightened (Kay, Gaucher, et al., 2009).

Likewise, benevolent sexist beliefs (Glick & Fiske, 1996, 2001a, 2001b) and complementary (see Jost & Kay, 2005; Kay et al., 2007) or compensatory (see Kay, Czapliński, & Jost, 2009; Kervyn, Yzerbyt, Judd, & Nunes, 2009; Napier, Thorisdottir, & Jost, 2010) stereotypes are especially well suited to justify gender inequalities. Endorsing the warm but incompetent stereotype of housewives justifies women’s domestic role and exclusion from the workplace (Cuddy, Fiske, & Glick, 2004; Fiske, Cuddy, Glick, & Xu, 2002). Similarly, the competent but cold stereotype of

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working women has been used as justification for keeping women out of (male-dominated) management positions (Fiske, Bersoff, Borgida, Deaux, & Heilman, 1991; Phelan, Moss-Racusin, & Rudman, 2008; Rudman, 1998; Rudman & Glick, 1999, 2001).

There is much less psychological research, however, documenting the institutional-level contributors to gender inequality. Institutional-level contributors are those that manifest within the social structure itself (e.g., public policy, law). According to social dominance theory (SDT; Sidanius & Pratto, 1999), these institutional-level mechanisms exist to reinforce and perpetuate existing group-based inequality. Such contributors are often—though certainly not always—so deeply embedded within the social structure that they are overlooked by society at large (Deutsch, 2006). These types of institutional-level factors remain highly underresearched (Pratto, Sidanius, & Levin, 2006).

But despite the difficulty of detecting these systematic or institutional factors, their effects on individual-level psychological processes are profound (e.g., increased antiegalitarianism, racism, and victim blaming; Haley & Sidanius, 2005). Indeed, as Haley and Sidanius (2005, p. 189) wrote:

Social hierarchies are in large part created, preserved, and recreated by social institutions, or organizations. While lone individuals can help to strengthen these hierarchies (e.g. by voting in favor of laws that disproportionately handicap low-status groups) or to attenuate them (e.g. by voting in favor of laws that instead help to level the playing field), institutions should be able to impact hierarchies to a far greater degree.

In the current research we identify an unacknowledged, institution-level factor that may serve to reinforce women's underrepresentation in traditionally male-dominated occupations: gendered wording used in job recruitment materials. Specifically, we investigate whether masculine-themed words (such as *competitive*, *dominate*, and *leader*) emerge within job advertisements in male-dominated areas, and whether the mere presence of these masculine words dissuade women from applying to the area because they cue that women do not belong.

Job Advertisements as Institutional-Level Contributors to Inequality

Women's attrition in male-dominated fields, it has been proposed, spikes at specific points along the career path, such as between one's master of science or master of arts degree and doctorate, or at hiring and promotion (Holmes & O'Connell, 2007; Tesch, Wood, Helwig, & Nattinger, 1995). In the geosciences, for example, 38% of PhD graduates but only 26% of assistant professors are women (Holmes & O'Connell, 2007). It is plausible, then, that institutional-level barriers to women's participation in male-dominated domains occur most prominently at certain critical points. In the present research we focus on job recruitment as one of those critical points.

Over 30 years ago, Bem and Bem (1973) investigated how job advertisements that overtly specified a preference for male applicants discouraged women from applying. They found that explicit references to men as candidates for specific jobs and placing advertisements in sex-segregated newspaper columns discouraged men and women from applying to opposite-sex positions. In the first of two seminal studies, participants were presented with a

series of job advertisements that were either sex biased (i.e., made explicit reference to men as candidates for traditionally male-dominated jobs such as lineman and women as candidates for traditionally female jobs such as stewardess), unbiased (i.e., made reference to both men and women as candidates), or sex reversed (i.e., referred to women as ideal candidates for the typically male-dominated jobs and men as ideal candidates for the traditionally female jobs). The results were clear: Women were more interested in male-dominated jobs when the advertisements were unbiased, making reference to both men and women as candidates, than when the advertisements made reference only to men (Bem & Bem, 1973). Women reported the greatest interest in the male-dominated jobs when the advertisements were sex reversed, explicitly referring to women as ideal candidates.

In a second study, female participants were presented with job advertisements from a U.S. newspaper and asked to rate their preference for each job. Half the participants read job advertisements precisely as they appeared in the paper: sex segregated under jobs–male and jobs–female columns. The other half read identical advertisements, but this time they were integrated and listed alphabetically with no sex labeling. Women preferred male-dominated jobs when they were presented in the integrated rather than the sex-segregated columns. Notably, this finding emerged despite a disclaimer on both sets of advertisements citing that “job seekers should assume that the advertiser will consider applicants of either sex in compliance with the laws against discrimination” (Bem & Bem, 1973, p. 15).

This type of bias in job advertisements, however, likely no longer exists. On the heels of U.S. civil rights legislation (Title VII of the 1964 Civil Rights Act) deeming this practice unconstitutional, and the advent of the Equal Employment Opportunity Commission, explicit sex segregation of advertisements had abruptly ended by 1973 (Pedriana & Abraham, 2006). As a result, it is no longer the case that job advertisements deter men or women from applying to specific positions through explicit requests for men or women or use of pronouns such as *he* or *she*. To many, this suggested that this problem was solved.

However, although such explicit references to men or women as ideal candidates have largely disappeared from the social landscape, it is possible that the gender of the ideal candidate is still conveyed, but more subtly, through wording in the advertisement that reflects broader cultural stereotypes about men and women. In other words, even in the absence of explicit gender-biased directives, masculine and feminine themed words may be differentially present in advertisements for jobs that are typically occupied by males versus females, and the mere presence of this wording difference may be sufficient to exert important downstream consequences on individual-level appraisals of the relevant jobs.

The Nature of Subtle Wording Differences in Job Advertisements

There is an established literature documenting widely held gender stereotypes (e.g., Glick & Fiske, 1996) and differences in the way men and women use everyday language (e.g., Pennebaker, Mehl, & Niederhoffer, 2003). On the whole, women are perceived as more communal and interpersonally oriented than men, whereas men are more readily attributed with traits associated with leadership and agency (Eagly & Karau, 1991; Heilman, 1983; Rudman

& Kilianski, 2000). Moreover, gender differences in the linguistic style of everyday speech are well documented (Carli, 1990; Lakoff, 1975). Women, for example, use a more communal style of speech than men (Brownlow, Rosamond, & Parker, 2003; Haas, 1979; Leaper & Aryes, 2007) and make more references to social and emotional words (Newman, Groom, Handelman, & Pennebaker, 2008). Language use can also differ based on the gender of whom one is writing about. An analysis of recommendation letters for university faculty jobs within biology found that writers used more “standout words” (e.g., *outstanding*, *unique*) when describing male than female candidates (Schmader, Whitehead, & Wysocki, 2007). Similarly, Madera, Hebl, and Martin (2009) documented differential language use in recommendation letters for university faculty jobs within psychology. Women were described as more communal and less agentic than men, suggesting that language use can unintentionally reflect stereotypical gender roles. Furthermore, candidates whose letters contained more communal traits were less likely to be hired, clearly demonstrating that these gender-based differences in language use perpetuate inequality and are not innocuous.

Drawing from these literatures, we reasoned that gendered wording may emerge within job advertisements as a subtle mechanism of maintaining gender inequality by keeping women out of male-dominated jobs. We predict that currently male-dominated occupations will contain greater masculine wording in their job advertisements than advertisements within female-dominated areas. For example, a job advertisement for a company in a male-dominated area might, using masculine language, emphasize the company’s “dominance” of the marketplace, whereas a company in a less male-dominated area might, more neutrally, emphasize the company’s “excellence” in the market. Likewise, a company within a male-dominated occupation may be searching for someone to “analyze markets to determine appropriate selling prices,” whereas an advertisement in a less male-dominated occupation might emphasize “understanding markets to establish appropriate selling prices” in its search. In both cases the job responsibilities are similar, but the phrasing uses a more or less masculine wording.

Origins of Gendered Wording Effects Within Real-World Advertisements

Should we discover the hypothesized emergence of greater masculine wording within advertisements for male-dominated fields, two prominent social psychological theories, SDT (Sidanius & Pratto, 2001) and social role theory (SRT; Eagly, 1987), suggest the mechanisms for how this wording difference may have emerged. However, although these two theories make some similar predictions, they also diverge in important respects. SDT states that “human societies tend to organize as group-based social hierarchies” (Pratto et al., 2006, p. 272). One of the primary ways societies produce and maintain group-based inequality, according to the theory, is through institutional discrimination. From an SDT perspective, then, gendered language used in job advertisements likely serves as a covert institutional practice—one that is very subtle—that ultimately serves to reinforce existing gender inequality, keeping women out of areas that men (the dominant group) typically occupy.

SRT (Eagly, 1987) takes a different approach. Rather than focus on gendered wording as an institutional-level mechanism keeping women out of areas that men typically occupy, SRT posits that gendered wording may arise from observations of differences in role-based behavior. According to the theory, as women and men engaged in traditional roles of homemaker and breadwinner, each gender came to be associated with traits required of each role (i.e., nurturance and agency, respectively). Moreover, as a result of these “original” gender roles, it is theorized that people enter occupational areas typically associated with their traditional gender role (e.g., women in nursing or men in firefighting). Thus, according to SRT, the emergence of gendered words in job advertisements is less the result of a motivated process in the service of maintaining gender inequality, as SDT would predict, than the result of an inference-based perceptual process whereby gendered language emerges within advertisements depending on which gender predominates. In other words, given that men are associated with agency, if there are many men in a particular field, then traits associated with men (i.e., agency) should emerge within the wording of the advertisement. Likewise, if there are many women in a particular field, then traits associated with women (i.e., communion) should be most likely to emerge within the wording of the advertisement.

Both SRT and SDT, therefore, predict greater masculine wording in male-dominated occupations than in female-dominated occupations, although for different underlying psychological reasons. They differ, however, in their predictions for feminine wording and female domains. Because SRT is an inference-based process, it would predict the same type of effect for feminine wording as for masculine wording: more feminine wording in female-dominated jobs than in male-dominated jobs. SDT, in contrast, would not necessarily predict a symmetric effect for masculine and feminine wording, as the preservation of male dominance is much more predicated on women being kept out of male domains than on men being kept out of female domains. Across two naturalistic data sets we content-coded job advertisements to empirically document whether a novel institutional barrier to women’s inclusion in traditionally male-dominated domains exists—that is, whether gendered wording within real job advertisements emerges. In addition, examining whether this effect operates symmetrically for masculine and feminine wording across male- and female-dominated domains may suggest which theory (SDT or SRT) better accounts for the presence of gendered wording within real-world job advertisements.

Crucially, we also predict that such differences in wording, if they do in fact exist, may exert important effects on individual-level judgments that facilitate the maintenance of inequality. Just as other subtle variations in language can have a causal effect on people’s behavior and attitudes (e.g., Boroditsky, 2001; Fitzsimons & Kay, 2004; Hoffman & Tchir, 1990; Maass, 1999; Maass, Salvi, Arcuri, & Semin, 1989; Newcombe & Arnkoff, 1979; Reitsma-van Rooijen, Semin, & van Leeuwen, 2007), subtle variations in the gendered wording used in advertisements may affect people’s perception of jobs, such that men and women will find jobs described in language consistent with their own gender most appealing precisely because it signals they belong in that occupation. Specifically, we hypothesize that masculine wording likely signals that there are many men in the field and alerts women to the possibility that they do not belong.

Gendered Wording as a Cue of Belongingness

There is ample evidence to suggest that belongingness—feeling that one fits in with others within a particular domain—affects people’s achievement motivation specifically and engagement within a domain more generally, and that it can be signaled by cues in the environment. Walton and Cohen (2007) provided some of the most compelling evidence. They found that heightening Blacks’ and Latinos’ sense of belongingness in academia by normalizing their fears about not fitting in increased Blacks’ and Latinos’ engagement with school, improving their grade point averages and reducing dropout rates to levels comparable to that of their White counterparts.

Other research has focused more specifically on the types of cues that signal safety (i.e., belongingness) for members of underrepresented groups (e.g., Cheryan, Plaut, Davis, & Steele, 2009; Davies, Spencer, Quinn, & Gerhardtstein, 2002; Murphy, Steele, & Gross, 2007; Purdie-Vaughns, Steele, Davies, Dittmann, & Crosby, 2008). Most relevant to the current research, Purdie-Vaughns et al. (2008) demonstrated that cues that signal devaluation of certain social identities can lead to domain disengagement. In one study, reading a company newsletter that explicitly mentioned a “color-blind” philosophy but also showed photos suggesting low minority representation led to less trust in and comfort with the company, suggesting that belongingness can greatly affect people’s tendency to approach particular domains.

Certainly, other factors also influence people’s propensity to approach a domain. For example, practical considerations such as having the skills required for the job and geographical location factor into one’s decision to apply for a job. People are more likely to apply to jobs for which they think they have the skills than for ones for which they do not. But given the importance of belongingness for domain engagement specifically (Walton & Cohen, 2007) and psychological well-being more generally (Baumeister & Leary, 1995; Ryan & Deci, 2000), we expected anticipated feelings of belongingness (as cued by gendered wording) to predict job appeal independent of people’s perceptions of their own skill for that job.

Overview of the Present Research

The present research has three main goals. First, via two large-scale naturalistic studies in which we content-coded over 4,000 job advertisements (Studies 1 and 2), we examine whether gendered wording in job advertisements actually exists. This is the main objective in Studies 1 and 2. Our main prediction is that we will observe more masculine-themed words in male-dominated occupations compared with female-dominated occupations, which would be the type of institutional barrier that might prevent women from entering traditionally male-dominated domains, as would be predicted by SDT. In addition, by examining the usage of feminine-themed words in male- and female-dominated occupations, we attempt to shed light on whether these wording differences do in fact reflect a means of social dominance or are best explained by a cognitive inference approach, as would be suggested by SRT.

Second, we examine the effects of gendered wording on individuals’ appraisals of occupations. In keeping with calls for a more sociocultural approach to understanding inequality and oppression

(see Adams, Biernat, Branscombe, Crandall, & Wrightsman, 2008; Deutsch, 2006), the current work directly tests how institutional-level mechanisms—evident in gendered wording used in job advertisements—interact with individuals’ appraisals of the jobs and perpetuate traditional divisions of labor. To do so, across a series of experimental studies, we manipulate the masculine and feminine wording of job advertisements and assess the causal effects of gendered wording on perceptions of gender diversity, job appeal, and anticipated feelings of belongingness. Should highly masculine wording cue that women do not belong, and subsequently make the job less appealing to women, then the current analysis has important implications for the sex discrimination literature.

Third, we investigate the precise mechanism accounting for gendered wording effects on job appeal. We hypothesize that women would find jobs with masculinely worded advertisements less appealing because masculine wording cues lower gender diversity (Study 3) and signal to women that they do not belong in such occupations (Studies 4 and 5), but not because they see themselves as unskilled for the job (Study 5).

Study 1: Wording Differences in a Public Sample of Online Job Advertisements

To investigate whether gendered wording differences in job advertisements exist, we conducted two large naturalistic studies. In Study 1, 493 randomly sampled online job advertisements from typically male- and female-dominated occupations were coded for the use of masculine and feminine words. In keeping with an SDT perspective, we expected that advertisements within male-dominated areas would contain a greater proportion of masculine wording than advertisements within female-dominated areas. This was our key hypothesis. However, by looking at the extent to which this effect is mirrored for feminine wording within female domains, we were also able to rule out an alternative interpretation: that these effects are due to social role inferences rather than mechanisms of social dominance. If social role processes are underlying the emergence of gendered language in advertisements, then we would also expect that advertisements within female-dominated areas to contain more feminine words, compared with male-dominated occupations, reflecting the greater number of women in these occupations. The lack of such an effect, therefore, would suggest that SRT processes are likely not at work.¹

Method

We obtained a list of occupations that included the proportion of women and men in each job area (U.S. Department of Labor, 2007). Next, we identified Canada’s two leading job search websites: monster.ca and workopolis.com. We then selected 11 occupations that were highly male or female dominated and had a corresponding category on both job websites. Based on these two criteria, 11 occupations were selected for coding. Male-dominated

¹ It is conceivable that SDT would also predict more feminine wording in female-dominated areas, but this effect is not critical to an SDT explanation. Without it, the pattern of results would still reflect an SDT effect, because it is more important to keep subordinates out of dominants’ roles than to keep dominants from freely choosing their roles. In contrast, SRT clearly predicts the effect for feminine wording.

jobs were plumber (1% women), electrician (2%), mechanic (2%), engineer (11%), security guard (23%), and computer programmer (26%); female-dominated jobs were administrative assistant (97%), early childhood educator (94%), registered nurse (90%), bookkeeper (90%), and human resources professional (71%). Using the job titles as search terms, we selected the first advertisements listed for each occupation from both websites, to a maximum of 60 per occupation. This resulted in 493 advertisements (231 representing male-dominated occupations and 262 representing female-dominated occupations; see Table 1). Managerial positions were not collected because of uncertainty about whether managerial advertisements could be accurately categorized as male or female dominated.²

As a measure of gendered wording, lists of masculine and feminine words were created with published lists of agentic and communal words (e.g., *individualistic*, *competitive*, *committed*, *supportive*; Bartz & Lydon, 2004; Rudman & Kilianski, 2000) and masculine and feminine trait words (e.g., *ambitious*, *assertive*, *compassionate*, *understanding*; Bem, 1974; Hoffman & Hurst, 1990; Schullo & Alperson, 1984; see Appendix A for a complete list of the words that were coded). This is consistent with previous research that has examined gender differences in language by coding for specific words (Newman et al., 2008). Using content analysis software (Pennebaker, Booth, & Francis, 2007), we gave each advertisement masculine and feminine scores, representing the percentage of total masculine and feminine words in each. A score of 1.5% on masculine wording, for example, indicated that 1.5% of the total words in that advertisement were from the list of masculine words. Masculine and feminine scores were correlated but only weakly, $r(493) = .10$, $p = .03$.

Results and Discussion

Recall that we expected advertisements from male-dominated occupations to contain greater masculine than feminine words, compared with advertisements within female-dominated areas. To test for this, we conducted a 2 (occupation: male dominated vs. female dominated) \times 2 (wording: masculine vs. feminine) mixed model analysis of variance (ANOVA), with wording as the repeated measure. A main effect of wording emerged, $F(1, 491) =$

24.51, $p < .001$, $\eta_p^2 = .048$, indicating that advertisements contained more masculine words ($M = 0.83\%$, $SD = 0.70\%$) than feminine words ($M = 0.63\%$, $SD = 0.75\%$). The main effect of occupation was marginally significant, $F(1, 491) = 3.02$, $p = .08$, $\eta_p^2 = .006$, suggesting that there tended to be more coded words within advertisements for male-dominated jobs ($M = 0.77\%$, $SD = 0.82\%$) than for female-dominated jobs ($M = 0.69\%$, $SD = 0.65\%$).

Of greater interest, the predicted Wording \times Job Type interaction emerged, $F(1, 491) = 18.33$, $p < .001$, $\eta_p^2 = .036$ (see Figure 1). Masculine words were more likely to emerge within advertisements for male-dominated jobs ($M = 0.97\%$, $SD = 0.81\%$) than advertisements for female-dominated jobs ($M = 0.70\%$, $SD = 0.55\%$), $t(491) = 4.35$, $p < .001$, $d = 0.40$. There was no difference in the presence of female words across male-dominated ($M = 0.57\%$, $SD = 0.77\%$) and female-dominated occupations ($M = 0.67\%$, $SD = 0.73\%$), $t(491) = 1.48$, $p = .14$, $d = 0.13$.

The above analysis confirmed the most straightforward prediction: Job advertisements within male-dominated areas contained greater masculine wording than advertisements from female-dominated areas. A more nuanced test of the hypothesis, however, is to examine whether differences in wording also vary continuously as a function of the number of men present in the occupation. Are greater numbers of men in any given occupation associated with more masculine and fewer feminine words? Indeed, this was the case. Across all advertisements, the percentage of men in an occupation (according to the U.S. Department of Labor, 2007) was used to predict the percentages of masculine and feminine words emerging across all the advertisements. More men in an occupation was associated with a greater presence of masculine words, $\beta = .17$, $t(492) = 3.74$, $p < .05$, and a marginally, though not significant, lower presence of feminine words, $\beta = -.19$, $t(492) = -1.90$, $p = .06$.³

Study 2: Wording Differences in a University Sample of Co-Op Job Advertisements

Study 1 provided initial evidence that gendered wording in job advertisements exists. Consistent with both SDT and SRT, advertisements from male-dominated fields contained greater masculine wording than advertisements from female-dominated fields. More in keeping with an SDT perspective, however, there was no difference in the presence of feminine wording across male- and female-dominated fields, as an SRT interpretation would suggest that there should have been. In Studies 3–5, we experimentally assess the social psychological effects of this type of wording bias. Before doing so, however, we sought to replicate the findings using a different sample to ensure that the wording differences that emerged were not based on something idiosyncratic about the particular 11 occupations selected in Study 1. To do this, we

Table 1
Composition of Coded Advertisements, Study 1

Occupation	Advertisements	
	<i>N</i>	%
Male dominated	231	47
Plumber	36	7
Electrician	55	11
Mechanic	14	3
Engineer	59	12
Security guard	22	4
Computer programmer	45	9
Female dominated	262	53
Human resources professional	45	9
Bookkeeper	55	11
Registered nurse	57	11
Early childhood educator	50	10
Administrative assistant	55	11

² Due to differences in the number of advertisements posted online, the number of advertisements collected for each occupation varied from 14 to 59.

³ We regressed a ranked variable corresponding to the exact percentage of men within each occupation (as defined by the U.S. Department of Labor, 2007) on the masculine wording and feminine wording variables.

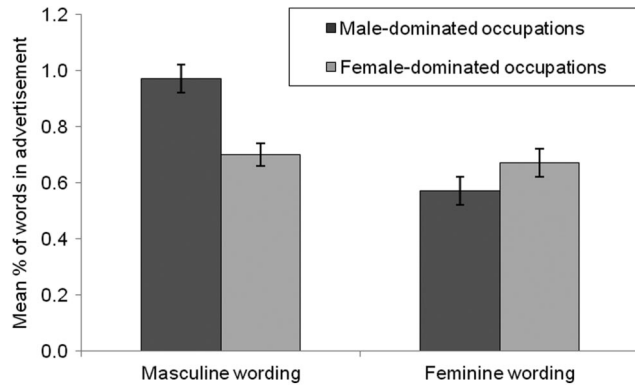


Figure 1. Mean percentage of gendered wording as a function of occupation area (Study 1). Error bars indicate standard error.

randomly sampled job advertisements for university students that were targeted at stereotypically male- and female-dominated faculties (e.g., engineering vs. arts, respectively) but that were from hundreds of employers. The University of Waterloo has the largest cooperative education program in Canada. Students in the co-op program alternate between terms of on-campus coursework and off-campus work placements. Each term hundreds of companies advertise thousands of student jobs that students can access through a university website. We were granted access to the text of 3,640 of these job advertisements targeted at six university faculties.

In contrast to the online advertisements in Study 1, which were organized by occupation title (e.g., engineer, plumber), the co-op job advertisements were organized by university faculty (e.g., engineering, arts, applied health sciences). Employers could choose to target their advertisements to students in engineering, arts, or another faculty. There is generally a correspondence between the faculty targeted and the domain of the job; for example, jobs targeted at students in the engineering faculty are almost always within the engineering field, but the job titles themselves within that faculty varied. By categorizing advertisements by faculty instead of by specific job titles, it ensured that the wording effects were not particular to jobs titled “engineer” or “computer programmer” but reflected a general trend within the engineering or computer science fields. Again, in keeping with SDT and SRT, we expected to find more masculine wording in advertisements targeted at students in male-dominated faculties (i.e., from more male-dominated fields) than in advertisements targeted at students in female-dominated faculties. Furthermore, on the basis of the findings from Study 1, we expected to find no difference in the amount of feminine wording found across subject areas.

Method

Job advertisements ($N = 3,640$) were randomly selected from the on-campus co-operative job posting site at the University of Waterloo. Given the university’s emphasis on engineering, math, and computer science programs, there were more job advertisements targeted to typically male-dominated faculties ($n = 3,116$) than to typically female-dominated faculties ($n = 524$). The job advertisements targeted to typically male-dominated faculties were

sampled from engineering ($n = 1,682$), math and computer science ($n = 920$), science ($n = 205$), business and economics ($n = 209$), and accounting and financial management ($n = 100$). The job advertisements targeted to typically female-dominated faculties were from applied health studies ($n = 205$), arts ($n = 160$), and environmental studies ($n = 159$). All the faculties that were represented on the co-op job posting site were included in the present analyses. As in Study 1, we coded each advertisement for the percentage of masculine and feminine words contained in the advertisement using linguistic software (Pennebaker et al., 2007). In this sample, masculine and feminine scores were again correlated but only weakly, $r(3640) = .05$, $p = .001$.

Results

To test for wording differences, we conducted a 2 (faculty advertised: male dominated vs. female dominated) \times 2 (wording: masculine vs. feminine wording) mixed model ANOVA, with wording as the repeated measure. A main effect of wording emerged, $F(1, 3638) = 191.67$, $p < .001$, $\eta_p^2 = .050$, indicating that advertisements, overall, contained more masculine words ($M = 1.09\%$, $SD = 0.88\%$) than feminine words ($M = 0.67\%$, $SD = 0.70\%$). A main effect of faculty also emerged, $F(1, 3638) = 18.76$, $p < .001$, $\eta_p^2 = .005$, indicating there were more coded words within advertisements targeted at male-dominated faculties ($M = 0.90\%$, $SD = 0.83\%$) than within advertisements targeted at female-dominated faculties ($M = 0.78\%$, $SD = 0.73\%$).

Of greater interest, once again the predicted Wording \times Job Type interaction emerged, $F(1, 3638) = 14.76$, $p < .001$, $\eta_p^2 = .004$ (see Figure 2). As expected, there was a greater percentage of masculine words within advertisements for male-dominated faculties ($M = 1.12\%$, $SD = 0.89\%$) than within advertisements for female-dominated faculties ($M = 0.91\%$, $SD = 0.76\%$), $t(3638) = 5.23$, $p < .001$, $d = 0.24$. There was no difference in the presence of feminine words between male-dominated ($M = 0.67\%$, $SD = 0.70\%$) and female-dominated faculties ($M = 0.65\%$, $SD = 0.68\%$), $t(3638) = 0.56$, $p = .56$, $d = 0.03$.

Discussion: Studies 1 and 2

Across two independent samples, job advertisements for male-dominated occupations contained more stereotypically masculine

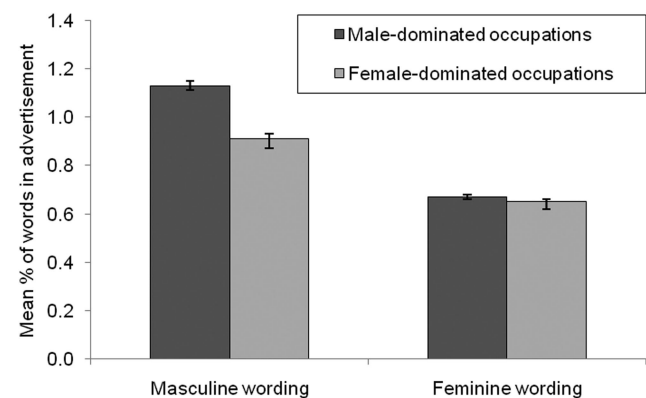


Figure 2. Mean percentage of gendered wording as a function of occupation area (Study 2). Error bars indicate standard error.

words than job advertisements for female-dominated occupations. Furthermore, in both cases there was no difference in the presence of stereotypically feminine words across male- and female-dominated occupations. This lack of an effect for feminine wording suggests that gendered wording, at least in the current studies, is not simply the result of a perceptual process whereby people make inferences about the traits required for jobs based on roles traditionally held by men and women. Next, we sought to test whether these types of wording differences affect individual-level psychological functioning in a way that can lead to the perpetuation of gender divisions. Does the inclusion of more masculine stereotype-linked words, like the ones we systematically found in the advertisements for male-dominated jobs, make a given job less appealing to individual female candidates? Three laboratory experiments (Studies 3–5) tested the causal effects of gendered wording on perceptions of gender diversity, anticipated feelings of belongingness, and, ultimately, job appeal.

Study 3: The Effect of Gendered Wording on Diversity Perceptions

In Study 3 participants read a series of job advertisements manipulated to be masculinely or femininely worded and then estimated the perceived gender diversity within the various occupations. We created advertisements for traditionally male-dominated (engineer, plumber) and female-dominated (registered nurse, administrative assistant) occupations, as well as two neutral jobs (real estate agent, retail sales manager). The neutral jobs allowed for testing of gendered wording effects within occupations not as strongly associated with either gender stereotype. Unsurprisingly, regardless of an advertisement's wording, people will likely perceive more men within some occupations (e.g., engineering) than other occupations (e.g., nursing). We hypothesized, however, that gendered wording will have an additional effect, independent from the type of job, such that people would perceive more men within jobs that were masculinely worded.

Method

Forty-three Canadian-born introductory psychology students participated online (28 women, 15 men; 65% White, 21% Asian, 5% Indian, and 9% other or not listed) in exchange for course credit.

Using a within-subjects design, we provided each participant with six job advertisements to read. Two were from each job type (male dominated, female dominated, neutral). Within each job type, one advertisement used more feminine wording, and the other used more masculine wording. To create the advertisements, we used common phrases from the advertisements sampled in Study 1 to create a generic advertisement for each job (70–115 words). Each included a company description, job description, and qualifications. Wording was manipulated by selectively substituting masculine and feminine words from the lists used in Studies 1 and 2. This resulted in two versions of each advertisement, one masculinely worded and one femininely worded.⁴ For example, the masculinely worded advertisement for a registered nurse stated, “We are *determined* to deliver *superior* medical treatment tailored to each *individual* patient,” whereas the femininely worded advertisement stated, “We are *committed* to providing top

quality health care that is *sympathetic* to the needs of our patients” (emphasis added). Advertisements are included in Appendix B.

To control for any idiosyncrasies of specific jobs (e.g., a general preference for engineering over plumbing) that might be confounded with wording, we counterbalanced across individual occupations. For half the participants, the masculinely worded advertisements were plumber, retail sales manager, and registered nurse (with the three remaining advertisements femininely worded). For the other half, the masculinely worded advertisements were engineer, real estate agent, and administrative assistant (with the three remaining advertisements femininely worded). Presentation order was also counterbalanced.

After each advertisement, participants completed two items assessing their perception of the number of women within each job that they read. Specifically, participants were asked, “How many women . . .” (a) “work in this company?” and (b) “work in the position being advertised?” on a Likert scale ranging from 0 (0% women) to 20 (100% women), each point labeled in 5% increments.

Furthermore, after each advertisement participants were asked which factors had affected their perceptions of that advertisement; not one participant mentioned wording.

Results and Discussion

To test whether masculine and feminine wording actually affects participants' perceptions of the gender diversity within each occupation, we conducted a 3 (job type: male dominated vs. neutral vs. female dominated) \times 2 (wording: masculine vs. feminine) \times 2 (participant gender: male vs. female) mixed model ANOVA, with job type and wording as repeated measures and gender between-subjects. First, we report the effects not associated with the wording predictions. For ease of interpretation, raw scale scores are also reported as percentages of women in square brackets. A main effect of job type emerged, $F(2, 80) = 199.32, p < .001, \eta_p^2 = .833$, indicating, as expected, that traditionally male-dominated occupations were estimated to have fewer women ($M = 4.27$ [20%], $SD = 3.31$ [16%]) than neutral ($M = 12.35$ [59%], $SD = 3.03$ [14%]), $t(80) = 16.12, p < .001, d = 2.62$, and female-dominated occupations ($M = 12.35$ [59%], $SD = 3.49$ [17%]), $t(80) = 16.50, p < .001, d = 2.13$. Estimates of neutral and female-dominated occupations did not differ from one another, $t(80) = 1.19, p = .24, d = 0.00$. This main effect, however, was qualified by a significant Job Type \times Gender interaction, $F(2, 80) = 5.00, p < .05, \eta_p^2 = .011$, reflecting the tendency for female participants ($M = 13.20$ [63%], $SD = 2.83$ [13%]) to estimate greater numbers of women in neutral occupations than estimated by male participants ($M = 10.64$ [51%], $SD = 2.73$ [13%]; see Table 2).

Of most relevance, the predicted wording main effect also emerged, $F(1, 40) = 10.40, p = .02, \eta_p^2 = .206$. People perceived

⁴ As a manipulation check, each advertisement was coded with the same procedure as in Studies 1 and 2, confirming that the six masculinely worded advertisements had more masculine ($M = 8.40\%$, $SD = 1.75\%$) than feminine words ($M = 0.00\%$, $SD = 0.00\%$), $t(5) = 12.41, p < .05$, and the six femininely worded advertisements had more feminine ($M = 6.86\%$, $SD = 1.67\%$) than masculine words ($M = 0.15\%$, $SD = 0.36\%$), $t(5) = 8.45, p < .05$.

fewer women within the occupations advertised with masculine wording ($M = 9.06$ [43%], $SD = 4.80$ [23%]) than occupations advertised with feminine wording ($M = 10.26$ [49%], $SD = 5.20$ [25%]). Wording did not interact with gender or job type ($ps > .10$), which suggests that participants perceived more men within jobs that had masculinely worded advertisements than jobs that had femininely worded advertisements, regardless of participant gender or whether that occupation was traditionally male or female dominated.

Study 4: Job Appeal and Belongingness

In Studies 1 and 2 we found that male-dominated jobs tend to employ more masculine wording in their recruitment materials. Study 3 demonstrated that these wording differences may not be entirely innocuous: Masculine wording led people to predict that there are relatively more men within the relevant occupation. In Study 4 we investigated another consequence of gendered wording, one that is more crucial in order for these institutional-level biases to actually maintain gender inequality: that of job appeal. We hypothesized that masculine wording may actually reduce women's interest in a job because it signals to them that they may not belong. To test this hypothesis, we used the same experimental materials as in Study 3. This time, however, rather than assess people's perception of the number of women in a given occupation, we assessed job appeal and anticipated belongingness.

Method

One hundred and two English-fluent introductory psychology students participated online for course credit. Six were excluded (four failed to specify their gender, and two were outliers), leaving 96 participants (63 women, 33 men; 45% White, 31% Asian, 10% Indian, and 13% other or not listed).

Using the same job advertisements and within-subjects design as in Study 3, we gave each participant six job advertisements to read. As in Study 3, presentation order was counterbalanced. There was no effect of order.

After each advertisement participants completed six items assessing job appeal ("This job is appealing"; "I think I could enjoy this job"; "This is not a job I would want," reverse coded; "This company would be a good employer"; "This job looks interesting";

and "This company seems like a great place to work"; alphas ranged from .90 to .94 for each advertisement). Four items assessing anticipated belongingness ("I could fit in well at this company"; "I'm similar to the people who work in this career"; "My values and this company's values are similar"; and "The type of people who would apply for this job are very different from me," reverse coded). The four-item measure of belongingness was created by adapting items from Walton and Cohen's (2007) Belongingness Scale, making them specific to the occupational domain. Items 1–3 were virtually identical to items used by Walton and Cohen (2007). Item 4 was designed to more fully assess the similarity component of belongingness. All four items showed good reliabilities, with alphas ranging from .80 to .86 for each advertisement. All items used a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Last, after reading all the advertisements, participants ranked them from most appealing to least appealing. Finally, as in Study 3, after each advertisement participants were asked which factors had affected their perceptions of that advertisement; not one participant mentioned wording.

We predicted a Wording \times Gender interaction, in which women judge masculinely worded jobs less appealing than femininely worded jobs. For men, there are two possibilities. On the one hand, they might show the opposite pattern and prefer masculinely worded jobs to femininely worded jobs. On the other hand, higher status groups—such as men—might be less concerned with cues of belongingness because of their already secure high status in the gender hierarchy. Thus, gendered wording may not affect men's job appeal ratings. We also tested whether gendered wording effects on job appeal are driven, at least in part, by expected belongingness.

Results

Subsequent analyses used a 3 (job type: male dominated vs. neutral vs. female dominated) \times 2 (wording: masculine vs. feminine) \times 2 (participant gender: male vs. female) mixed measures ANOVA, with job type and wording as repeated measures and gender between-subjects.

Job appeal: Likert ratings. First we report analyses that are not central to our main hypotheses. A main effect of job type emerged, $F(2, 188) = 4.57, p = .01, \eta_p^2 = .046$. In general, male-dominated occupations were less appealing ($M = 4.07, SD = 1.45$) than either neutral ($M = 4.50, SD = 1.30$), $t(188) = 2.57, p = .02, d = 0.33$, or female-dominated occupations ($M = 4.50, SD = 1.39$), $t(188) = 2.71, p = .009, d = 0.34$. Appeal ratings of the neutral and female-dominated occupations did not differ from one another ($t < 1$). No other main effects emerged.

Of primary importance, the predicted Wording \times Gender interaction emerged, $F(1, 94) = 9.70, p = .002, \eta_p^2 = .094$ (see Figure 3). Women found occupations that were masculinely worded less appealing ($M = 4.16, SD = 1.41$) than femininely worded occupations ($M = 4.50, SD = 1.42$), $F(1, 62) = 6.74, p = .01, \eta_p^2 = .098$. Men only marginally showed the opposite pattern, tending to rate masculinely worded advertisements ($M = 4.61, SD = 1.34$) as more appealing than femininely worded advertisements ($M = 4.22, SD = 1.29$), $F(1, 32) = 3.58, p = .07, \eta_p^2 = .100$. Did the effect of wording vary between job types (traditionally male vs. female)? The absence of a three-way interaction ($F <$

Table 2
Perceived Gender Diversity Within Occupations as a Function of Participant Sex, Study 3

Gender	Male-dominated occupations	Neutral occupations	Female-dominated occupations
Female			
<i>M</i>	4.46 _a (21%)	13.20 _b (63%)	12.26 _b (58%)
<i>SD</i>	3.50 (17%)	2.83 (13%)	3.47 (17%)
Male			
<i>M</i>	3.93 _a (19%)	10.64 _b (51%)	12.54 _c (60%)
<i>SD</i>	3.05 (15%)	2.73 (13%)	3.59 (17%)

Note. Means and standard deviations reflect the 21-point scale seen by participants. For ease of interpretation, raw scale scores are also reported in parentheses as percentages of women. Within rows, different subscripts indicate means differ ($p < .05$) by least significant difference test.

1) suggests no; regardless of whether the occupations were traditionally more male or female dominated, participants found jobs most attractive when there was a match between their gender and the gendered wording used in the advertisement.

Job appeal: Relative rankings. Rankings were coded so that higher rankings indicated more appeal (e.g., 6 indicated the most appealing job, 1 indicated the least appealing).⁵ A main effect of job type emerged, $F(2, 180) = 9.45, p < .05, \eta_p^2 = .095$. Participants ranked male-dominated occupations as less appealing ($M = 2.88, SD = 1.62$) than neutral ($M = 3.80, SD = 1.59$), $t(180) = 4.00, p < .001, d = 0.61$, and female-dominated occupations ($M = 3.82, SD = 1.75$), $t(180) = 4.17, p < .001, d = 0.53$. This effect was qualified by a significant Job Type \times Gender interaction, $F(2, 180) = 7.21, p = .001, \eta_p^2 = .074$, indicating that women ranked male-dominated jobs ($M = 2.58, SD = 1.49$) lower than neutral ($M = 3.97, SD = 1.57$), $t(118) = 6.40, p < .001, d = 0.86$, and female-dominated jobs ($M = 3.95, SD = 1.70$), $t(118) = 6.73, p < .001, d = 0.82$, whereas appeal rankings of the neutral and female-dominated occupations did not differ from one another ($t < 1$). Men ranked all three job types equally ($M_{\text{male}} = 3.44, SD = 1.73; M_{\text{neutral}} = 3.50, SD = 1.61; M_{\text{female}} = 3.56, SD = 1.82$; all $t_s < 1$).

Importantly, the predicted Wording \times Gender interaction again emerged, $F(1, 90) = 8.68, p = .004, \eta_p^2 = .088$. Women ranked masculinely worded jobs less favorably ($M = 3.25, SD = 1.74$) than femininely worded jobs ($M = 3.75, SD = 1.64$), $F(1, 59) = 7.74, p = .007, \eta_p^2 = .120$. For men there was a nonsignificant opposite trend, to prefer masculinely worded jobs ($M = 3.75, SD = 1.78$) over femininely worded jobs ($M = 3.25, SD = 1.61$), $F(1, 31) = 2.43, p = .13, \eta_p^2 = .073$.

Belongingness. First we report analyses not central to our main hypotheses. A main effect of job type emerged, $F(2, 188) = 4.84, p = .009, \eta_p^2 = .049$, so that, overall, less anticipated belongingness was reported in neutral and male-dominated jobs than in female-dominated jobs, but this was qualified by a marginally significant Job Type \times Gender interaction, $F(2, 188) = 2.86, p = .06, \eta_p^2 = .029$, so that only women anticipated less belongingness within male-dominated occupations, whereas men showed no differences. Means and follow-up tests are reported in Table 3.

Most relevant to the main hypothesis, the predicted Wording \times Gender interaction emerged, $F(1, 94) = 6.16, p = .02, \eta_p^2 = .061$.

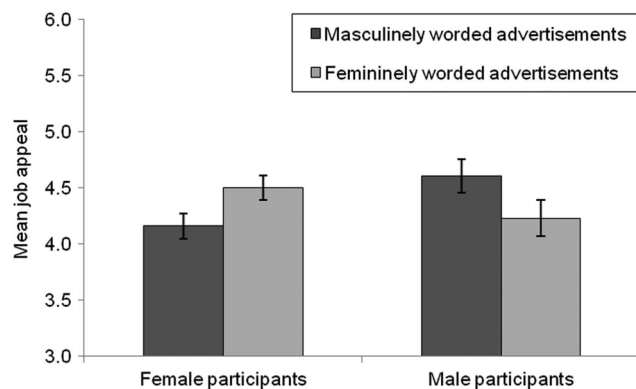


Figure 3. Job appeal as a function of gendered wording and participant gender (Study 4), on a scale of 1 to 7. Error bars represent standard error.

Table 3
Belongingness as a Function of Participant Sex and Job Type, Study 4

Gender	Male-dominated occupations		Neutral occupations		Female-dominated occupations	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Female	3.79 _a	1.31	4.24 _b	1.28	4.41 _b	1.33
Male	4.10 _b	1.24	3.95 _b	1.15	4.28 _b	1.32

Note. Within rows, different subscripts indicate means differ ($p < .05$) by least significant difference test, on a scale of 1 to 7.

Women reported greater anticipated belongingness within occupations that were femininely than masculinely worded ($M = 4.31, SD = 1.35$ vs. $M = 3.98, SD = 1.29$, respectively), $F(1, 62) = 6.35, p = .01, \eta_p^2 = .093$. For men, there was no effect of gendered wording, with no difference between femininely and masculinely worded occupations ($M = 3.99, SD = 1.16$ vs. $M = 4.23, SD = 1.31$, respectively; $p > .22$).

Women found femininely worded advertisements more appealing than masculinely worded advertisements. Next we tested whether this difference in belongingness drove the observed differences in appeal. Because this is a within-subjects design, difference scores were calculated for job appeal (Likert ratings) and anticipated belongingness by subtracting the mean rating for femininely worded advertisements from the mean rating for masculinely worded advertisements (following Judd, Kenny, & McClelland, 2001). Therefore, for both difference scores a higher value indicated a preference (i.e., more appeal or more belongingness) for masculinely worded jobs over femininely worded jobs.

We tested mediation using structural equation modeling (AMOS 16.0) and the procedures outlined in Sadler, Ethier, and Woody (in press); MacKinnon, Lockwood, and Williams (2004); and Shrout and Bolger (2002). Using 5,000 bootstrapped samples, we calculated path estimates and bias-corrected 95% confidence intervals (CIs) of the indirect effect of gender on job appeal via belongingness. Gender (dummy coded: female = 1, male = 0) predicted the anticipated belongingness difference score ($\beta = -.25, p = .01$), so that women anticipated less belongingness within the jobs advertised with masculine wording. This reduction in perceived belongingness predicted less job appeal ($\beta = .72, p < .001$) and was a significant indirect effect ($\beta = -.18, 95\% \text{ CI} [-.04, -.32], p = .02$). Because the 95% CI of the indirect effect did not include zero, we can be confident ($\alpha = .05$) that the women found masculinely worded advertisements less appealing, at least in part, because of the corresponding decrease in anticipated belongingness.

Discussion

Beyond affecting people's perception of gender diversity within an occupation (Study 3), increases in masculine wording were

⁵ For the relative rankings, four additional participants were excluded because they ranked the same job multiple times (e.g., as both first and third).

sufficient to decrease women's job appeal ratings and their anticipated belongingness in specific occupations. Men displayed only a slight preference for masculinely worded advertisements, and gendered wording did not affect men's anticipated feelings of belongingness. This latter finding supports our contention that masculine wording reflected in real job advertisements primarily serves to keep women out of the areas that men typically occupy. In contrast, women were deterred from masculinely worded jobs, finding them less appealing, compared with the same types of jobs advertised with feminine wording. These effects occurred both when the jobs were evaluated independently (in the case of the job appeal Likert measure) and, more strongly, when participants explicitly compared them with one another (the job appeal ranking measure). Strikingly, the type of job that women read about (i.e., engineer, real estate broker, nurse) did not interact with wording. Across all types of jobs, women ranked jobs more negatively when they were written with masculine wording.

In addition, women anticipated less belongingness in jobs that were masculinely worded, and these changes in anticipated belongingness mediated the effects on appeal. Thus, this study also provides evidence for the hypothesis that masculine wording is unappealing to women precisely because it conveys that they may not belong in that job. In Study 5 we sought further evidence for this hypothesis and sought to rule out a potential alternative driver of the observed effects.

Study 5: The Effect of Gendered Wording on Job Appeal, Personal Skill, and Belongingness

Studies 3 and 4 demonstrated the effects of gendered wording on job appeal and suggested that perceptions of gender diversity and anticipated belongingness may be driving those effects. However, despite the general importance of belongingness (Baumeister & Leary, 1995; Ryan & Deci, 2000; Walton & Cohen, 2007), it may not be the sole driver of gendered wording effects. One could argue that the manipulation of gendered wording changed the qualifications that people think are necessary for the job and that these differences in qualifications and skills, in turn, affected the appeal of the various occupations. Masculine wording, for example, may cue that different skills or training are required for the job, and this assessment subsequently makes the job less appealing. This alternative account would suggest that the effects of gendered wording on job appeal are not necessarily driven by psychological variables (such as belongingness) that are ultimately irrelevant to a job's objective tasks, as we have proposed here, but are instead due to logical assessments of whether one's personal skills match the job's requirements. Thus, in Study 5 items assessing whether people thought that they have the personal ability and skills to perform each job (assuming they met the education and experience requirements) were added, ensuring that anticipated belongingness remains a significant contributor even when controlling for perceived skill.

In Study 5 we assessed the effects of gendered wording on gender diversity, belongingness, personal skills, and job appeal using a between-subjects design, rather than the within-subjects design used in Studies 3 and 4, and within a domain that does not have strong preexisting norms about which gender has the best skills for the job. Given our primary interest in how gendered wording affects women's perceptions of jobs and our focus on

whether gendered wording can affect women's appraisals of jobs in areas without strong preexisting gender stereotypes, we recruited all female participants in the current study. Here female participants read just one of two advertisements, for a real estate agent, that was either masculinely or femininely worded. Next, they responded to items assessing gender diversity, belongingness, personal skill, and job appeal. The real estate agent advertisement was an ideal context to test whether the effects of gendered wording are strong enough to women's appeal ratings of jobs even in the absence of strong predetermined norms about who best belongs or has the skills necessary for that job. We expected women to rate the real estate job as less appealing when it was masculinely than femininely worded, and for this effect to be mediated by anticipated belongingness.

Method

One hundred and eighteen Canadian-born introductory psychology students participated online in exchange for course credit. Participants were all female (65% White, 15% Asian, 8% Indian, and 12% other or not listed).

Each participant read one of two real estate agent advertisements previously used in Studies 3 and 4. One version of the advertisement used more feminine wording, and the other used more masculine wording (see Appendix B). Participants then completed our dependent measures. First was the index of gender diversity, which was the same two items used in Study 3: "How many women . . ." (a) "work in this company?" and (b) "work in the position being advertised?" on a Likert scale ranging from 0 (0% women) to 10 (100% women), each point labeled in 10% increments, $r(119) = .44, p < .001$. Next, participants were asked three items assessing their personal skill for the job ("I could perform well at this job"; "If I had this job I would definitely succeed at it"; and "If I had this job there is a good chance I would fail at it," reverse coded; $\alpha = .81$), belongingness (e.g., "I could fit in well at this company"; $\alpha = .76$), and job appeal (e.g., "This job is appealing"; $\alpha = .85$) on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The anticipated belongingness and job appeal items were identical to those used in Study 4, and moderately correlated, $r(119) = .49, p < .001$.

Results and Discussion

All the subsequent analyses used ANOVA with wording (feminine vs. masculine) as a between-subjects factor. As expected, women perceived fewer women within the masculinely than femininely worded real estate advertisements ($M = 4.27$ [39%], $SD = 1.28$ [12%] vs. $M = 5.27$ [48%], $SD = 1.31$ [12%], respectively), $F(1, 117) = 17.83, p < .001, \eta_p^2 = .132$. Critically, women rated the real estate agent job as less appealing when it was masculinely than femininely worded ($M = 3.86, SD = 1.22$ vs. $M = 4.34, SD = 1.07$, respectively), $F(1, 117) = 5.15, p = .03, \eta_p^2 = .042$, and reported less belongingness when it was masculinely than femininely worded ($M = 3.71, SD = 1.04$ vs. $M = 4.09, SD = 0.89$, respectively), $F(1, 117) = 4.42, p = .04, \eta_p^2 = .036$. Wording of the advertisement did not affect women's perceived level of personal skill required for the job ($M_{\text{masculine}} = 4.89, SD = 1.29$; $M_{\text{feminine}} = 4.99, SD = 1.09$; $F < 1$).

To test whether feelings of anticipated belongingness mediated the effect of gendered wording on job appeal, we again used structural equation modeling (AMOS 16.0) and the procedures outlined in Sadler et al. (in press), MacKinnon et al. (2004), and Shrout and Bolger (2002). We tested the model shown in Figure 4: the effect of wording on job appeal using anticipated belongingness and perceived skill as simultaneous mediators (5,000 bootstrapped samples). Controlling for perceived skill, advertisement wording (dummy coded: feminine wording = 0, masculine wording = 1) predicted anticipated belongingness ($\beta = -.19, p = .04$), so that women anticipated less belongingness within the jobs advertised with masculine wording. This reduction in perceived belongingness predicted less job appeal ($\beta = .67, p < .001$). With bias-corrected 95% CIs, the indirect effect of advertisement wording on appeal via belongingness was significant ($\beta = -.13, 95\% \text{ CI } [-.01, -.24], p = .03$). Again, women found masculinely worded advertisements less appealing, at least in part, because of the corresponding decrease in anticipated belongingness.

The perceived skill measure was associated with job appeal, suggesting that it was an adequately reliable measure, but its mediating effect was not significant. That is, women who reported that they had the personal skill needed for a job did find it more appealing, but their ratings of personal skill were not affected by gendered wording. These results are consistent with the hypothesis that gendered wording signals who belongs and who does not, and this, in part, affects the appeal of a job, independent of whether one perceives one has the personal skill to perform that job.⁶

General Discussion

The results of these studies demonstrate that masculine wording in job advertisements leads to less anticipated belongingness and job interest among women, which, we propose, likely perpetuates gender inequality in male-dominated fields. Study 1, a large-scale naturalistic study, demonstrated that advertisements for male-dominated jobs contained greater masculine wording than advertisements for female-dominated jobs. Study 2 replicated this wording effect in a different context: Advertisements posted within faculties associated with male-dominated fields contained more masculine wording than advertisements posted within faculties associated with female-dominated fields. No difference in the presence of feminine wording between male- and female-dominated occupations emerge in either Study 1 or Study 2, and

we hypothesize such differences should have been found if social role processes were driving the emergence of gendered wording. Rather, the pattern of results across Studies 1 and 2 is more supportive of a social dominance perspective, which predicts an asymmetric pattern of wording differences.

Moreover, at the individual level, masculine wording affected women's appraisals of the job, suggesting that the wording differences found at an institutional level in Studies 1 and 2 have the ability to affect individuals in a way that maintains gender inequality in numerous fields. In Studies 3–5 jobs advertised with masculine wording were seen as less gender diverse, and women found those jobs less appealing, compared with jobs advertised with feminine wording. This effect occurred, at least in part, because women anticipated less belongingness in the positions advertised with the masculinely worded descriptions (Studies 4 and 5). Additionally, Study 5 demonstrated that gendered wording did not affect people's appraisals of their personal ability to carry out a job. The effects of gendered wording, therefore, seem to operate via changes in how much one anticipates belonging in a job and less via an appraisal of whether one has the skill for that job.

Generally, gendered wording had the largest effect on women. Men were only slightly more likely to find the masculinely worded jobs more appealing than femininely worded jobs, and there was no effect of gendered wording on men's feelings of belongingness within the occupation. The type of job participants read about (i.e., engineer, real estate broker, nurse) did not interact with the manipulations. Regardless of the type of job, participants, particularly women, ranked jobs most highly when they included words that matched their gender. Furthermore, not a single participant in postexperimental debriefings suggested that his or her responses were influenced by the wording of the advertisements or the extent to which advertisements included words that conformed to gender stereotypes.

Implications for Social Psychological Theories of Inequality and Sexism

This research documents the existence of a structural mechanism that reflects and reaffirms gender inequality, manifesting subtly through the language employed in job advertisements, and thus offers unique empirical support for previous theory, most notably SDT (Sidanius & Pratto 1999). Of all social psychological intergroup theories, SDT articulates most comprehensively how group-based hierarchy—such as gender-based division of la-

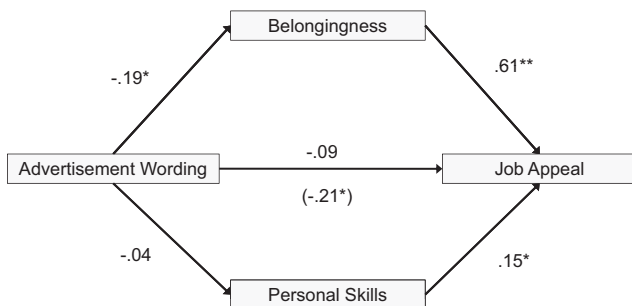


Figure 4. Standardized path estimates from Study 5 (all female participants). Advertisement wording coded as 1 = masculine wording and 0 = feminine wording. * $p < .05$. ** $p < .001$.

⁶To further rule out differences in perceived skill as an alternative explanation, we let a separate sample of 73 participants (36 women, 37 men) read all six advertisements. Participants assessed the training and skill required for each job, independent of their own ability to perform that job (four items; e.g., "How much skill do you think this job requires?"; alphas ranged from .70 to .94). There was no effect of wording on skill ratings (all p s $> .22$). Furthermore, after reading all six advertisements, participants rated the appeal of each job using one item per job. The appeal effects found in Studies 4 and 5 were replicated for female participants: We found a significant Wording \times Gender interaction, $F(1, 70) = 5.17, p = .03, \eta_p^2 = .07$. Women found femininely worded advertisements more appealing ($M = 4.31, SE = 0.19$) than masculinely worded advertisements ($M = 3.89, SE = 0.17$), $F(1, 35) = 4.53, p = .04$. For men in this sample there was no effect of wording, $F(1, 35) = 1.01, p = .32$.

bor—is maintained through institutional discrimination. Past empirical support for the theory has focused on how institutional discrimination manifests within specific contexts—such as the criminal justice system (Sidanius, Liu, Shaw, & Pratto, 1994), government policy (Pratto, Stallworth, & Conway-Lanz, 1998), and corporations (Pratto & Espinoza, 2001)—and through individual-mediated practices, such as when individuals, acting on behalf of the state, allow their biased beliefs to influence decisions or actions they take. The current analysis expands on this past work by documenting an institutional-level barrier that does not solely rely on individual-mediated practices but is ingrained directly into recruitment practices that perpetuate gender divisions. The current work also demonstrates that SDT-type effects can operate via mechanisms of belongingness.

Such institutional procedures (i.e., the way that job advertisements are written) likely have a discriminatory effect even if there is no discriminatory intent. To be clear, it is unlikely that gendered wording is deliberately infused in advertisements. Unlike in the 1960s when employers advertised specifically for men, today many companies have explicit directives, and genuine goals, to gender diversify their workplaces. Thus, it is likely that most, if not all, gendered wording emerges through motivational biases that operate outside people's awareness. Regardless of whether gendered wording deliberately ends up in advertisements, the naturalistic data suggest that it is common in male-dominated fields, and contributes to the division of traditional gender roles by dissuading women's interest in jobs that are masculine worded.

Our experimental data also suggest that replacing the masculine wording with parallel feminine wording would increase women's interest in those jobs. The consequences of adding feminine wording to real job advertisements, however, may not be so straightforward and direct. There is some evidence that "feminizing" job descriptions may implicitly introduce requirements for warmth or communion and increase discrimination against agentic women, who are seen as insufficiently "nice" (Rudman & Glick, 1999). Adding feminine wording to a job advertisement may attract more female applicants, but what if those applicants are now evaluated differently by the people making hiring decisions? It would be unfortunate if a femininely worded job advertisement generated more job interest from women generally, but then agentic female applicants were subsequently less likely to be hired. These considerations make it especially important to systematically and thoroughly investigate the role of gendered wording in the recruitment and hiring process before making strong policy recommendations.

Although Studies 1 and 2 suggest that social dominance processes underlie the emergence of masculine wording in advertisements, both SRT and SDT are useful for explaining gendered divisions of work more generally. Masculine wording is a barrier that qualified women face when exploring career options. However, consistent with SRT, widely held gender stereotypes likely contribute to the fact that women, on average, are less likely than men to undertake initial training in highly male-dominated areas. Focusing on the institutional-level factors contributing to gendered divisions of work highlights a point of intervention: If stereotypes arise, at least in part, because of broad differences in role divisions, as SRT proposes, then changing women's position in the social structure may change the stereotype associated with women (see Diekmann & Eagly, 2000). A stereotype of greater female agency

could increase women's training in currently male-dominated domains. Thus, eliminating the use of incidental masculine wording in job advertisements may not only increase the numbers of women in these occupations but change the female stereotype to include more agentic traits, leading to greater numbers of women seeking training in these occupations.

Also noteworthy is the subtlety with which structural contributors to inequality are woven into the system. The mere presence of masculine words such as *challenge*, *lead*, *boast*, and *active* in advertisements made jobs appear less gender diverse (Study 3) and less appealing to women (Studies 4 and 5), even though these words composed a fraction of the total words in the advertisements. This subtlety of gendered wording makes it a particularly pernicious and potent contributor to inequality. Whereas gendered pronouns and other explicit references to the gender of a candidate can be detected by readers, gendered wording, in the way that we have studied it here, is masked. Not one participant picked up on gendered language when asked at the end of the studies what aspects of the advertisements affected his or her opinion about the job. Instead, participants generally attributed their decisions to broad attitudes toward the types of careers being advertised. Although these attitudes certainly played a role in their responses, given that participants were randomly assigned to experimental condition, wording manipulations also mattered. Consistently finding certain jobs slightly more unappealing over time, without being aware of the external reasons why, may actually cause some women to believe that they are uninterested, for intrinsic reasons, in particular types of jobs. This may ultimately lead them away from occupations that they may otherwise have found more intrinsically interesting.

There are clear implications of the present work for sex discrimination literatures. To date, many of the well-documented barriers to women's inclusion in traditionally masculine occupations have been studied primarily in evaluation and performance contexts—and after women have already been hired. Such better documented barriers include (a) exclusion from informal networking opportunities necessary for promotion (Ibarra, 1992), (b) unwelcoming or patronizing work environments (Dardenne, Dumont, & Bollier, 2007; Vescio, Gervais, Snyder, & Hoover, 2005), (c) double standards for promotion and hiring (Biernat & Kobrynowicz, 1997; Cuddy et al., 2004; Rudman, 1998; Rudman & Glick, 1999), (d) attributional rationalizations (Heilman & Haynes, 2005), and (e) underperformance due to stereotype threat (Bell, Spencer, Iserman, & Logel, 2003; Davies & Spencer, 2005). The current work complements this past work by identifying a subtle institutional-level barrier operating at the initial recruitment phase.

The current work also comments on self-selection hypotheses and explanations for women's career choices. What may appear, at least at first glance, as gender differences in self-selection of occupations is actually influenced, at least in part, by systematic factors outside the self. It is not only that women are socialized to like occupations that are thought to require highly feminine traits, such as nursing, though this is certainly part of the puzzle of women's underrepresentation. Additionally, as the current work reveals, subtle cues outside the self are affecting the appeal of various jobs for women. Women and men, for example, may equally like and desire an engineering job, but highly masculine wording used in the advertisement reduces women's appeal of the job because it cues that women do not belong. Highly masculine

wording may cause women to turn away from a job that they may have otherwise liked because they suspect that they will not belong, not because they do not think that they have the skills necessary for the job. In this way, qualified applicants are opting out of jobs that they could perform well. We speculate that women's reaction to highly masculine wording is likely functional and adaptive. Forced to overcome barriers to advancement and inclusion within male-dominated occupations, women in these fields have likely learned that certain environments are more hostile toward women than others. Being vigilant for cues altering them to the possibility of future negative experiences is important for future occupational success.

Limitations and Future Directions

Although the laboratory is a good place to magnify novel phenomena, laboratory experiments can raise concerns about external validity. Indeed, the extent to which the stimulus materials used in Studies 3–5 map onto the real-world findings of Studies 1 and 2 is an issue that is important for evaluating the magnitude of the current work. Certainly the average presence of masculine and feminine words in the controlled experimental materials was higher than the average emerging in the real-world advertisements, yet the written experimental advertisements used in Studies 3–5 were not completely out of bounds according to the real-world advertisements. The created advertisements contained an average of approximately 7%–8% gendered language, whereas the real-world advertisements contained an average of approximately 1% gendered language. Examining the range of the real-world sample, however, demonstrates that real-world advertisements can contain up to 8% gendered language. Even though such advertisements may be outliers in these samples, they do exist.

Also, strong manipulations containing a high presence of gendered wording were necessary because experimental participants had read only one or six advertisements. Actual job seekers typically read dozens, maybe hundreds, of advertisements. Thus the “dose” of gendered language is comparable, whether it is received as a strong bias across six advertisements or a less strong bias across 50 advertisements. That said, future work should test the boundary conditions of gendered wording effects and determine the smallest amount of masculine wording necessary to affect individual women. Furthermore, although the type of wording found in male-dominated areas (many masculine words, few feminine words) was replicated in Studies 3–5, the type of wording found in female-dominated areas (moderate levels of both masculine and feminine words) was not exactly represented in our laboratory studies. In the current work we chose to focus on how women react to the masculine wording typically found in male-dominated fields, and whether they might find advertisements more appealing if they were femininely worded, but future work should investigate reactions to the more balanced wording typically found in female-dominated areas. Future research should also identify the important features of masculine wording in determining job appeal (or other effects). For example, the location of gendered wording within an advertisement may moderate its effect. Gendered wording within the company description (e.g., “We are a dominant firm”) might affect global perceptions of the company as a whole, whereas gendered wording within the description of job duties (e.g., “You will be a dominant sales force”)

might affect only perceptions of the job, not perceptions of the company more globally. A limitation of the current studies is that gendered wording was diffused throughout each advertisement and not designed to test whether there might be different effects in different parts of the job advertisement. Also, the current studies did not examine precisely which words were most powerful in driving gendered wording effects. It is likely that words most strongly associated with the male stereotype will have the largest effect than words more weakly associated with the male stereotype.

To understand why women continue to be underrepresented in traditionally male-dominated fields, it is essential to understand precisely how institutional-level factors, such as gendered wording, affect the appeal of certain jobs. Understanding institutional-level factors is also important if one wants to design initiatives or interventions that will increase gender diversity, or diversity of all types. There are certainly groups within other domains (such as universities) that would like to diversify their membership. For example, the wording of some recruitment materials, such as university mission statements, may tacitly appeal to people of different socioeconomic status.

Just as gendered wording is salient to men and women, wording associated with individualism–collectivism may be salient to people of high and low socioeconomic status. Individualism—the degree to which an autonomous and unique self is valued over the group—is most strongly a characteristic of the White, urban, upper middle class (Oyserman & Marcus, 1998). As such, words associated with individualism (such as *individual* and *uniqueness*) may be more likely to emerge within the mission statements of high-status or private universities, compared with the mission statements of lower status or public universities. Just as highly masculine wording makes women feel like they do not belong, highly individualistic wording within the mission statements of private universities may subtly cue that members of lower socioeconomic status groups do not belong and discourage them from applying, apart from other tangible reasons (e.g., tuition costs). Thus, our focus on how language perpetuates existing group dominance has theoretical significance for a host of other domains, not only for gender and occupations. Future work would do well to explore how language manifesting at the institutional-level inadvertently serves to maintain existing social arrangements across a number of domains.

Finally, there are a few limitations of the current work that are worth noting. Students from a major Canadian university, although from a broad range of academic majors, were participants in Studies 3–5. Although in one sense university students are relevant participants insofar as they do not currently have a job and are all anticipating applying for one in the near future, one may wonder whether the current findings would generalize to other demographic groups or to active job applicants. Active job applicants, for instance, may be more highly committed, or motivated, to get a job in a particular occupation. On the one hand, a high level of motivation and commitment could make people more attentive to wording cues, in an effort to find the perfect job. On the other hand, strong motivation and commitment to a specific occupation could cause people to apply indiscriminately to jobs in an attempt to ensure that they get at least some job in the field, thus reducing the strength of gendered wording on people's appeal judgments.

Elucidating such moderators of gendered wording effects is a fruitful future direction.

It is also important to note the nature of our dependent variable. Job appeal was assessed with a six-item measure, showing good reliability across studies. This measure was reliable for both men and women, and can be taken as face valid index of the extent to which a job is appealing. Nonetheless, future work would do well to include a true behavioral measure.

Conclusion

Social inequality and existing divisions of labor can be maintained and perpetuated in many ways. Individuals and groups hold a range of ideologies, belief systems, and stereotypes that justify the status quo (Jost & Hunyady, 2005; Napier, Mandisodza, Andersen, & Jost, 2006), but individuals need not always be the driving force. Inequalities can also be reinforced via institutional-level factors that influence individual judgments and preferences in such ways that serve to preserve group inequality and the prevailing status quo. Although these institutional-level features may be less salient or seemingly direct than particular justifying or hierarchy-enhancing ideologies, and are much less researched, they are likely just as important in stagnating social change (Haley & Sidanius, 2005). The current research highlights one such institutional-level feature and demonstrates its potential impact on judgments relevant to the maintenance of inequality. In doing so, it provides useful advances for our understanding of gender inequality in the workforce. But beyond that, we hope it highlights the power of looking to features of the social structure—especially those that may easily go unnoticed—in helping social psychologists uncover the ways in which social inequality is created, reinforced, and ultimately maintained.

References

- Adams, G., Biernat, M., Branscombe, N. R., Crandall, C. S., & Wrightsman, L. S. (2008). Beyond prejudice: Toward a sociocultural psychology of racism and oppression. In *Commemorating Brown: The social psychology of racism and discrimination* (pp. 215–246). Washington, DC: American Psychological Association. doi:10.1037/11681-012
- Bartz, J. A., & Lydon, J. E. (2004). Close relationships and the working self-concept: Implicit and explicit effects of priming attachment on agency and communion. *Personality and Social Psychology Bulletin, 30*, 1389–1401. doi:10.1177/0146167204264245
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*, 497–529. doi:10.1037/0033-2909.117.3.497
- Bell, A. E., Spencer, S. J., Iserman, E., & Logel, C. E. R. (2003). The effect of stereotype threat on women's engineering performance. *Journal of Engineering Education, 92*, 307–312.
- Bem, S. L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology, 42*, 155–162. doi:10.1037/h0036215
- Bem, S. J., & Bem, D. J. (1973). Does sex-biased job advertising "aid and abet" sex discrimination? *Journal of Applied Social Psychology, 3*, 6–18. doi:10.1111/j.1559-1816.1973.tb01290.x
- Biernat, M., & Kobrynowicz, D. (1997). Gender- and race-based standards of competence: Lower minimum standards but higher ability standards for devalued groups. *Journal of Personality and Social Psychology, 72*, 544–557. doi:10.1037/0022-3514.72.3.544
- Boroditsky, L. (2001). Does language shape thought? Mandarin and English speakers' conceptions of time. *Cognitive Psychology, 43*, 1–22. doi:10.1006/cogp.2001.0748
- Brownlow, S., Rosamond, J. A., & Parker, J. A. (2003). Gender-linked linguistic behavior in television interviews. *Sex Roles, 49*, 121–132. doi:10.1023/A:1024404812972
- Carli, L. L. (1990). Gender, language, and influence. *Journal of Personality and Social Psychology, 59*, 941–951. doi:10.1037/0022-3514.59.5.941
- Catalyst. (2008a). *U.S. women in business*. Retrieved from <http://www.catalyst.org/publication/132/us-women-in-business>
- Catalyst. (2008b). *Women in the sciences*. Retrieved from http://www.catalyst.org/file/205/qt_women_in_sciences.pdf
- Cheryan, S., Plaut, V. C., Davis, P. G., & Steele, C. M. (2009). Ambient belonging: How stereotypical cues impact gender participation in computer science. *Journal of Personality and Social Psychology, 97*, 1045–1060. doi:10.1037/a0016239
- Cuddy, A. J. C., Fiske, S. T., & Glick, P. (2004). When professionals become mothers, warmth doesn't cut the ice. *Journal of Social Issues, 60*, 701–718. doi:10.1111/j.0022-4537.2004.00381.x
- Dardenne, B., Dumont, M., & Bollier, T. (2007). Insidious dangers of benevolent sexism: Consequences for women's performance. *Journal of Personality and Social Psychology, 93*, 764–779. doi:10.1037/0022-3514.93.5.764
- Davies, P. G., & Spencer, S. J. (2005). The gender-gap artifact: Women's underperformance in quantitative domains through the lens of stereotype threat. In A. M. Gallagher & J. C. Kaufman (Eds.), *Gender differences in mathematics: An integrative psychological approach* (pp. 172–188). New York, NY: Cambridge University Press.
- Davies, P. G., Spencer, S. J., Quinn, D. M., & Gerhardstein, R. (2002). Consuming images: How television commercials that elicit stereotype threat can restrain women academically and professionally. *Personality and Social Psychology Bulletin, 28*, 1615–1628. doi:10.1177/014616702237644
- Deutsch, M. (2006). A framework for thinking about oppression and its change. *Social Justice Research, 19*, 7–41. doi:10.1007/s11211-006-9998-3
- Diekmann, A. B., & Eagly, A. H. (2000). Stereotypes as dynamic constructs: Women and men of the past, present, and future. *Personality and Social Psychology Bulletin, 26*, 1171–1188. doi:10.1177/0146167200262001
- Eagly, A. H. (1987). *Sex differences in social behavior: A social-role interpretation*. Hillsdale, NJ: Erlbaum.
- Eagly, A. H., & Karau, S. J. (1991). Gender and the emergence of leaders: A meta-analysis. *Journal of Personality and Social Psychology, 60*, 685–710. doi:10.1037/0022-3514.60.5.685
- Engineers Canada. (2010). *Women in engineering*. Retrieved from http://www.engineerscanada.ca/e/pr_women.cfm
- Fiske, S. T., Bersoff, D. N., Borgida, E., Deaux, K., & Heilman, M. E. (1991). Social science research on trial: Use of sex stereotyping research in *Price Waterhouse v. Hopkins*. *American Psychologist, 46*, 1049–1060. doi:10.1037/0003-066X.46.10.1049
- Fiske, S. T., Cuddy, A. J. C., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology, 82*, 878–902. doi:10.1037/0022-3514.82.6.878
- Fitzsimons, G. M., & Kay, A. C. (2004). Language and interpersonal cognition: Causal effects of variations in pronoun usage on perceptions of closeness. *Personality and Social Psychology Bulletin, 30*, 547–557. doi:10.1177/0146167203262852
- Glick, P., & Fiske, S. T. (1996). The Ambivalent Sexism Inventory: Differentiating hostile and benevolent sexism. *Journal of Personality and Social Psychology, 70*, 491–512. doi:10.1037/0022-3514.70.3.491
- Glick, P., & Fiske, S. T. (2001a). An ambivalent alliance: Hostile and benevolent sexism as complementary justifications for gender inequality.

- ity. *American Psychologist*, *56*, 109–118. doi:10.1037/0003-066X.56.2.109
- Glick, P., & Fiske, S. T. (2001b). Ambivalent stereotypes as legitimizing ideologies: Differentiating paternalistic and envious prejudice. In J. T. Jost & B. Major (Eds.), *The psychology of legitimacy: Emerging perspectives on ideology, justice, and intergroup relations* (pp. 278–306). New York, NY: Cambridge University Press.
- Haas, A. (1979). Male and female spoken language differences: Stereotypes and evidence. *Psychological Bulletin*, *86*, 616–626. doi:10.1037/0033-2909.86.3.616
- Haley, H., & Sidanius, J. (2005). Person–organization congruence and the maintenance of group-based social hierarchy: A social dominance perspective. *Group Processes & Intergroup Relations*, *8*, 187–203. doi:10.1177/1368430205051067
- Heilman, M. E. (1983). Sex bias in work settings: The lack of fit model. *Research in Organizational Behavior*, *5*, 269–298.
- Heilman, M. E., & Haynes, M. C. (2005). No credit where credit is due: Attributional rationalization of women's success in male–female teams. *Journal of Applied Psychology*, *90*, 905–916. doi:10.1037/0021-9010.90.5.905
- Hoffman, C., & Hurst, N. (1990). Gender stereotypes: Perception or rationalization? *Journal of Personality and Social Psychology*, *58*, 197–208. doi:10.1037/0022-3514.58.2.197
- Hoffman, C., & Tchir, M. A. (1990). Interpersonal verbs and dispositional adjectives: The psychology of causality embodied in language. *Journal of Personality and Social Psychology*, *58*, 765–778. doi:10.1037/0022-3514.58.5.765
- Holmes, M. A., & O'Connell, S. (2007). Leaks in the pipeline. *Nature*, *446*, 346. doi:10.1038/nj7133–346a
- Ibarra, H. (1992). Homophily and differential returns: Sex differences in network structure and access in an advertising firm. *Administrative Science Quarterly*, *37*, 422–447. doi:10.2307/2393451
- Jost, J. T., & Banaji, M. R. (1994). The role of stereotyping in system-justification and the production of false consciousness. *British Journal of Social Psychology*, *33*, 1–27.
- Jost, J. T., Banaji, M. R., & Nosek, B. A. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political Psychology*, *25*, 881–919. doi:10.1111/j.1467-9221.2004.00402.x
- Jost, J. T., & Hunyady, O. (2005). Antecedents and consequences of system-justifying ideologies. *Current Directions in Psychological Science*, *14*, 260–265. doi:10.1111/j.0963-7214.2005.00377.x
- Jost, J. T., & Kay, A. C. (2005). Exposure to benevolent sexism and complementary gender stereotypes: Consequences for specific and diffuse forms of system justification. *Journal of Personality and Social Psychology*, *88*, 498–509. doi:10.1037/0022-3514.88.3.498
- Judd, C. M., Kenny, D. A., & McClelland, G. H. (2001). Estimating and testing mediation and moderation in within-subject designs. *Psychological Methods*, *6*, 115–134. doi:10.1037/1082-989X.6.2.115
- Kay, A. C., Czapliński, S., & Jost, J. T. (2009). Left–right ideological differences in system justification following exposure to complementary versus noncomplementary stereotype exemplars. *European Journal of Social Psychology*, *39*, 290–298. doi:10.1002/ejsp.500
- Kay, A. C., Gaucher, D., Peach, J. M., Laurin, K., Friesen, J., Zanna, M. P., & Spencer, S. J. (2009). Inequality, discrimination, and the power of the status quo: Direct evidence for a motivation to see the way things are as the way they should be. *Journal of Personality and Social Psychology*, *97*, 421–434. doi:10.1037/a0015997
- Kay, A. C., Jost, J. T., Mandisodza, A. N., Sherman, S. J., Petrocelli, J. V., & Johnson, A. L. (2007). Panglossian ideology in the service of system justification: How complementary stereotypes help us to rationalize inequality. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 39, pp. 305–358). San Diego, CA: Elsevier. doi:10.1016/S0065-2601(06)39006-5
- Kay, A. C., & Zanna, M. P. (2009). A contextual analysis of the system justification motive and its societal consequences. In J. T. Jost, A. C. Kay, & H. Thorisdottir (Eds.), *Social and psychological bases of ideology and system justification* (pp. 158–181). New York, NY: Oxford University Press. doi:10.1093/acprof:oso/9780195320916.003.007
- Kervyn, N., Yzerbyt, V. Y., Judd, C. M., & Nunes, A. (2009). A question of compensation: The social life of the fundamental dimensions of social perception. *Journal of Personality and Social Psychology*, *96*, 828–842. doi:10.1037/a0013320
- Lakoff, R. T. (1975). *Language and woman's place*. New York, NY: Harper & Row.
- Leaper, C., & Ayres, M. M. (2007). A meta-analytic review of gender variations in adults' language use: Talkativeness, affiliative speech, and assertive speech. *Personality and Social Psychology Review*, *11*, 328–363. doi:10.1177/1088868307302221
- Maass, A. (1999). Linguistic intergroup bias: Stereotype perpetuation through language. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 31, pp. 79–121). San Diego, CA: Academic Press. doi:10.1016/S0065-2601(08)60272-5
- Maass, A., Salvi, D., Arcuri, L., & Semin, G. (1989). Language use in intergroup contexts: The linguistic intergroup bias. *Journal of Personality and Social Psychology*, *57*, 981–993. doi:10.1037/0022-3514.57.6.981
- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*, *39*, 99–128. doi:10.1207/s15327906mbr3901_4
- Madera, J. M., Hebl, M. R., & Martin, R. C. (2009). Gender and letters of recommendation for academia: Agent and communal differences. *Journal of Applied Psychology*, *94*, 1591–1599. doi:10.1037/a0016539
- Murphy, M. C., Steele, C. M., & Gross, J. J. (2007). Signaling threat: How situational cues affect women in math, science, and engineering. *Psychological Science*, *18*, 879–885. doi:10.1111/j.1467-9280.2007.01995.x
- Napier, J. L., Mandisodza, A. N., Andersen, S. M., & Jost, J. T. (2006). System justification in responding to the poor and displaced in the aftermath of Hurricane Katrina. *Analyses of Social Issues and Public Policy*, *6*, 57–73. doi:10.1111/j.1530-2415.2006.00102.x
- Napier, J. L., Thorisdottir, H., & Jost, J. T. (2010). The joy of sexism? A multinational investigation of hostile and benevolent justifications for gender inequality and their relations to subjective well-being. *Sex Roles*, *62*, 405–419. doi:10.1007/s11199-009-9712-7
- Newcombe, N., & Arnkoff, D. B. (1979). Effects of speech style and sex of speaker on person perception. *Journal of Personality and Social Psychology*, *37*, 1293–1303. doi:10.1037/0022-3514.37.8.1293
- Newman, M. L., Groom, C. J., Handelman, L. D., & Pennebaker, J. W. (2008). Gender differences in language use: An analysis of 14,000 text samples. *Discourse Processes*, *45*, 211–236. doi:10.1080/01638530802073712
- Oyserman, D., & Markus, H. R. (1998). Self as social representation. In U. Flick (Ed.), *The psychology of the social* (pp. 107–125). New York, NY: Cambridge University Press.
- Pedriana, N., & Abraham, A. (2006). Now you see them, now you don't: The legal field and newspaper desegregation of sex-segregated help wanted ads 1965–75. *Law & Social Inquiry*, *31*, 905–938. doi:10.1111/j.1747-4469.2006.00039.x
- Pennebaker, J. W., Booth, R. J., & Francis, M. E. (2007). Linguistic Inquiry and Word Count: LIWC 2007 [Computer software]. Austin, TX: LIWC.
- Pennebaker, J. W., Mehl, M. R., & Niederhoffer, K. G. (2003). Psychological aspects of natural language use: Our words, our selves. *Annual Review of Psychology*, *54*, 547–577. doi:10.1146/annurev.psych.54.101601.145041
- Phelan, J. E., Moss-Racusin, C. A., & Rudman, L. A. (2008). Competent yet out in the cold: Shifting criteria for hiring reflect backlash toward

- agentic women. *Psychology of Women Quarterly*, 32, 406–413. doi:10.1111/j.1471-6402.2008.00454.x
- Pratto, F., & Espinoza, P. (2001). Gender, ethnicity, and power. *Journal of Social Issues*, 57, 763–780. doi:10.1111/0022-4537.00240
- Pratto, F., Sidanius, J., & Levin, S. (2006). Social dominance theory and the dynamics of intergroup relations: Taking stock and looking forward. *European Review of Social Psychology*, 17, 271–320. doi:10.1080/10463280601055772
- Pratto, F., Stallworth, L. M., & Conway-Lanz, S. (1998). Social dominance orientation and the ideological legitimization of social policy. *Journal of Applied Social Psychology*, 28, 1853–1875. doi:10.1111/j.1559-1816.1998.tb01349.x
- Purdie-Vaughns, V., Steele, C. M., Davies, P. G., Dittmann, R., & Crosby, J. R. (2008). Social identity contingencies: How diversity cues signal threat or safety for African Americans in mainstream institutions. *Journal of Personality and Social Psychology*, 94, 615–630. doi:10.1037/0022-3514.94.4.615
- Reitsma-van Rooijen, M., Semin, G. R., & van Leeuwen, E. (2007). The effect of linguistic abstraction on interpersonal distance. *European Journal of Social Psychology*, 37, 817–823. doi:10.1002/ejsp.410
- Rudman, L. A. (1998). Self-promotion as a risk factor for women: The costs and benefits of counterstereotypical impression management. *Journal of Personality and Social Psychology*, 74, 629–645. doi:10.1037/0022-3514.74.3.629
- Rudman, L. A., & Glick, P. (1999). Feminized management and backlash toward agentic women: The hidden costs to women of a kinder, gentler image of middle managers. *Journal of Personality and Social Psychology*, 77, 1004–1010. doi:10.1037/0022-3514.77.5.1004
- Rudman, L. A., & Glick, P. (2001). Prescriptive gender stereotypes and backlash toward agentic women. *Journal of Social Issues*, 57, 743–762. doi:10.1111/0022-4537.00239
- Rudman, L. A., & Kilianski, S. T. (2000). Implicit and explicit attitudes toward female authority. *Personality and Social Psychology Bulletin*, 26, 1315–1328. doi:10.1177/0146167200263001
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78. doi:10.1037/0003-066X.55.1.68
- Sadler, P., Ethier, N., & Woody, E. (in press). Tracing the interpersonal web of psychopathology: Dyadic data analysis methods for clinical researchers. *Journal of Experimental Psychopathology*.
- Schmader, T., Whitehead, J., & Wysocki, V. H. (2007). A linguistic comparison of letters of recommendation for male and female chemistry and biochemistry job applicants. *Sex Roles*, 57, 509–514. doi:10.1007/s11199-007-9291-4
- Schullo, S. A., & Alperson, B. L. (1984). Interpersonal phenomenology as a function of sexual orientation, sex, sentiment, and trait categories in long-term dyadic relationships. *Journal of Personality and Social Psychology*, 47, 983–1002. doi:10.1037/0022-3514.47.5.983
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and non-experimental studies: New procedures and recommendations. *Psychological Methods*, 7, 422–445. doi:10.1037/1082-989X.7.4.422
- Sidanius, J., Liu, J. H., Shaw, J. S., & Pratto, F. (1994). Social dominance orientation, hierarchy attenuators and hierarchy enhancers: Social dominance theory and the criminal justice system. *Journal of Applied Social Psychology*, 24, 338–366. doi:10.1111/j.1559-1816.1994.tb00586.x
- Sidanius, J., & Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression*. New York, NY: Cambridge University Press.
- Tesch, B. J., Wood, H. M., Helwig, A. L., & Nattinger, A. B. (1995). Promotion of women physicians in academic medicine: Glass ceiling or sticky floor? *Journal of the American Medical Association*, 273, 1022–1025. doi:10.1001/jama.273.13.1022
- U.S. Department of Labor. (2007). *Median weekly earnings of full-time wage and salary workers by detailed occupation and sex*. Retrieved from <http://www.bls.gov/cps/cpsaat39.pdf>
- Vescio, T. K., Gervais, S. J., Snyder, M., & Hoover, A. (2005). Power and the creation of patronizing environments: The stereotype-based behaviors of the powerful and their effects on female performance in masculine domains. *Journal of Personality and Social Psychology*, 88, 658–672. doi:10.1037/0022-3514.88.4.658
- Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology*, 92, 82–96. doi:10.1037/0022-3514.92.1.82

(Appendices follow)

Appendix A

List of Masculine and Feminine Words Coded in Studies 1 and 2

Masculine words	Feminine words
Active	Affectionate
Adventurous	Child*
Aggress*	Cheer*
Ambitio*	Commit*
Analy*	Communal
Assert*	Compassion*
Athlet*	Connect*
Autonom*	Considerate
Boast*	Cooperat*
Challeng*	Depend*
Compet*	Emotiona*
Confident	Empath*
Courag*	Feminine
Decide	Flatterable
Decisive	Gentle
Decision*	Honest
Determin*	Interpersonal
Dominant	Interdependen*
Domina*	Interpersona*
Force*	Kind
Greedy	Kinship
Headstrong	Loyal*
Hierarch*	Modesty
Hostil*	Nag
Implusive	Nurtur*
Independen*	Pleasant*
Individual*	Polite
Intellect*	Quiet*
Lead*	Respon*
Logic	Sensitiv*
Masculine	Submissive
Objective	Support*
Opinion	Sympath*
Outspoken	Tender*
Persist	Together*
Principle*	Trust*
Reckless	Understand*
Stubborn	Warm*
Superior	Whin*
Self-confiden*	Yield*
Self-sufficien*	
Self-relian*	

Note. The asterisk denotes the acceptance of all letters, hyphens, or numbers following its appearance.

(Appendices continue)

Appendix B

Job Advertisements Used in Studies 3–5

Feminine	Masculine
Engineer	
<p>Company description</p> <ul style="list-style-type: none"> • We are a community of engineers who have effective relationships with many satisfied clients. • We are committed to understanding the engineering sector intimately. <p>Qualifications</p> <ul style="list-style-type: none"> • Proficient oral and written communication skills. • Collaborates well, in a team environment. • Sensitive to clients' needs, can develop warm client relationships. • Bachelor of Engineering degree or higher from recognized university. • Registered as a Professional Engineer. <p>Responsibilities</p> <ul style="list-style-type: none"> • Provide general support to project teams in a manner complimentary to the company. • Help clients with construction activities. • Create quality engineering designs. 	<p>Company description</p> <ul style="list-style-type: none"> • We are a dominant engineering firm that boasts many leading clients. • We are determined to stand apart from the competition. <p>Qualifications</p> <ul style="list-style-type: none"> • Strong communication and influencing skills. • Ability to perform individually in a competitive environment. • Superior ability to satisfy customers and manage company's association with them. • Bachelor of Engineering degree or higher from recognized university. • Registered as a Professional Engineer. <p>Responsibilities</p> <ul style="list-style-type: none"> • Direct project groups to manage project progress and ensure accurate task control. • Determine compliance with client's objectives. • Create quality engineering designs.
Plumber	
<p>Company description</p> <ul style="list-style-type: none"> • We are a committed provider of dependable plumbing solutions. • We have many loyal clients, and deliver honest, personal service. <p>Qualifications</p> <ul style="list-style-type: none"> • Dependable, with demonstrated commitment to client service. • Can interpret blueprints and schematics. • Licensed/certified plumber from recognized community college or related program. • Previous experience an asset. <p>Responsibilities</p> <ul style="list-style-type: none"> • Service our clients' plumbing systems. • Respond to plumbing problems and find innovative repair solutions. • Collaborate on new building projects, providing plumbing advice. 	<p>Company description</p> <ul style="list-style-type: none"> • We are determined company that delivers superior plumbing. • We are proud of our success, and boast an impressive record. <p>Qualifications</p> <ul style="list-style-type: none"> • Self-reliant, with demonstrated ability to perform tasks independently. • Ability to analyze blueprints and schematics. • Licensed/certified plumber from recognized community college or related program. • Previous experience an asset. <p>Responsibilities</p> <ul style="list-style-type: none"> • Maintain customers' plumbing systems. • Analyze problems logically and troubleshoot to determine needed repairs. • Deliver plumbing expertise on new building projects.
Retail sales manager	
<p>Company description</p> <ul style="list-style-type: none"> • Our hope is to be the best employer in clothing retail by providing a pleasant and rewarding employment experience. • We nurture and support our employees, expecting that they will become committed to their chosen career. <p>Qualifications</p> <ul style="list-style-type: none"> • Full-time, flexible availability. • Cheerful, with excellent communication skills. • Capable of working with minimal supervision. 	<p>Company description</p> <ul style="list-style-type: none"> • Our ambition is to be the best employer in clothing retail by delivering a rewarding employment experience. • We will challenge our employees to be proud of their chosen career. <p>Qualifications</p> <ul style="list-style-type: none"> • Full-time, variable availability. • Strong communication skills. • Ability to work independently.

(Appendices continue)

Appendix B (continued)

Feminine	Masculine
<p>Responsibilities</p> <ul style="list-style-type: none"> • Can motivate others to reach their potential as employees. • You will be the head of our fast-paced store, with further opportunities for career development. • You'll develop interpersonal skills and understanding of business. • Be a role model for your store, representing our exclusive brand. 	<p>Responsibilities</p> <ul style="list-style-type: none"> • Can challenge others to reach their potential as employees. • You will be the boss of our fast-paced store, with further opportunities career advancement. • You'll develop leadership skills and learn business principles. • Be a leader in your store, representing our exclusive brand.
Real estate agent	
<p>Company description</p> <ul style="list-style-type: none"> • Join our sales community! Even if you have no previous experience, we will help nurture and develop your sales talents. • We support our employees with an excellent compensation package. <p>Qualifications</p> <ul style="list-style-type: none"> • As the ideal candidate, you will have a pleasant attitude, dependable judgment, and be attentive to details. • Excellent communicator. • Bilingualism is an asset. • Previous background in real estate an asset, but not required. <p>Responsibilities</p> <ul style="list-style-type: none"> • Connect with potential clients; being sensitive to their needs, introduce them to properties. • Serve as the connection between your client and each property's seller. • Understand real estate markets to establish appropriate selling prices for properties. 	<p>Company description</p> <ul style="list-style-type: none"> • Take our sales challenge! Even if you have no previous experience, we will facilitate the acquisition of your sales abilities. • We boast a competitive compensation package. <p>Qualifications</p> <ul style="list-style-type: none"> • The superior candidate will have a self-confident attitude, decisive judgment, and be detail-oriented. • Strong communicator. • Bilingualism is an asset. • Previous background in real estate an asset, but not required. <p>Responsibilities</p> <ul style="list-style-type: none"> • Recruit potential buyers; determine their interests and lead them to properties. • Negotiate for your buyer with each property's seller. • Analyze real estate markets to determine appropriate selling prices for properties.
Nurse	
<p>Company description</p> <ul style="list-style-type: none"> • Our hospital serves a community of approximately 100,000 people. • We are committed to provide top quality health care that considers the best needs of our patients. <p>Qualifications</p> <ul style="list-style-type: none"> • Demonstrated ability to respond appropriately emergencies. • Caring and compassionate professional with a passion for the profession. • Dependable and willing to work shift work. • Bachelor of nursing from recognized university. • Current license with College of Nurses in Ontario as a Registered Nurse. <p>Responsibilities</p> <ul style="list-style-type: none"> • As part of a team, provide health care services to the wide variety of community members who come for care. • Consider patient symptoms in order to select appropriate treatment and support. • Collaborate with other care providers, but also able to work independently. 	<p>Company description</p> <ul style="list-style-type: none"> • The hospital is located within a city of approximately 100,000 people. • We are determined to deliver superior medical treatment tailored to each individual patient. <p>Qualifications</p> <ul style="list-style-type: none"> • Demonstrated ability to act decisively in emergencies. • Principled and self-reliant professional with dedication to the profession. • Able to work shift work. • Bachelor of Nursing from recognized university. • Current license with College of Nurses in Ontario as a Registered Nurse. <p>Responsibilities</p> <ul style="list-style-type: none"> • In keeping with the hospital's hierarchy, administer medical interventions to the wide variety of individuals who require treatment. • Analyze patient symptoms to determine appropriate interventions. • Be self-reliant and able work independently, but also able to work on a team.

(Appendices continue)

Appendix B (*continued*)

Feminine	Masculine
Administrative assistant	
<p>Company description</p> <ul style="list-style-type: none"> • We are a corporate team dedicated to supporting our financial clients. • Our company is devoted to providing a great work/life balance and compensation package. <p>Qualifications</p> <ul style="list-style-type: none"> • Experience in providing administrative support services to a team of senior management and understand office organization. • Polite; sensitive to needs of other employees and clients. • Dependable and responsible. • Capable computer skills. <p>Responsibilities</p> <ul style="list-style-type: none"> • Support office team and assist with departmental procedures so that work progresses more efficiently. • Connect and develop relationships with a variety of clients (e.g., other businesses). • Coordinate incoming and outgoing shipments. 	<p>Company description</p> <ul style="list-style-type: none"> • Our organization works to offer every possible advantage to our banking customers. • The company boasts impressive salaries, allowing our employees with financial independence. <p>Qualifications</p> <ul style="list-style-type: none"> • Ability to deal with multiple senior staff in a demanding environment and navigate office hierarchy. • Civil personality; aware of other workers' and customers' requirements. • Independent and self-reliant. • Strong computer skills. <p>Responsibilities</p> <ul style="list-style-type: none"> • Organize and monitor office tasks and processes so that work progresses more efficiently. • Able to interface with external parties (e.g., other businesses). • Control incoming and outgoing shipments.

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