Sex differences in salary negotiation have been suggested as one of the causes of the “glass-ceiling,” the pattern that women do not advance as far in their careers as men do (Stuhlmacher & Walters, 1999). Men are four times more likely than women to negotiate for their salary and, when it comes to first job offers, only 7% of women negotiate whereas 58% of men do (Babcock & Laschever, 2003). According to a meta-analysis (Stuhlmacher & Walters, 1999), when women do negotiate, they negotiate for lower profits than men. These sex differences in negotiation are particularly problematic given that the amount of money asked for during a negotiation largely determines the outcome salary (Barron, 2003).

The purpose of the current research was to better understand multiple factors that may increase or decrease gender differences in negotiation outcomes. Because women are stereotyped as being less effective negotiators than men (Kray, Thompson, & Galinsky, 2001), they tend to negotiate less successfully than men when they experience stereotype threat (Kray et al., 2001; Tellhed & Björklund, 2011). The current research examined situations that may minimize the effects of stereotype threat and reduce the salary gap. Negotiation outcomes were explored in situations in which the salience of sex varies (face-to-face vs. e-mail negotiations and same vs. mixed sex negotiations) and in situations in which sex differences were likely to be minimized when women were in a position of power.

The Effects of Stereotype Threat and Power on Women’s and Men’s Outcomes in Face-to-Face and E-mail Negotiations

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ABSTRACT. Stereotypes that women are less assertive and competitive than men lead women to experience stereotype threat in salary negotiations (Tellhed & Björklund, 2011), resulting in sex differences in salaries. The present experiment tested whether the effects of stereotype threat on negotiations are moderated by variables that may decrease the salience of sex such as dyad composition (same vs. mixed-sex), mode of communication (face-to-face vs. e-mail), and power. Ninety-six undergraduate participants (37 men, 59 women) negotiated for a hypothetical salary as well as an actual monetary award. As predicted, stereotype threat negatively affected women’s outcomes and positively affected men’s outcomes in mixed-sex pairs but not in same-sex pairs, Wald Chi-Square = 9.85, p = .002. Interestingly, there were no differences between the face-to-face and e-mail negotiations; both forms of negotiation were affected by stereotype threat in mixed-sex pairs. The basic findings of the present study were consistent with past research; participants assigned to a position of power were more successful in the negotiation regardless of their sex, Wald Chi-Square = 22.74, p < .001, $d = 0.49$. Limitations, implications, and possible ways to reduce the effects of stereotype threat are discussed.
Prescriptive Stereotypes

Women may negotiate less frequently and less aggressively than men due to the influence of prescriptive stereotypes regarding sex (Bowles & Babcock, 2009). Stereotypes not only provide a description of what people think men and women are like, but also a prescription of how men and women ought to behave in order to fulfill expectations of their gender (Burgess & Borgida, 1999; Eagly, 1987). Stereotypical behaviors are expected, and negative social consequences can occur if they are not followed (Bowles, 2012). Trying to bargain for more money for oneself such as during a salary negotiation is against the feminine role, and women are seen as less persuasive and less likeable when they violate that role (von Hippel, Wiryakusuma, Bowden, & Shochet, 2011).

To be a successful negotiator, people think they must focus on the competitive aspects of negotiation rather than the cooperative aspects (Thompson, Valley, & Kramer, 1995). Successful negotiation is associated with stereotypical masculine traits such as being assertive and decisive, and unsuccessful negotiation is associated with stereotypical feminine traits such as being emotional and accommodating (Kray et al., 2001). Thompson et al. (1995) found that feelings of success following a negotiation were “bittersweet” because successful negotiators felt less friendly, cooperative, and sincere. The results of these studies suggested that success and competition in negotiation are perceived as being in direct conflict with positive stereotypes associated with femininity. Thus, women may not negotiate as frequently or as successfully as men due to an implicit desire to adhere to their sex role.

Although it is possible that women are not as skilled as men at negotiation, evidence has shown that this is not the case. For example, when women are informed that stereotypically feminine traits are linked to successful negotiation, their performance improves (Kray, Galinsky, & Thompson, 2002). Although prescriptive stereotypes depict women as lacking assertiveness in advocating for themselves, it is acceptable for them to be assertive in a selfless act or on someone else’s behalf because this behavior is consistent with communal stereotypes of women (Amanatullah & Morris, 2010). In fact, when women negotiate on someone else’s behalf, they negotiate more effectively, and sex differences in negotiation outcomes decreases (Amanatullah & Morris, 2010; Bowles, Babcock, & McGinn, 2005). Thus, women are quite capable of negotiating successfully in situations that do not conflict with the prescriptive stereotypes for women.

Stereotype Threat

Because successful performance in negotiation is associated with masculine traits such as rationality and assertiveness, and poor performance in negotiation is associated with feminine traits such as compassion and unassertiveness, people expect women to do poorly in negotiation, thus making them vulnerable to stereotype threat (Kray et al., 2001). Stereotype threat is a social-psychological threat that one may confirm a negative stereotype about one’s group while performing a specific task, and this threat can lead to underperformance (Steele, 1997). Both Kray et al. (2001) and Tellhed and Björklund (2011) have demonstrated that women underperform in hypothetical salary negotiations when stereotype threat is activated. When participants were told that the experimental task was diagnostic of their ability to negotiate, women negotiated less effectively than men. However, when they were told that the task was not diagnostic of their ability to negotiate, the sex difference decreased.

Research on stereotype threat has consistently found that stereotype threat not only affects the group which is stereotyped to do poorly, but also the group stereotyped to do well (Walton & Cohen, 2003). Groups who are perceived as being disadvantaged at a particular task tend to perform better when stereotype threat is activated (Shih, Ambady, Richeson, Fujita, & Gray, 2002; Shih, Pittinsky, & Ambady, 1999). This finding is referred to as stereotype boost or stereotype lift, and has been supported by meta-analytic findings (Walton & Cohen, 2003). Both the positive and negative effects of stereotype threat are influenced by various situational factors.

Situational Factors That May Impact the Effects of Stereotypes

Sex composition of the negotiating pair. Stereotype threat is especially likely to affect behavior in situations in which the participant’s sex is salient (McGlone & Aronson, 2006). People are more likely to think about their own sex when they are in mixed-sex interactions than in same-sex interactions (Cota & Dion, 1986). Because sex is more salient in these mixed-sex interactions, gender roles, prescriptive stereotypes, and stereotype threat may have a stronger influence on
behaviors in these situations. For example, women do worse in a problem-solving task when in the presence of men than when in the presence of women (Inzlicht & Ben-Zeev, 2000). Although past research has explored the effects of sex composition on negotiation (Kray & Thompson, 2005), the question of whether stereotype threat affects negotiation outcomes in same-sex dyads differently than mixed-sex dyads has not been explored. The effects of stereotype threat are likely to be greater in mixed-sex negotiations where sex is more salient than in same-sex negotiations.

**Power.** Although sex differences in negotiation are likely to be greater in mixed-sex negotiations than in same-sex negotiations (Kray et al., 2001), Watson (1994) argued that the reason men are likely to perform better than women in mixed-sex negotiations is that they are assumed to have more power and that power is actually a better predictor than sex of negotiation outcome. Sex stereotypes are associated with cues related to power and status (Glick & Fiske, 2001; Ridgeway, 2011). Stereotypically feminine communal traits such as helping others, being unassertive, and being selfless are consistent with expectations of low-power behavior. In fact, a prescriptive stereotype of both women and low-power people is to be accommodating of other people’s needs, which makes them less threatening (Jackman, 1994; Ridgeway, 2011). On the other hand, stereotypically agentic masculine traits such as being competitive and aggressive are associated with high-power behavior (Conway, Pizzamiglio, & Mount, 1996). Because sex serves as a cue for power, interactions involving mixed-sex pairs often carry the assumption that the man holds more power than the woman (Eagly, 1983; Wood & Karten, 1986). A difficulty in separating sex effects from power effects in mixed-sex interactions is that sex is often confounded with perceptions of power, and perhaps power, rather than gender per se, is responsible for sex differences in negotiation outcomes.

Watson (1994) found that power is a better predictor of negotiation outcomes and success than sex. When men and women were randomly assigned to high or low power positions in same- or mixed-sex dyads, power consistently predicted negotiation outcomes more so than sex did. Although power is a strong predictor of negotiation outcomes, Watson (1994) also found that sex effects emerged in mixed-sex dyads when the two people were of similar power status, presumably because men were assumed to have more power than women in those interactions.

Studies that have examined the effects of stereotype threat on sex differences in negotiation have not typically manipulated power. To disentangle the effects of sex from the effects of power, it is important to manipulate whether women or men are in the more powerful or less powerful role and also whether the negotiating dyads consist of same-sex or mixed-sex pairs. It is quite possible that the sex differences in negotiation outcomes caused by stereotype threat may be minimized when women are randomly assigned to a position of high power and men are assigned to a position of low power. Similarly, past research on social role theory (Eagly, 1987) has demonstrated that sex differences in verbal communication behaviors are minimized when power is manipulated in experiments (Johnson, 1994).

**Mode of communication.** Just as power may reduce sex differences, so too may virtual forms of communication such as e-mail in which sex is less salient than in face-to-face interactions. Although meta-analytic findings have shown that women typically behave more cooperatively than men during negotiation, a behavior that is not conducive to success, this sex difference disappears when the negotiation is not a face-to-face interaction (Walters, Stuhlmacher, & Meyer, 1998).

According to Mischel (1977), certain situations are considered “weak situations” because there are no clear expectations regarding how one is supposed to behave. Weak situations allow people to act in idiosyncratic ways rather than being constrained by certain social roles such as sex. E-mail is considered a weak situation given the weakened social norms, the decreased salience of sex, and ambiguity due to a lack of nonverbal cues (Sproull, Subramani, Kiesler, Walker, & Waters, 1996; Stuhlmacher, Citera, & Willis, 2007). E-mail has been associated with an increase in counter-normative behavior (Kiesler & Sproull, 1992). When people negotiate by e-mail, they feel less constrained by social norms and are more likely to make threats and issue ultimatums (Morris, Nadler, Kurtzberg, & Thompson, 2000). Women in particular behave more aggressively in virtual negotiations than in face-to-face negotiations (Stuhlmacher et al., 2007), and this could potentially improve their negotiation outcomes.

Given the weak nature of e-mail and the decreased salience of sex, it is possible that the effects of stereotypes threat may be smaller in e-mail negotiations than in face-to-face negotiations.
Furthermore, if it is actually power, rather than sex, that affects the negotiation outcome, e-mail negotiations may still provide a more equitable mode of negotiation given that the impact of both power and sex roles is lessened in virtual communication (Sproull & Kiesler, 1986). Given the ubiquitous use of various forms of electronic communication, it is likely that the frequency of virtual negotiation will only increase in years to come. Studying the impact of e-mail negotiation will serve to deepen the understanding of factors that may decrease the negative effects of stereotype threat and reduce the sex gap in salary negotiations.

The Current Research
The negotiation outcomes of men and women were tested in various conditions predicted to strengthen or weaken the effects of stereotype threat. Participants were randomly assigned to negotiate with or without stereotype threat activated in situations in which sex was more salient (mixed-sex negotiations) or less salient (same-sex negotiations). In order to separate the effects of sex from the effects of power, men and women were randomly assigned to a position of high power (employer) or low power (employee) during the negotiation. Approximately half of these negotiations took place in a face-to-face interaction and the others took place via e-mail to determine if e-mail negotiations were resistant to the effects of stereotype threat.

The experiment tested three primary hypotheses. Consistent with past research on stereotype threat, we hypothesized that women would negotiate less effectively when under stereotype threat than when not under stereotype threat. On the other hand, we expected men to experience a boost under conditions of stereotype threat that would improve their negotiation performance. Specifically, these effects of stereotype threat (negative for women and positive for men) were predicted to be strongest in situations in which sex was most salient such as in mixed-sex pairs. Consistent with past research that power is the strongest determinant of negotiation outcomes, we also predicted that power would be a stronger predictor of outcomes than sex or stereotype threat. Third, because e-mail negotiations are expected to be a relatively weak situation where sex would be less salient, we predicted that women would negotiate more effectively through e-mail than face-to-face, particularly when under conditions of stereotype threat. In e-mail negotiations, we expected that women would be less constrained by prescriptive stereotypes and would negotiate as effectively as men.

Method
Participants
Although 110 people (55 pairs) participated in the present experiment, seven pairs were dropped from the data analysis because they did not reach an agreement in the allotted time and therefore did not produce any financial data on the outcome of the negotiation. Ninety-six participants (48 pairs, 59 women, 37 men) were included in the data analysis. The age range of participants was 18 to 25 with a median age of 19. Seventy-five percent of participants were European American, 13% were African American, 7% were Asian, and 5% were Latino. The experiment was advertised via e-mails sent out to the entire college community and posted on a website for students taking an introductory psychology course in which students were required to learn about research by various methods including participating in experiments. Participants taking the introductory psychology course earned credits by participating. All participants were also eligible to win one of four $100 lottery prizes offered as an incentive. In planning each experimental session, we attempted to pair together participants who were not already friends. A questionnaire given to participants at the end of each session indicated that 72% did not know their partner at all, 24% did not know their partner very well, and only 4% knew their partner fairly well. The college’s institutional review board approved this study.

Design
This was a 2 x 2 x 2 x 2 x 2 between participants design. The independent variables included the sex of the participant, whether the participant was in a position of power (employer or employee), the sex composition of the dyad (same-sex or mixed-sex pairs), the mode of communication (face-to-face or e-mail), and stereotype threat (present or absent). The dependent variables were the monetary outcome of the salary negotiation and the expected outcome of the negotiation. Although the topic of the negotiation was about a hypothetical salary, a small amount of real money was at stake in the negotiation as an incentive for the participants to take the negotiation seriously. Ten dollars was allocated to each pair and the amount that each individual in the pair earned of the $10 was dependent upon how well he or she negotiated.
Materials

Informational packet. Each participant was given an informational packet, which included a description of the hypothetical job for which a salary would be negotiated, the guidelines for the negotiation, a salary goal sheet, and a paragraph manipulating stereotype threat.

Job description. Participants were given a fictional job advertisement for a position of facility manager at a pharmaceutical company. The job ad described the company, the responsibilities of the position, and entry requirements for the position. Participants in the employee role were told that they should imagine that they had graduated college, been offered this position, and now needed to negotiate their starting salary. Participants in the employer role were told that they should imagine they were an employer, had offered this position to the other person, and now needed to negotiate the starting salary with this future employee. The fictional job description was loosely based on a previous study by Tellhed and Björkland (2011).

Guidelines for the negotiation. The informational packet described the guidelines for the negotiation including the role the participant would play (employer or employee), how the negotiation would occur (face-to-face or via e-mail), and that there would be a 15 min time limit. The guidelines stated that participants could create new facts about their character during the negotiation and bring in information beyond what they had been given in the packet.

Salary goal sheet. The salary goal sheet included a chart with 11 salary ranges that the pair could agree upon from $14,000 to $36,000. The employers and employees received different salary goal sheets, listing their instructed goal in the negotiation and the actual payout they would receive depending upon how well they did in the negotiation. The instructed goal for employers was $17,000, and the highest salary they were told to accept was $31,000. The instructed goal for employees was $33,000 and the lowest salary they were told to accept was $19,000. Each salary range on the chart was listed with an actual financial reward that participants could earn and provided an incentive to do well in the negotiation. For example, if an employer managed to reach the goal of a $17,000 salary, that participant would earn $9 and the employee would only earn $1. Whereas if an employee reached the goal of $33,000, that participant would earn $9 and the employer would only earn $1. Ten dollars was allotted to each pair and the outcome of the negotiation determined how that money was allocated between the two negotiation partners ($10-$0, $9-$1, $8-$2, $7-$3, $6-$4, $5-$5). The $10 was used to motivate the participants to do well in the negotiation and to increase the realism of the situation by providing varying financial rewards for degrees of success in negotiating (as used in previous research by Bowles et al., 2005). The informational packet stated that no money would be given to either participant if no agreement was reached.

Stereotype threat manipulation. Stereotype threat was manipulated in the informational packet via a paragraph that either increased stereotype threat or minimized it by describing the negotiation task as either challenging and diagnostic of their skills or as easy for novices and not an assessment of their skills. These same two paragraphs were used as a stereotype threat manipulation in a previous experiment about negotiation (Tellhed & Björklund, 2011). In each pair, both participants were given the same paragraph either activating or minimizing stereotype threat.

Prenegotiation survey. This survey included demographic questions about the participants and served as a manipulation check to verify that the participants understood their role during the negotiation (i.e., employer or employee), what their instructed goal salary should be, and what their lowest/highest acceptable salary should be. Participants also predicted what salary would be the outcome of the negotiation.

Procedure

Pairs of participants were randomly assigned to conduct a face-to-face or virtual negotiation condition with stereotype threat present or absent. After participants met each other and signed the consent form, they were randomly assigned to the roles of employer and employee, and then read the informational packet and completed the prenegotiation survey alone in separate rooms. Afterward, participants in the face-to-face condition were brought together in a room with a table, two chairs on opposite sides, and a digital camcorder to record the negotiation process. In the virtual condition, participants stayed in separate rooms to conduct the negotiation using computers and Gmail™ accounts created for the purpose of this experiment. The experimenter was not present during the negotiations but did step in to alert the participants when only 5 min remained. At the end of 15 min of negotiation or whenever an agreement was reached, participants also predicted what salary would be the outcome of the negotiation.
was reached, the participants reported the outcome of the negotiation and were paid their portion of the $10. If no agreement was reached, participants received no money. Upon completion, participants were debriefed and entered into a lottery to win several $100 prizes.

Results

This 2 x 2 x 2 x 2 between-participants design was analyzed using generalized estimating equations (GEE) to account for the fact that the negotiation outcomes of people from the same pair were correlated with each other (i.e., if someone did very well, his or her negotiation partner could not have done very well). Thus individuals were matched with their negotiation partner in all analyses. The independent variables included the sex of the participant, whether the participant was in a position of power (employer or employee), the sex composition of the dyad (same-sex or mixed-sex pairs), the mode of communication (face-to-face or e-mail), and stereotype threat (present or absent).

The dependent variables were the financial outcome of the negotiation (how much better or worse they did than the goal) and the expected outcome (how much better or worse they expected to do than the goal). For employers, doing better would mean reaching an agreement with a lower salary, whereas doing worse would mean reaching an agreement with a higher salary. The opposite was true for employees because they wanted to receive as much money as possible from the employer; doing better would mean reaching an agreement with a higher salary. Because most participants did not actually reach their instructed goal, in all of the results presented below, the negative amounts of money represent how much worse the participant did than the goal or how much worse they expected to do than the goal.

GEE is an extension of generalized linear models, which is preferred over within-participants Analysis of Variance (ANOVA) because an ANOVA does not acknowledge the covariance that occurs within repeated-measures or nested designs (Balleringer, 2004). Generalized linear models instead assume independence of observations. Because the design of the present study included pairs of participants whose outcomes were dependent upon each other, GEE was used for this nested design. Horton and Lipsitz (1999) have warned that GEE results should be interpreted with caution when there are fewer than 20 clusters of correlated data. In the present study, there were 48 clusters or pairs of correlated data. Although this sample size was sufficient to reject the null hypothesis for the main effects (see Table 1), nonsignificant effects for the higher order interactions must be interpreted with caution due to the small number of dyads per condition (see Table 2).

The Effects of Stereotype Threat in Mixed-Sex Dyads

There were no significant main effects of stereotype threat, Wald Chi-Square = .05, \( p = .82 \), \( d = .02 \), dyad type, Wald Chi-Square = .05, \( p = .82 \), \( d = .02 \), or sex, Wald Chi-Square = 2.81, \( p = .09 \), \( d = .17 \), on the outcome of the negotiation. However, there was a three-way interaction between stereotype threat, sex, and dyad type on the outcome of the negotiation, indicating that men got a positive boost from stereotype threat and women did worse under stereotype threat; these effects only occurred in mixed-sex dyads, Wald Chi-Square = 9.85, \( p = .002 \). When in mixed-sex dyads, men came $3,756 closer to the goal salary when under stereotype threat than without threat, \( p = .003 \), \( d = .30 \), 95% CI [−$2,656, $6,247], whereas women were $3,756 further from their goal salary when under stereotype threat than without threat, \( p = .003 \), \( d = .30 \), 95% CI [−$1,265, $6,247]. See Figure 1. However, when in same-sex dyads, there was no significant difference in the outcome of the negotiation between the stereotype threat condition and the no-threat threat condition for men, \( p = .53 \), or for women, \( p = .80 \).

The Effect of Power on Outcomes and Expectations

There was a main effect of power on how close participants got to their goal, Wald Chi-Square = 22.74, \( p < .001 \), \( d = .49 \). Participants in the role of the employer got closer to their goal \((M = -6,234, SD = $4,802)\) than participants in the role of employee \((M = -$9,608, SD = $4,998)\).

<table>
<thead>
<tr>
<th>TABLE 1</th>
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<tbody>
<tr>
<td>Number of Participants in Each Condition for the Main Effect Comparisons</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Condition (n)</th>
<th>Condition (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>Employer (48)</td>
<td>Employee (48)</td>
</tr>
<tr>
<td>Stereotype threat</td>
<td>Stereotype threat (48)</td>
<td>No threat (48)</td>
</tr>
<tr>
<td>Mode of communication</td>
<td>Face-to-face (54)</td>
<td>E-mail (42)</td>
</tr>
<tr>
<td>Sex</td>
<td>Women (59)</td>
<td>Men (37)</td>
</tr>
<tr>
<td>Dyad type</td>
<td>Same-sex (64)</td>
<td>Mixed-sex (32)</td>
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</tbody>
</table>
Stereotype Threat and Negotiation

by an average amount of $3,374, 95% CI [$1,987, $4,761]. There was also a main effect of power on the expected outcome of the negotiation, Wald Chi-Square = 13.05, p < .001, d = .37. Participants in the role of employer expected to come closer to their goal (M = -$3,953, SD = $5,517) than participants in the role of employee (M = -$6,789, SD = $5,361) by an average amount of $2,836, 95% CI [$1,297, $4,375]. See Figure 2. These effects of power were not qualified by any significant interactions with other independent variables. The effect of power on the outcome of the negotiation did not vary as a function of gender as indicated by the nonsignificant two-way interaction between power and gender, Wald Chi-Square = 0.58, p = .45, and power did not minimize the effects of stereotype threat as indicated by the nonsignificant two-way interaction between power and stereotype threat, Wald Chi-Square = 0.003, p = .95.

No Differences Between E-Mail and Face-to-Face Negotiations

There were no overall differences between the outcomes of the e-mail and face-to-face negotiations, Wald Chi-Square = .05, p = .82, d = 0.02. The two-way interaction between mode of communication and sex was not significant, Wald Chi-Square = 1.02, p = .31, and more specifically, it was not the case that women negotiated more successfully via e-mail than face-to-face, p = .57, Mean difference = $557, 95% CI [-$1,356, $2,470], d = 0.06. Furthermore, there was no evidence that the effect of stereotype threat was minimized in e-mail negotiations because the two-way interaction between mode of communication and stereotype threat was not significant, Wald Chi-Square = .05, p = .82.

Discussion

In support of the main hypothesis, the results indicated that the effects of stereotype threat on negotiation outcomes (positive for men and negative for women) are more likely to occur in mixed-sex dyads given the increased salience of sex. In fact, there was no evidence that the stereotype threat manipulation affected the negotiation outcomes at all in the same-sex dyad condition. However, we did not find any support for a minimized effect of stereotype threat in e-mail negotiations compared to the face-to-face negotiations. Contrary to our hypothesis and previous research (Stuhlmacher et al., 2007), the mode of communication did not affect the negotiation outcomes in this study.

As predicted, power was a strong predictor of negotiation outcomes and also expectations. People playing the role of employer expected to do better and did do better than people playing the role of employee, and the effect sizes for these results were larger than others in the present study. These results were consistent with the findings of Watson (1994) that power can have a stronger impact than sex; the effect size for sex was much smaller than the effect size for power in the present study.

Unlike other research, which has shown power to affect the behavior of men and women differently (Holleman, Cheairs, & Cook, 2013), the results of the present study did not find that power varied as a function of sex. Furthermore, although having power did improve negotiation outcomes for men and women (as the main effect of power shows), manipulating power did not decrease the effects of stereotype threat. However, the fact that power did not interact with other independent variables in the study might be due to a lack statistical power in this multifactorial design.

Limitations

Although the present study found several important significant results, it is possible that additional higher order interactions might have been statistically significant with a larger sample size. Given the five independent variables in this experiment, there were 32 possible conditions that any participant could have been in. With only 96 participants, the number of participants per condition was small, making it more difficult to find significant effects for two-way, three-way, four-way, and five-way interactions. Therefore, nonsignificant interactions

<table>
<thead>
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<th>TABLE 2</th>
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<tbody>
<tr>
<td><strong>Number of Dyads per Condition</strong></td>
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<tr>
<td>---</td>
</tr>
<tr>
<td><strong>Face-to-face</strong></td>
</tr>
<tr>
<td>Stereotype threat</td>
</tr>
<tr>
<td>Same-sex male dyads</td>
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<tr>
<td>Same-sex female dyads</td>
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<tr>
<td>Mixed-sex dyad, male employer</td>
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<tr>
<td>Mixed-sex dyad, female employer</td>
</tr>
<tr>
<td>No stereotype threat</td>
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<tr>
<td>Same-sex male dyads</td>
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<tr>
<td>Same-sex female dyads</td>
</tr>
<tr>
<td>Mixed-sex dyad, male employer</td>
</tr>
<tr>
<td>Mixed-sex dyad, female employer</td>
</tr>
</tbody>
</table>

Note: In each of these dyads, one person was the employer and the other was the employee.
might be due to Type II errors. For example, it is still possible that power or mode of communication qualifies the previously described effects of stereotype threat in mixed-sex pairs, but those interactions were not significant in this experiment. Although the researchers had originally conducted a power analysis and had planned to collect data from 300 participants, recruiting that many participants proved to be a complex challenge due to the requirements of the study and the size of the participant pool. However, the sample size of this study was acceptable to test the five main effects (Horton & Lipsitz, 1999), of which only one, power, was significant. Future research with larger samples would be helpful to test the significance of the higher order interactions and attempt to replicate the results which were significant in this study.

It is also possible that the lack of significant results regarding the mode of communication was due to the ways in which the e-mail negotiations were conducted in this particular experiment. Because participants in the e-mail condition met in person before they were sent to separate rooms to e-mail each other, these participants were aware of their partner’s sex. If participants in the e-mail condition had been entirely unaware of their partner’s sex, then the salience of sex might have decreased and the negotiation might have been an especially “weak” situation with regard to prescriptive stereotypes. However, in real world e-mail communications, writers are rarely anonymous, their sex can often be ascertained quite easily from their e-mail address, and employers usually know the sex of potential employees during the negotiation process. Although the brief face-to-face meeting before the e-mail negotiation might not have decreased external validity that much, the 15-min time limit for the negotiations most likely did. Although most pairs were able to reach an agreement within this time limit, six of the pairs in the e-mail condition and only one pair in the face-to-face condition failed to reach an agreement. The difficulty in the e-mail condition was most likely due to the nature of e-mail; it takes longer for e-mails to be typed, sent, and received than for people to speak to one another. The external validity of the experiment could have been improved by allowing more time for the negotiations to take place, particularly the e-mail negotiations.

The structure of the salary goal sheets might also have weakened the external validity of the experiment. Although participants did not see their partner’s goal sheet, they might have realized that agreeing on a specific salary would guarantee that they would split the financial reward evenly ($5 each). Although only 18 out of 48 pairs agreed to a $5 split, it was enough to bring the salary goal sheet into question. In true salary negotiations, there is no prestated salary that can be objectively defined as equally fair to the employer and the employee. Instead, there is a certain amount of subjectivity as to what really is fair to both parties. If the participants described their goal sheets to each other, some might have decided to agree upon the objectively fair outcome rather than negotiating more aggressively under ambiguous circumstances. However, the videotapes and e-mail transcripts of the negotiations revealed that in only two cases did the pairs discuss their salary goal sheets and agree to a $5 split rather than negotiating with each other.

Although some lab experiments have studied the negotiation outcome of just one participant at a time because the other person was a confederate following a negotiation script (Barron, 2003), this experiment studied both people during the negotiation to increase external validity as other researchers have done (Kray et al., 2001). However, this methodological choice made it difficult to interpret the cause of the stereotype threat effects in the mixed-sex dyads. Because these negotiations were zero-sum interactions, one partner doing better by a certain amount meant that their partner must have done worse by exactly the same amount. Therefore, it was difficult to know in mixed-sex dyads if stereotype threat caused the men to negotiate more successfully, the women to negotiate less successfully, or both. For example, did men show

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**FIGURE 1**

The Effects of Stereotype Threat on the Monetary Outcome of Men and Women in Mixed and Same-Sex Pairs

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Note: The bars are upside down to illustrate how much worse than the goal the outcome was. The asterisks indicate that the two bars were significantly different from each other.
the positive effects of stereotype boost because they negotiated more aggressively or did they simply benefit from negotiating with women who negotiated poorly due to stereotype threat? Although the current study could not distinguish between these two explanations, it seems likely that both explanations are plausible. Past research with confederates has shown evidence of stereotype threat negatively impacting women’s negotiation outcomes (Tellhed & Björkland, 2011) and positively impacting men’s (Kray et al., 2001). However, regardless of which person’s behavior drove the effect in the current experiment, the outcome was the same; men ended up with better negotiation outcomes and women ended up with worse negotiation outcomes when stereotype threat was activated in a mixed-sex pair.

Although the focus of the present study was on stereotype threat during salary negotiations, many other factors are responsible for the sex difference in salaries. According to Blau and Kahn (2007), almost 60% of the wage gap in the United States can be explained by known factors related to occupational choices. For example, women tend to be employed in lower paid professions than men. Women are also more likely to work part-time than men and they work fewer years than men due to childcare and maternity leave. However, over 40% of the wage gap cannot be accounted for in a measurable way. These immeasurable explanations likely include sex discrimination and sex differences in salary negotiations (Blau & Kahn, 2007; Stuhlmacher & Walters, 1999).

An additional limitation of the present study is that the results may be culture-specific. The process of negotiation varies cross-culturally (Adair & Brett, 2005). In Western cultures, negotiators typically use direct communication and their meaning is explicitly stated. Whereas in Eastern cultures, negotiators tend to use indirect communication characterized by implicit embedded meaning that is not clearly stated (Gibson, 1998). It is likely that these different communication norms affect the process of salary negotiations for both men and women. Because the present study relied on a Western sample of participations, these results should not be generalized to non-Western cultures.

**Implications and Future Directions**
The present research suggested that women under-perform in mixed-sex negotiations when the negotiation task is described as being diagnostic of their abilities, a description which activates stereotype threat. Although this might lead to the assumption that women are always at a disadvantage in mixed-sex negotiations, because negotiations are probably assumed to be a reflection of skill, there are situations in which women’s outcomes are not impaired by sex stereotypes. Describing the negotiation task as challenging and diagnostic is an implicit way to activate stereotype threat whereas telling participants that men are better negotiators than women is an explicit way to activate stereotype threat. Although the implicit stereotype threat manipulation used in the present study caused men to outperform women, when stereotype threat is explicitly activated, women display reactance and actually outperformed men (Kray et al., 2001), especially when they do not believe that ability to negotiate is an innate characteristic (Kray & Haselhuhn, 2007). Furthermore, if people are reminded of the stereotypically feminine characteristics more conducive to effective negotiation such as listening and communication skills, women negotiate more effectively than men do (Kray et al., 2002). Taking the results of the current study and past research into consideration, one could argue that women would be more effective negotiators in the real world if they are either reminded of the feminine qualities that are needed for negotiation or they are so conscious of the negative stereotypes that they react against them. When stereotype threat is subtly activated in mixed-sex pairs, women are more likely to underperform.

It is possible that the effects of stereotype threat in mixed-sex pairs was related to the fact that the hypothetical job was in a science, technology, engineering, or mathematics (STEM) field, and women are underrepresented in that field.
of communication they choose, and this research suggested that this might not be the case. E-mail also may not minimize the effects of stereotype threat. However, future research, with larger sample sizes, should examine whether e-mail negotiations decrease the effects of stereotype threat and sex differences when participants never meet face-to-face and sex is less salient or even when the sex of the other participant is entirely unknown.

Conclusion
The present research showed that stereotype threat improves men’s outcomes and impairs women’s outcomes in mixed-sex negotiations. In support of past research, power was a strong predictor of how successfully individuals negotiated. Although women negotiated more effectively when they were in a position of power, having power did not make them immune to the negative impact of stereotype threat when they negotiated with men. Future research, with larger sample sizes, should further test whether power and mode of communication, either face-to-face or e-mail, alters the effects of stereotype threat on men and women. As more communication takes place virtually, it will become increasingly important to explore these questions, and the answers may shed light on ways to decrease the sex salary gap.

References
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