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Women in Leadership: Performance and Interpersonal Consequences of Stereotype Threat

Samantha Haley Snyder
University of North Florida

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WOMEN IN LEADERSHIP:
PERFORMANCE AND INTERPERSONAL CONSEQUENCES OF STEREOTYPE THREAT

by

Samantha Haley Snyder

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The thesis of Samantha Haley Snyder is approved:

(Date)

Dr. Ashley Batts Allen

Dr. James Wirth

Accepted for the Psychology Department:

Dr. Michael Toggia
Chair

Accepted for the College of Arts and Sciences:

Dr. Barbara A. Hetrick
Dean

Accepted for the University:

Dr. Len Roberson
Dean of the Graduate School

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Abstract

Women in leadership positions may experience stereotype threat when explicitly or implicitly reminded of gender and leader stereotypes. Increased worry about potentially confirming the stereotype should affect their behavior and perceptions in leadership situations. I used a 3 (article) x 2 (confederate gender) between-participants design. Female participants read an article that either made stereotypes explicit (explicit threat), countered stereotypes (threat nullification), or did not include stereotype-relevant information (implicit threat) and were assigned to lead a male or female confederate through the construction of a Lego model. I hypothesized that women in the implicit threat conditions (implicit article; male confederate) would objectively and subjectively perform worse than women in the explicit and nullification article conditions and those working with a female confederate. Women should experience the situation more negatively in conditions of threat (explicit and implicit articles; male confederate). Confederate perceptions of the participants should be more negative, except competence, when participants performed well (explicit and nullification article; female confederate). Results partially supported the hypotheses. Women who led men objectively performed worse, perceived their own performance as worse, were perceived as less competent and overall less favorably by their employees, and experienced the situation more negatively than women who led women. The article had little impact on participants and outcomes. The findings suggest that female leaders may be unintentionally undermining themselves when stereotype reminders are present, such as when asked to lead a man in a masculine task. Experiencing stereotype threat may influence women to opt out of leadership due to their negative experiences and they may not earn promotions due to poor performance and coworkers' negative perceptions of their behavior.

Women in Leadership:

Performance and Interpersonal Consequences of Stereotype Threat

Women are underrepresented in leadership. As the level of prestige or rank in the hierarchy of organizations goes up, the gender disparity becomes greater with fewer and fewer women making it into those positions. For instance, in the United States women make up 46.6% of those who work in the business sector; however, the majority of these women are in positions of low status. Women account for only 4.2% of the *Fortune* 500 list of CEOs and 16.6% of board seats within these companies (Catalyst, 2013). In government, women hold 20 of 100 Senate seats, 78 of 435 House of Representative seats, and 5 are current State Governors (Center for American Women and Politics, 2013). This pattern of low representation at the top occurs in nearly every career domain, including education, medicine, and law. As reflected in these statistics, it appears women, in comparison to men, are continuing to find it more difficult to rise to positions of power.

Gender and leader stereotypes may work against women attempting to pursue leadership in two ways, one from the perspective of others and one from the perspective of the individual woman. Firstly, people within organizations may demonstrate biases, intentionally or not, against hiring or promoting women into leadership positions. Those making hires may disproportionately look over women during hiring and promotion decisions due to activation of the stereotype that *women make poorer leaders in comparison to men*. Secondly, women who are aware of this stereotype may have increased worry about being perceived as lacking leadership qualities. Despite the desire to be viewed as a leader, women know that others may not associate them with leadership. This concern may influence women to unintentionally hold themselves back from advancing their careers.

Gender and Leadership Roles

According to social role theory, both descriptive and prescriptive (or injunctive) norms inform individuals about what typical people within a given role are like and how they typically should or should not behave, respectively (Burgess & Borgida, 1999). Gender roles include certain expectations for what women and men are like and how they should behave. Women are described as having communal traits (e.g. concern for others) and men as having agentic traits (e.g. assertive). Possession of these traits is often viewed in exclusive terms, meaning that women possess and should act in ways that reflect her communal qualities and should not possess or act in agentic ways and men should act vice versa. The role of a leader also has these expectations, with leaders typically described as having agentic qualities along with the prescriptive expectation to demonstrate such qualities. These stereotypes stem from people's general perceptions of those who have traditionally occupied certain roles in higher proportions. Women have typically occupied nurturing and low-status roles and men have typically been the breadwinners and occupied higher status roles (Eagly, 1987).

Eagly and Karau (2002) proposed role congruity theory to further social role theory in explaining prejudice toward women in leadership roles. Due to the norms regarding gender and leadership roles, women face prejudice because they are not typically described as holding agentic qualities and, further, they would be punished for exhibiting these types of qualities. In essence women face a double penalty. If a woman does not demonstrate that she holds agentic qualities, people perceive her as not fitting the leadership role; therefore, she will not obtain a leadership position. In this instance, she violates the descriptive stereotypes. On the other hand, if she does show agentic qualities, she might face social penalties for violating gender norms. She receives negative evaluations due to violating prescriptive stereotypes. Men within leadership do

not face these issues because their gender role identity matches the agentic qualities expected of those in leadership roles. Research confirms these gender biases in the workplace (Heilman, 2001; Carli, 2001).

Women in leadership positions are in a role perceived by others and themselves to be incongruent with gender norms (Koenig, Eagly, Mitchell, & Ristikari, 2011; Ritter & Yoder, 2004; Rudman & Kilianski, 2000; Scott & Brown, 2006). This perceived incongruence could then explain why both men and women display gender bias in preferring male leaders and socially punishing female leaders; however, it could also explain why women may choose to opt of leadership positions. Women know they are violating norms if they enter leadership roles and thus can experience stereotype threat when in these roles.

Stereotype Threat

Stereotype threat is the apprehension that someone experiences when placed in a situation where that person may confirm a stereotype for a group to which he or she belongs. It requires: (1) an awareness of a stereotype associated with a group to which the person belongs to, (2) a stereotype that deals with decreased ability on a performance-based task in relation to other groups, and (3) a situation where the person is measured on his or her ability during a stereotype-relevant task (Steele & Aronson, 1995). Most frequently the effects of stereotype threat include a decrease in task performance and are found in the domain of academics (Schmader, 2010). In relation to the current topic, women would likely experience stereotype threat and show a decrease in their performance as leaders when they are reminded in some fashion of gender and leader stereotypes and then placed in a situation where they are assigned to be the leader.

Initial studies. Steele and Aronson (1995) first coined the term *stereotype threat* after conducting the first studies on this phenomenon. They wanted to explore an alternative

explanation, beyond the more traditional theories of genetic differences or cultural bias in phrasing of test questions, for the persistent gap in standardized test scores between African-Americans and Whites. In these initial studies, the researchers manipulated whether the participants were told the test was diagnostic of ability and whether participants were asked to indicate their race before taking the test. The results showed a consistent pattern throughout. African-American students performed significantly worse than White students when in the threat conditions, but showed no difference in performance compared to White students when in the control conditions, even after correcting for preexisting differences in verbal ability. Subtle changes in the situation, such as making the stereotypes salient, significantly affected performance outcomes.

Spencer, Steele, and Quinn (1999) were the first researchers to take the theory of stereotype threat and extend it to math performance of women. The researchers manipulated task difficulty and whether participants were told the test had shown gender differences in the past. In support of the presence of stereotype threat, women performed worse in comparison to men when the task was difficult and when told the test had shown gender differences in performance. Women did not score differently from men when the task was easy or when told the test showed no gender differences in performance in the past. When the researchers omitted any information about gender in the directions, women also performed worse than men. In essence, the results replicated stereotype threat effects and demonstrated they could apply to other stereotyped groups, not solely racial minorities. They also demonstrated that negative effects of stereotype threat could be negated if stereotyped group members are made to believe that the stereotype is not relevant to the task at hand.

Consequences. Several consequences of stereotype threat have been explored, but research has mainly focused on performance outcomes. Many studies replicate the early findings by Steele and Aronson (1995) of decreased performance (Nguyen & Ryan, 2008), however some studies show instances of increased performance under threat (known as stereotype reactance). In situations where the stereotyped group member is explicitly reminded of the relevant stereotype and it is relatively easy to demonstrate counter stereotypical behavior that would aid him or her in the task, the person performs well (Kray, Thompson, & Galinsky, 2001; Tsui, Xu, & Venator, 2011). In the case of academic performance, ability to perform well on a math test may be perceived as relatively fixed. People have to study and practice math to get better, so in an experiment people do not perceive they have the ability to change their math competence. However, within leadership, women can perceive they have flexibility in how assertive they come across and attempt to do so under conditions of explicit threat. Increasing their assertiveness may actually help them to perform better because they may feel more competent and in control. Performance outcomes can have important implications for women in the workplace. In instances where women's performance is not up to par, they are not likely to receive promotions; however, women who do perform well may also be looked over for promotions for violating gender stereotypes influencing coworkers to not perceive them as likable (Carli, 2001).

Stereotype threat has also been linked with several other consequences, including increased anxiety (Bosson, Haymovitz, & Pinel, 2004; Osborne, 2001), increased negative affect or thoughts (Cadinu, Maass, Rosabianca, & Kiesner, 2005), self-handicapping behaviors (Steele & Aronson, 1995; Stone, 2002), and decreased identification with the task domain (Gupta & Bhawe, 2007; Von Hippel, Issa, Ma, & Stokes, 2011). These short and long

term consequences of experiencing threat likely contribute to women's underrepresentation in leadership. Women who experience negative thoughts or feelings, especially those specific to the task, are more likely to opt out of leadership positions. Similar to the performance consequences, women who demonstrate self-handicapping behaviors (e.g. reduced effort for task or providing excuses for poor performance) are not likely to earn promotions.

Inducing threat. Various methods have been used to induce stereotype threat and test its effects. Most commonly, researchers explicitly remind participants of group stereotypes before completing the stereotype-relevant task. Explicit manipulations involve directly stating the stereotype before the task. For instance, participants in one study were told in the instructions before taking a math test that the test had shown gender differences in the past. In this case, participants were reminded that women are not good at math and ended up underperforming on the test (Spencer, Steele, & Quinn, 1999).

Sometimes threat is manipulated in a more implicit manner, allowing situations to provide the threat that participants may pick up on if these stereotypes truly exist. An example of this type of manipulation includes changing the proportions of stereotyped group members in the room. Women who were given a math test in a room with more men than women underperformed (Inzlicht & Ben-Zeev, 2000). Steele and Aronson (1995) provided additional examples. Participants were either asked to indicate their race (group membership) before the task, informed that the task was diagnostic of intellectual ability (stereotype-relevant trait), or given the test without indicating either of these (natural conditions). In all of these cases, participants' performances were negatively affected in comparison to participants of non-stereotyped group membership despite no direct references to the stereotype. People may be unconsciously aware that the stereotypes are affecting their performance.

Other researchers have incorporated a condition, often called nullifying, in which they attempt to reduce or eliminate the threat (Smith & White, 2002). In this instance, researchers provide information, often explicitly, to counter the stereotype. Spencer and colleagues' (1999) study of stereotype threat of women and math test performance provides an example. Some participants were told in the directions prior to taking a math test that the test had previously not shown any gender differences. Women did not underperform in this instance.

Smith and White (2002) conducted the first study comparing all three types of threat manipulations. Some participants took a math test without being told anything else (implicit threat) while others were first provided an article discussing gender differences in math performance. The latter group was then either told that the math test they were about to take had shown similar gender differences (explicit threat) or not (nullifying). Women in the explicit and implicit threat conditions performed equally worse in comparison to women in the nullified threat condition. Other researchers compared various types of threats and their effects on women's math test performance in a meta-analysis. Implicit threat manipulations produced larger negative effects on performance than explicit threat manipulations. Attempts to nullify the stereotype effects were most effective when made explicitly (Nguyen & Ryan, 2008).

Stereotype threat in the workplace. Stereotype threat researchers largely focus on academic performance but recently started looking into other performance domains like the workplace. In only a few known studies, researchers actually manipulated stereotype threat and then examined the effects from an interpersonal perspective.

Stereotype threat effects on objective performance outcomes have been examined in two previous studies. Kray, Thompson, and Galinsky (2001) explored these effects on women's performance in negotiation tasks. Their main finding was that women under explicit stereotype

threat ended in a better position in negotiations than when not under threat; when the seller, they ended up with a larger profit margin and when the buyer, they paid less for the product. When the threat was made implicitly, women underperformed. It is important to note that negotiation performance was largely based on the initial offer; the rest of the interaction had little impact on the results. Performance effects of stereotype threat in the workplace were assessed in one other study, which researchers found the more traditional performance deficit associated with threat (Bergeron, Block, & Echtenkamp, 2006). Participants played the role of a human resource executive. Their task was to sort through information provided and make personnel decisions. Performance was assessed via the ability to respond to all the memos (quantity) and make the most appropriate personnel decisions with the information provided (quality). Stereotype threat was manipulated through descriptions of the participant's predecessor, either masculine or feminine role-typed. The results showed that the quantity and quality of women's performance was lower in the masculine role-typed condition than in the feminine role-typed condition. These researchers attempted to measure objective performance in a workplace task, but their results are limited. In the workplace, leaders need to effectively communicate with employees and keep them motivated over a period of time to accomplish tasks. These studies miss this important aspect to leadership either by not including an employee for the participant to lead or using a limited measure of performance (i.e. negotiation final price).

Hoyt, Johnson, Murphy, and Skinnell (2010) further explored when female leaders would demonstrate reactance or vulnerability to the stereotypes for subjective performance evaluations. They proposed and found that reactance to the stereotype occurs when either explicitly reminded of the stereotype or when women had to lead a group with at least one man (only one threat). If both threats occurred together, the female leaders gave in to the stereotypes. Women with two

threats appraised their own performance as worse than those not under threat and women with one threat appraised their performance as better than those not under threat. The researchers had assistants code for performance, which yielded the same pattern of results. Again, findings suggest that when women feel enough power in the situation to prove the stereotypes wrong, good outcomes can result. Multiple threats produced more negative outcomes. Although the researchers attempted to examine leader-follower interactions, they only focused on perceptions of performance and the leaders did not directly interact with their followers (i.e. imagined they were leading people).

Two of the studies examined the psychological experiences of women under threat in the workplace. In the previously mentioned study by Hoyt and her colleagues (2010), women reported more anxiety when exposed to two threats in comparison to one. The researchers had assistants code for anxiety who also perceived participants to experience more anxiety when exposed to two threats than one threat. The Bergeron, Block, & Echtenkamp (2006) study where participants played the role of a human resource executive, also had included a measure of negative affect. Women in the masculine role-typed condition reported more negative affect than women in the feminine role-typed condition. These results illustrate that women who are reminded of stereotypes can have negative experiences in leadership tasks in general. However, the studies lack information regarding more task-specific thoughts and feelings that could influence women in leadership tasks.

Von Hippel, Wiryakusuma, Bowden, and Shochet (2011) were the first to examine how followers perceive leaders under stereotype threat. They proposed and found that stereotype threat affected female leaders' communication style when they were told to delegate a task to an imaginary employee. Before the task, participants either read an article that explicitly stated there

are gender differences in leadership potential and assertive qualities, read the same article without mentioning differences in leadership potential, or did not read an article. Those under stereotype threat took on a more masculine communication style. They later asked other participants to imagine they were the employee of the leader and rate them on warmth and competence after reading the transcribed communication of two prototypical responses from the initial participants, one from the explicit threat group and one from the control (no article). They found no difference in rating of competence between those who were under threat and those who were not, but did find that the women under stereotype threat were rated as less warm than those who were not under threat. Participants also reported less willingness to comply with the request made by the women under threat. These results are reflective of the much more widely studied gender bias within hiring and promotion decisions, which is that female leaders are rated as less likable or socially competent, more interpersonally hostile, and less desirable to work with if they only display masculine characteristics (i.e. agentic traits) without showing feminine qualities as well (Heilman & Okimoto, 2007; Heilman, Wallen, Fuchs, & Tamkins, 2004; Parks-Stamm, Heilman, & Hearn, 2008).

Current Study

With the current study, I aimed to extend research on stereotype threat and women in leadership in several ways. Past researchers rarely have had a leader and follower interact and those few that do, use limited performance measures. To remedy this shortcoming, women were assigned to be the manager of either a male or female employee for a simulated masculine work task of building a Lego model (Cherney & Voyer, 2010). The leader's success at leading the employee through the task was determined by objective measures (i.e., Lego model). In addition, both the manager and employee provided subjective ratings of performance.

Outcomes beyond performance were examined in the current study. Past researchers have largely focused on anxiety or negative emotions (general measures) as an explanation as to why stereotype threat effects occur. In the current study, I not only examined perceived stress and enjoyment during the task, but also more specific perceptions not previously studied, perceived burdensomeness and control. Lastly, the current study was the first to examine how women under conditions of threat are perceived by their follower on competence, likability, and overall impression after interacting with them. Followers also indicated their desire to work with the women again and temptations to aggress against their leaders.

In the current study, I aimed to compare all outcomes when women were: (1) explicitly reminded that leadership is a masculine domain; (2) explicitly reminded that leadership requires both masculine and feminine qualities to nullify threat; and (3) implicitly influenced by the threatening situation (Smith & White, 2002). Participants read an article with one of these focuses before completing the interaction task. In addition, I compared the outcomes when women interacted with either a male or female confederate. The design, with its inclusion of a variety of outcome measures from both the leader and follower perspectives, provided the most comprehensive examination of the implications of stereotype threat on women in leadership to date.

In terms of specific study outcome measures, I proposed four sets of hypotheses:

Objective Performance Hypotheses: Women in the implicit threat article condition would objectively perform worse than women in the explicit threat and threat nullification article conditions. Women who lead a male confederate would objectively perform worse than women who lead a female confederate.

Subjective Performance Hypotheses: Confederates and the women in the implicit threat article condition would perceive the leader's performance as worse than those in the explicit threat and threat nullification article conditions. Women and their male confederates would perceive the leader's performance as worse than women who lead a female confederate.

Psychological Experience Hypotheses: Women in the explicit and implicit threat article conditions would report having more negative experiences during the task (more stress and feelings of being a burden; less feelings of control and task enjoyment) than women in the threat nullification article condition. Women who lead a male confederate would report having more negative experiences during the task than women who lead a female confederate.

Perception of Manager Hypotheses: Confederates would provide more negative evaluations (less likable, less favorable overall impression, less desire to work with, and more temptations to aggress) of the women in explicit threat and threat nullification article conditions than women in the implicit threat article condition, except women in the explicit threat and threat nullification article conditions would be perceived as more competent than those in the implicit threat article condition. Female confederates would provide more negative evaluations of their leaders than male confederates, but female confederates would perceive their leaders as more competent than male confederates.

Method

Participants

Participants, all female, were recruited from the Psychology Department SONA system at the University of North Florida (recruitment information is located in Appendix A). In total, 153

participants completed the study. Participants who knew the confederate prior to the study (8 participants) and those who incorrectly identified the main idea of article (7 participants) were removed from the sample. Therefore, the final sample size consisted of 138 participants.

Participants earned an hour of extra credit or course credit for their participation. Table 1 contains descriptive statistics for the sample.

Table 1. *Participant Characteristics*

Variable	N	Valid %	Mean	SD	Range
Race/Ethnicity	134				
White	87	64.9	N/A	N/A	N/A
Black	17	12.7	N/A	N/A	N/A
Asian	8	6.0	N/A	N/A	N/A
Hispanic	8	6.0	N/A	N/A	N/A
Native American	1	0.7	N/A	N/A	N/A
Other	3	2.2	N/A	N/A	N/A
Mixed	10	7.5	N/A	N/A	N/A
Minority Total	47	35.1	N/A	N/A	N/A
Age	134	N/A	22.81	6.31	18 to 51
Employed in Years	136	N/A	6.05	6.20	0 to 40
Leadership in Years	130	N/A	2.42	3.52	0 to 25
Lego Experience:	138	N/A	2.18	0.79	1 to 5
None	25	18.1	N/A	N/A	N/A
Novice/Beginner	69	50.0	N/A	N/A	N/A
Intermediate	39	28.3	N/A	N/A	N/A
Advanced	4	2.9	N/A	N/A	N/A
Expert	1	0.7	N/A	N/A	N/A

Experimental Design

Participants were randomly assigned to 1 of 6 conditions in a 3 (Article: explicit threat, threat nullification, implicit threat) x 2 (Confederate Gender: male, female) design. The final condition cell counts contained equal proportions of participants ($X^2(2) = .27, p = .873$).

Materials

A few pieces of equipment were used for the interaction task: Lego models, video equipment, and a barrier. During the task, participants provided directions to the confederates on how to construct a Lego model. All Lego models were forms of transportation (e.g. car) and

contained between 41 and 69 pieces ($M = 54.13$, $SD = 8.64$). A list of the models used can be found in Appendix B. To reduce practice effects, 24 models were used so that the confederates did not receive the same model twice.

The interaction task was video recorded using two camcorders (Canon FS400), one focusing on the participant and the other on the confederate. The camcorders were placed on tripods across from the person being recorded.

During the interaction task, participants and confederates sat across from one another at a table with a partial barrier in between them. The barrier allowed them to see each other and communicate, but blocked the view of the participant from the Lego pieces and blocked the confederate from viewing the Lego directions. Attached to the barrier was a reminder of the participant's role.

Procedure

Participants arrived at the lab, where the researcher asked them to sit at a computer with the informed consent form on the screen (Appendix C). The participants were provided time to read the form and ask any questions before electronically signing. Once the form was signed and submitted, participants were transferred to the initial questionnaire.

Initial questionnaire. Participants completed an initial questionnaire (Appendix D) that contained several individual difference measures. This questionnaire measured participants' gender and leadership identification, sexism beliefs, and a few personality traits. These items were included to explore potential moderators, but are not discussed in this thesis.

Manipulation articles. Following completing the exploratory individual difference questionnaire, participants read 1 of 3 articles (Appendix E) to manipulate stereotype threat. These articles are based on a method utilized by Gupta, Turban, and Bhawe (2008) to manipulate

threat within the domain of entrepreneurship. I modified their prompts from discussing entrepreneurship to management and leadership. The *explicit threat* condition article's main idea was that masculine characteristics are essential for effective leadership and provided three masculine traits as examples: aggression, risk taking, and autonomy. The *threat nullification* article's main idea was that both masculine and feminine characteristics are essential for effective leadership and provided three gender-neutral traits as examples: creative, well informed, and steady (Gupta, Turban, & Bhawe, 2008). The purpose of this condition was to directly counter gender and leadership stereotypes and thus reduce feelings of threat. The *implicit threat* article's main idea did not include gender or leadership information, but instead that time management is important to success at work and discussed three strategies: set goals, make a schedule, and prepare for the unexpected. The purpose of this article condition was to determine if the situation itself could induce feelings of threat without explicit gender and leadership role stereotype reminders.

Role assignment. After reading the manipulation article, participants were told they had been randomly assigned to the role of the manager in the interaction task. In fact, all participants were assigned to the role of the manager for the interaction task, while the confederates fulfilled the role of participants' employees. Next, participants received a job description (Appendix F). The description explained that participants must inform the employee about the task and lead them through building a Lego model. Task rules were also provided. For example, managers were not allowed to show the directions to the employee. Confederates were always assigned to the role of the participants' employees and told to follow the directions of their manager.

Confederates. Confederates served as participants' employee during the interaction task of building Lego models. Nine Psychology undergraduates (4 male and 5 female) were recruited

to serve as confederates. Prior to the study, the primary researcher trained the confederates on matters of confidentiality and monitoring for signs of distress. The confederates also received the same study description as the participants received on the informed consent form. They were blind to study hypotheses and article manipulation. Confederates waited in a separate area from the participants until the participant was ready for the interaction task. During the task, confederates were told to follow the directions of their manager, be themselves without giving away they are involved in the study, and monitor the participant for signs of distress. Each confederate completed between 6 and 19 interactions. They were balanced between article conditions ($X^2(16) = 6.53, p = .981$). The confederates' protocol is located in Appendix G.

Task Arrangement. When participants finished reading their role description, they notified the researcher of their role. The researcher asked the participants to sit in the manager's seat at a table, handed them the Lego directions, and informed them that they were going to see if the other participant was ready. The researcher went to get the confederate from another room and brought him or her to the interaction room. The confederate sat in the employee seat, which was across the table from the manager. The video cameras were turned on and the researcher asked both parties to show their participant number cards to the camcorder. The researcher stated that role reminders were on the barrier in front of them and that they had 10 minutes to complete the task. The researcher left the room and started a timer for 11 minutes to allow participants a little time to orient the confederate to the task and to ensure they had at least 10 minutes to build the Lego model. If participants did not finish within the 11 minutes, the researcher would stop the interaction, shutting off the camcorders and directing both participant and confederate to the original rooms to complete questionnaires regarding their experiences during the task and evaluations of performance.

Final questionnaire. Participants completed a series of measures (Appendix H) assessing participants' perceptions of their performance and their experience during the task. Major groups of items were not randomized. The groups were presented in the following order: self-performance evaluations, psychological experiences, employee performance evaluations, demographic items, and manipulation check items. Within each group, items were randomized unless a specific order was necessary to maintain a logical order.

Perceptions of self-performance. Participants provided a rating on a scale from 1 (*not at all*) to 7 (*extremely*) for the following statements: *I performed well as the manager; I fulfilled the job responsibilities described to me; I am content with how well I performed; I tried to fulfill my job responsibilities to the best of my ability; I would deserve a promotion or special recognition if this were a real work environment; I was an effective leader; I described the task goals and rules thoroughly to my employee; I provided detailed descriptions of the pieces and how to put them together; I provided feedback to my employee when he or she picked the wrong piece or placed it in the wrong place; I provided feedback to my employee when he or she picked the right piece and placed it correctly; My employee and I worked well together; I communicated well with my employee; It was difficult to know what to say to my employee* (reverse coded). The 13 items were averaged to form an index of perceptions of their own performance, with high scores indicating better-perceived performance ($\alpha = .91$).

Psychological experience. Participants indicated how *nervous, tense, uncomfortable, and under pressure* they felt during the task on a scale from 1 (*not at all*) to 7 (*extremely*). The 4 items were averaged to provide an index of perceived stress during the task, with high scores indicating more perceived stress ($\alpha = .81$).

Participants provided a rating on a scale from 1 (*not at all*) to 7 (*extremely*) for the following items: *I felt like I burdened our group; I felt like I kept the group from achieving its goal; the task would have been done better with a male leader; the task would have been done better with another female leader*. The 4 items were averaged for an index of perceptions of being a burden during the task, with high scores indicating more perceived burdensomeness ($\alpha = .78$).

Participants provided a rating on a scale from 1 (*none*) to 7 (*complete*) for the following items: *How much control did you feel that you had during the interaction task; How much control did you feel that you had over what your employee thought about you; I tended to dominate the conversation; My employee followed my directions; I felt like the boss during the task*. The 5 items were averaged to provide an index of perceived control, with higher scores indicating more perceived control ($\alpha = .63$).

Participants provided ratings on a scale from 1 (*not at all*) to 7 (*extremely*) for the following items: *I enjoyed the interaction task and I would like to do the task again*. The two items were averaged to provide an index of task enjoyment, with higher scores indicating more enjoyment ($\alpha = .68$).

Perceptions of employee performance. Participants provided ratings on a scale from 1 (*not at all*) to 7 (*extremely*) for the following statements: *My employee performed well; My employee followed the instructions I provided; My employee seemed content with how well he or she performed; My employee would deserve a promotion or special recognition if it were a real work environment; My employee communicated with me well; My employee selected the right pieces; My employee put together the pieces the way I told him or her to; My employee listened and responded accordingly to my feedback*. The 8 items were averaged to provide an index of

perceived performance of the confederates, with higher scores indicating better-perceived performance ($\alpha = .91$).

Participant quality and manipulation checks. Several items assessed if the article manipulation worked. First, participants were asked to indicate the main idea of the article that they were given to read. This item was multiple choice with four options: *It is most important to have masculine characteristics to be an effective leader; It is most important to have both masculine and feminine characteristics to be an effective leader; It is most important to have feminine characteristics to be an effective leader; Time management is important to be successful at work and school.* Participants who answered this item incorrectly were removed from analyses. Participants were also asked if they had known the confederate prior to the task. If they indicated that they had known their confederate, they were removed from analyses.

Three items were also included to check if participants psychologically experienced the manipulation in accordance with the stereotype threat literature. Participants were asked to indicate their agreement on a scale from 1 (*strongly disagree*) to 9 (*strongly agree*) on the most following items: *In leadership roles, people of my gender are often viewed as poor performers; Some people think that I have less ability as a leader because of my gender; Males are more likely to possess the same traits as effective leaders.* The first two items were averaged for an index of perceptions of others' beliefs that women lack traits needed for leadership ($\alpha = .63$). The third item was used to determine if the articles altered participants' own beliefs about leader and gender stereotypes.

Demographics. Participants were last asked to provide some demographic information. They were asked to indicate their gender, race or ethnicity, and age. They were also asked to indicate the number of years they had been employed and held a leadership position (either paid

or voluntary). Participants reported their prior Lego-building experience as either *no experience*, *beginner/novice*, *intermediate*, *advanced*, or *expert*.

Confederate questionnaire. Confederates completed measures evaluating their leaders performance and personal qualities after completing the interaction task (Appendix I). Items within this questionnaire were not randomized due to being on paper.

Perceptions of manager performance. Confederates provided ratings for the following items on a scale from 1 (*not at all*) to 7 (*extremely*): *My manager was an effective communicator*; *My manager performed well*; *My manager and I worked well together*; *My manager made for an effective leader*; *My manager tried to complete the task correctly and a timely manner*; *My manager would deserve a promotion or special recognition if this were a real work environment*; *It was difficult for my manager to know what to say*; *My manager did not communicate clearly*; *My manager made me feel confused*; *My manager knew what to do to effectively make the Lego*. Negatively worded items were reverse-coded and then all 10 items were averaged to provide an index of perceived manager performance, with higher scores indicating better-perceived performance ($\alpha = .97$).

Perceptions of manager. Confederates provided ratings of participants' personal qualities on a scale from 1 (*not at all*) to 7 (*extremely*). The likability scale included the average of 3 items: *warm*, *likable*, and *friendly* ($\alpha = .92$). The competence scale included the average of 2 items: *competent* and *confident* ($\alpha = .78$). Higher scores indicate more perceived likability and competence, respectively. These are the same traits used in previous studies examining gender bias (Von Hippel, Wiryakusuma, Bowden, & Shochet, 2011).

Confederates provided a rating on a 9-point bipolar scale of various traits of the participants: *unfriendly* to *friendly*; *cold* to *warm*; *unlikable* to *likable*; *incompetent* to *competent*;

unintelligent to intelligent; foolish to wise; unethical to ethical; immoral to moral; bad to good; unselfish to selfish; conceited to humble; self-centered to other-centered. All 12 items were averaged to provide an index of confederates' overall impression of the participants, with higher scores indicating a more positive impression ($\alpha = .92$).

Confederates also provided indications of how tempted they would be to act in certain ways toward the participants and the level of desire to work with them again in the future. Confederates indicated the degree to which they would be tempted to *make them feel good, compliment them, smile at them, put them at ease, treat them nicely, show interest in what they said, try to make them laugh, show that you enjoyed talking to them, slap them, throw something at them that could hurt them, push or shove them, purposely ignore them, insult or swear at them, threaten to hit or throw something at them, shout or yell at them, and humiliate them in front of others* on a scale from 1 (*not at all tempted*) to 9 (*very tempted*). Positively worded items were reverse-coded and then all 16 items were averaged to provide an index of behavioral temptations, with high scores indicating more temptation to act negatively towards the participant ($\alpha = .85$).

Confederates provided ratings on a scale from 1 (*not at all*) to 7 (*extremely*) for the following items: *I would want to work with my manager again in the future; I would avoid working with my manager in the future; I would have preferred to work with someone else; I enjoyed working with my manager.* The 4 items were averaged after reverse-coding negatively worded items to provide an index of desire to work with the participant ($\alpha = .94$).

Objective performance. While the participant and confederate were completing their questionnaires, the researcher collected the Lego the pair had assembled as well as the extra

pieces. Researchers noted the number of pieces placed and left over, the number of errors committed, and whether or not they had put together the correct model.

Participants' objective performance was measured by counting the number of Lego pieces placed during the interaction task and the number of errors committed. The interaction time varied with a range from 593 to 733 seconds ($M = 666.98$, $SD = 19.68$). To control for the variation in time spent in the task, both performance measures were converted to pieces placed and errors per minute. For example, the number of pieces placed by a participant was multiplied by 60 seconds (i.e. 1 minute) then divided by the time she actually spent in the task (in seconds). Therefore, performance variables are the rate of pieces (or errors) for the constant time of 1 minute. Next, an overall measure of performance was calculated subtracting the number of errors from the number of pieces placed. Accounting for differences in time spent in the task was calculated in the same manner as above. To allow for easier results interpretability, all three measures were then multiplied by 10 to provide an estimate for performance within a 10-minute time frame. The results are reported in this per 10-minute format.

Debriefing. When the participants completed the questionnaire, the researcher debriefed the participants. Debriefing included discussing the purposes of the study and explaining the manipulations. Participants were informed that the articles had been fabricated and that the other participant was a confederate. They were provided a copy of the debriefing form if they desired to take one (Appendix J). The researcher's protocol is detailed in Appendix K.

Results

I conducted a series of 3 (Article: explicit threat, threat nullification, implicit threat) x 2 (Confederate Gender: male, female) factorial analysis of variances on all dependent measures of objective and subjective performance, participants' psychological experiences as the manager,

and confederates' perceptions of the manager. Table 2 provides a summary of the descriptive statistics for each dependent variable. A summary of all means and standard deviations for each condition is located in Table 3 with the summary of ANOVA results in Table 4 (main effects and interaction). Tukey's HSD post hoc tests were conducted for main effects of article condition. Simple main effect analyses, using Bonferroni adjustment, were conducted when interactions were found. Equal variance and normality assumptions were assessed before ANOVAs were conducted. All variables met the equal variance assumption, but some violated the normality assumption. In cases of normality violations, Kruskal-Wallis nonparametric tests were conducted. If the same pattern of results for the parametric and nonparametric analyses emerged, I only reported the ANOVA results. In the two cases of different patterns between parametric and nonparametric tests, I reported both sets of results.

Comparability of the Conditions

I conducted a series of tests on the demographic variables to assess for potential confounds. Race and Lego-building experience categories were collapsed to each have two levels (Race: White, Minority; Lego-building: Beginner, Experienced) to satisfy the Chi-square expected cell count assumption. Chi-square tests of independence showed no significant difference in participant race or ethnicity ($\chi^2(5) = 6.53, p = .258$) and Lego-building experience ($\chi^2(5) = 2.93, p = .710$) between conditions. The 3 (article) x 2 (confederate gender) ANOVA on participant age indicated no main effect of article ($F(2, 128) = 1.33, p = .267, \eta_p^2 = .02$) or confederate gender ($F(1, 128) = 0.52, p = .471, \eta_p^2 < .01$) as well as no interaction ($F(2, 128) = 1.13, p = .326, \eta_p^2 = .02$); there were no significant differences between conditions. The ANOVA on the years of employment indicated a marginal main effect of article ($F(2, 130) = 2.41, p = .094, \eta_p^2 = .04$), no main effect of confederate gender ($F(1, 130) = 0.00, p = .973, \eta_p^2$

< .01), and no interaction ($F(2, 130) = 0.37, p = .693, \eta_p^2 = .01$). Participants in the explicit threat condition ($M = 7.56, SD = 7.92$) reported slightly longer employment than participants in the implicit threat condition ($M = 4.64, SD = 3.15; p = .076$), with participants in the threat nullification condition falling in between and not differing from the other conditions ($M = 5.88, SD = 6.19; \text{explicit } p = .390; \text{implicit } p = .610$). For the years of leadership experience, the ANOVA showed a significant main effect of article ($F(2, 124) = 3.21, p = .044, \eta_p^2 = .05$), no main effect of confederate gender ($F(1, 124) = 1.26, p = .263, \eta_p^2 = .01$), and no interaction ($F(2, 124) = 0.63, p = .535, \eta_p^2 = .01$). Participants in the explicit threat condition ($M = 3.32, SD = 4.47$) reported more leadership experience than participants in the implicit threat condition ($M = 1.36, SD = 1.68; p = .030$), with participants in the threat nullification condition falling in between and not differing from the other conditions ($M = 2.45, SD = 3.48; \text{explicit } p = .456; \text{implicit } p = .319$). Although the reported years of employment and leadership experience could potentially be confounds, I chose not to add them as covariates for the main analyses. The manipulation may have affected participants' responses on these items due to them being asked after the manipulation and before the debriefing (discussed further in limitations section).

Manipulation Checks

I used two manipulation check measures, one other-oriented and one self-oriented, to assess if the article had an impact on participants' perceptions toward the relevant stereotype. For the other-oriented measure, participants were asked to rate their agreement that others perceive women to have less ability as leaders. A one-way ANOVA comparing responses among article conditions showed marginal differences ($F(2, 135) = 2.43, p = .092, \eta_p^2 = .04$). Participants in the explicit threat condition ($M = 5.16, SD = 1.74$) agreed that others believe women have less ability as leaders slightly more than participants in the threat nullification condition ($M = 4.31,$

$SD = 1.95$; $p = .092$), with participants in the implicit threat condition ($M = 4.94$, $SD = 2.15$) falling in between and not differing from the other conditions (explicit $p = .865$; nullification $p = .262$).

The self-oriented item was used to determine if the articles altered participants' own beliefs about leader and gender stereotypes. Another one-way ANOVA comparing article conditions on this item yielded marginal differences between groups ($F(2,135) = 3.03$, $p = .052$, $\eta_p^2 = .04$). Similarly, participants in the explicit threat condition ($M = 4.89$, $SD = 2.36$) agreed that men are more likely to possess leadership qualities slightly more than participants in the implicit threat condition ($M = 3.77$, $SD = 2.24$; $p = .064$), with participants in the threat nullification condition ($M = 3.94$, $SD = 2.37$) falling in between and not differing from the other conditions (explicit $p = .121$; implicit $p = .937$).

Overall, these results indicate that the article manipulation only slightly worked to alter the perceptions of participants in the expected directions. Therefore, the effect of the article on the dependent measures is likely to be weak.

Objective Performance

Pieces Placed. For the number of Lego pieces that were placed during the interaction, a significant main effect of confederate gender showed that participants who led a female confederate ($M = 25.10$, $SD = 7.81$) placed more pieces within 10 minutes than participants who led a male confederate ($M = 19.72$, $SD = 6.60$). There was no significant main effect for article and no interaction.

Table 2. Descriptives of Major Study Variables (*N* = 138)

Variable	<i>M</i>	<i>SD</i>	α	Items	Range		Skew
					Potential	Actual	
Performance							
Pieces	22.53	7.72	N/A	N/A	0-69*	5.8-42.1	0.32
Errors	2.50	3.04	N/A	N/A	0-69*	0.0-18.0	2.11
Overall	20.02	8.48	N/A	N/A	0-69*	3.6-42.1	0.31
Performance Ratings							
Self	4.93	0.99	0.91	13	1-7	2.6- 6.9	-0.24
Manager	4.63	1.56	0.97	10	1-7	1.0- 7.0	-0.35
Employee	5.91	0.95	0.91	8	1-7	2.0- 7.0	-1.25
Psychological Experience							
Stress	3.66	1.44	0.81	4	1-7	1.0- 6.8	-0.02
Burden	2.67	1.22	0.78	4	1-7	1.0- 6.8	0.72
Control	4.87	0.92	0.63	5	1-7	1.8- 7.0	-0.29
Task Enjoyment	5.11	1.47	0.68	2	1-7	1.5- 7.0	-0.75
Perceptions of Manager							
Competence	4.74	1.51	0.78	2	1-7	1.0- 7.0	-0.65
Likable	5.35	1.34	0.92	3	1-7	2.0- 7.0	-0.65
Global Impression	6.73	1.23	0.92	12	1-9	3.6- 9.0	-0.22
Temptations	2.64	0.82	0.85	16	1-9	1.3- 4.8	0.51
Desire to Work With	4.95	1.83	0.94	4	1-7	1.0- 7.0	-0.66
Manipulation Check							
Other-Oriented	4.79	1.97	0.63	2	1-9	1.0- 9.0	0.01
Self-Oriented	4.20	2.36	N/A	1	1-9	1.0- 9.0	0.17

Note. * Varied based on Lego model from 41 to 69 pieces

Errors. For the number of errors in building the Lego model, a marginal main effect of confederate gender showed that participants who led a male confederate ($M = 2.97$, $SD = 3.41$) committed slightly more errors than participants who led a female confederate ($M = 2.07$, $SD = 2.61$); this is consistent with the findings for pieces placed. The main effect of article condition and the interaction were not significant. Due to normality issues (i.e. positively skewed), Kruskal-Wallis tests were conducted. There were significant differences in the medians between article conditions ($\chi^2(2) = 7.20$, $p = .027$), with participants in the explicit threat condition committing more errors than participants in both the threat nullification ($\chi^2(1) = 4.26$, $p = .039$) and implicit threat conditions ($\chi^2(1) = 6.34$, $p = .012$).

Overall Performance. An overall measure of performance was calculated by subtracting the number of errors from the number of pieces placed. A main effect of confederate gender

showed that when participants led a male confederate ($M = 16.75$, $SD = 7.16$) they performed worse than when participants led a female confederate ($M = 23.03$, $SD = 8.53$). The main effect of article condition and the interaction were not significant.

Table 3. Descriptives for Major Study Variables by Condition

Variable	Explicit Threat		Threat Nullification		Implicit Threat	
	Male	Female	Male	Female	Male	Female
Condition N	22	23	22	27	22	22
Performance						
Pieces	19.96 (7.66)	25.66 (8.03)	20.20 (6.17)	24.69 (8.21)	18.99 (6.10)	25.02 (7.37)
Errors	3.83 (4.07)	2.72 (2.46)	2.99 (3.44)	1.54 (1.59)	2.09 (2.47)	2.05 (3.56)
Overall	16.13 (8.41)	22.94 (9.64)	17.21 (6.11)	23.16 (8.82)	16.91 (7.05)	22.96 (7.25)
Performance Ratings						
Self	4.52 (1.17)	5.27 (0.81)	4.83 (0.90)	5.32 (0.85)	4.82 (1.11)	4.70 (0.91)
Manager	4.41 (1.71)	4.77 (1.57)	4.45 (1.47)	4.78 (1.50)	4.58 (1.66)	4.74 (1.59)
Employee	5.67 (1.14)	5.97 (1.10)	5.84 (0.89)	6.19 (0.80)	6.03 (0.83)	5.72 (0.88)
Psychological Experience						
Stress	4.13 (1.23)	3.49 (1.47)	3.55 (1.63)	3.37 (1.18)	3.65 (1.82)	3.83 (1.31)
Burden	3.03 (1.37)	2.21 (1.00)	2.95 (1.43)	2.52 (1.11)	2.59 (1.17)	2.76 (1.13)
Control	4.81 (0.99)	5.30 (0.78)	4.75 (0.89)	5.05 (0.75)	4.52 (1.04)	4.70 (0.94)
Task Enjoyment	4.48 (1.55)	5.76 (1.29)	4.70 (1.66)	5.50 (1.22)	4.93 (1.43)	5.14 (1.41)
Perceptions of Manager						
Competence	4.73 (1.72)	5.04 (1.34)	4.34 (1.58)	5.02 (1.56)	4.23 (1.53)	5.00 (1.19)
Likable	4.89 (1.54)	5.30 (1.25)	4.95 (1.34)	5.65 (1.05)	5.59 (1.35)	5.64 (1.43)
Global Impression	6.20 (1.14)	7.11 (1.19)	6.04 (0.89)	7.19 (1.20)	6.40 (1.18)	7.32 (1.19)
Temptations	2.83 (0.81)	2.70 (0.89)	2.77 (0.76)	2.74 (0.91)	2.50 (0.88)	2.29 (0.53)
Desire to Work With	4.73 (2.10)	4.83 (1.85)	4.77 (1.74)	5.08 (1.70)	4.89 (2.00)	5.39 (1.72)
Manipulation Check						
Other-Oriented	5.43 (1.69)	4.89 (1.78)	4.36 (1.75)	4.26 (2.14)	4.77 (2.14)	5.11 (2.20)
Self-Oriented	4.82 (2.40)	4.96 (2.36)	4.00 (2.39)	3.89 (2.39)	3.77 (2.00)	3.77 (2.51)

Note. Mean (SD)

Subjective Performance

Self-rating. For participant's perception of her own performance, a significant main effect of confederate gender showed that participants who led a female confederate ($M = 5.11$, $SD = 0.89$) perceived their performance to be better than participants who led a male confederate ($M = 4.72$, $SD = 1.06$). There was no significant main effect of article condition, but there was a marginal interaction. Simple main effects analyses revealed that participants who led a male confederate judged their own performance to be significantly worse than participant who led a

female confederate in the explicit threat condition ($F(1,132) = 6.87, p = .010, \eta_p^2 = .05$). The same pattern emerged for the threat nullification group ($F(1,132) = 3.14, p = .079, \eta_p^2 = .02$), with participants who led a male confederate judging their own performance to be slightly worse than participants who led a female confederate. However, participants did not rate their performance differently in the implicit threat condition depending on if they led a male or female confederate ($F(1,132) = 0.16, p = .689, \eta_p^2 < .01$).

Manager rating. There were no significant main effects of article condition or confederate gender in the confederates' perceptions of participant performance. There was also no significant interaction.

Employee rating. There were no significant main effects of article or confederate gender in participants' perceptions of confederate performance. Also, no significant interaction was found.

Psychological Experiences

Stress. There were no significant main effects of article or confederate gender in participants' perceived stress. There was also no significant interaction.

Burden. For participants' perception of themselves being a burden during the task, a marginal main effect of confederate gender showed that participants perceived themselves to be slightly more of a burden when they led a male confederate ($M = 2.86, SD = 1.32$) compared to participants who led a female confederate ($M = 2.49, SD = 1.09$). The main effect of article and the interaction did not reach significance.

Control. For participants' perceived control during the task, a significant main effect of confederate gender showed that participants who led a female confederate ($M = 5.03, SD = 0.85$) perceived they had more control than participants who led a male confederate ($M = 4.69, SD =$

0.97). Also, a marginal main effect of article showed that participants who read the explicit threat article ($M = 5.06$, $SD = 0.92$) reported feeling more control than the participants who read the implicit threat article ($M = 4.61$, $SD = 0.98$; $p = .049$), with participants who read the threat nullification article ($M = 4.92$, $SD = 0.82$) falling in between and not differing from the other conditions (explicit $p = .719$; implicit $p = .226$). There was no significant interaction.

Task enjoyment. For participants' enjoyment of the task, a main effect of confederate gender showed that participants who led a female confederate ($M = 5.47$, $SD = 1.31$) enjoyed the task more than participants who led a male confederate ($M = 4.70$, $SD = 1.54$). There was no main effect of article or interaction.

Table 4. Results Summary of All 3 (article) x 2 (confederate gender) ANOVAs ($N = 138$)

Variable	Main Effect Article			Main Effect Confederate Gender			Interaction		
	<i>F</i>	<i>p</i>	η_p^2	<i>F</i>	<i>p</i>	η_p^2	<i>F</i>	<i>p</i>	η_p^2
Performance									
Pieces	0.13	.875	.002	18.56	.000***	.123	0.14	.869	.002
Errors	2.10	.127	.031	2.85	.094 ^t	.021	0.69	.503	.010
Overall	0.08	.926	.001	20.99	.000***	.137	0.04	.962	.001
Performance Ratings									
Self	1.26	.289	.019	5.21	.024*	.038	2.38	.096 ^t	.035
Manager	0.02	.981	.000	1.08	.301	.008	0.05	.947	.001
Employee	0.53	.590	.008	0.50	.479	.004	1.73	.181	.026
Psychological Experience									
Stress	0.75	.474	.011	0.74	.392	.006	0.89	.413	.013
Burden	0.11	.897	.002	3.16	.078 ^t	.023	1.92	.151	.028
Control	2.85	.062 ^t	.041	4.48	.036*	.033	0.35	.708	.005
Task Enjoyment	0.05	.956	.001	9.80	.002**	.069	1.60	.206	.024
Perceptions of Manager									
Competence	0.40	.670	.001	5.31	.023*	.039	0.29	.748	.004
Likable	1.70	.188	.025	2.89	.091 ^t	.021	0.70	.497	.011
Global Impression	0.59	.556	.009	26.09	.000***	.165	0.18	.838	.003
Temptations	3.01	.053 ^t	.044	0.77	.382	.006	0.14	.873	.002
Desire to Work With	0.42	.656	.006	0.92	.339	.007	0.13	.878	.002

Note. For the main effect of article all, degrees of freedom were (2, 132). The degrees of freedom for all main effect confederate gender were (1, 132). For the interaction, all degrees of freedom were (2, 132).

* $p < .05$, ** $p < .01$, *** $p < .001$, ^t $p < .10$

Perceptions of the Manager

Competence and likability. Confederates provided ratings of participants' competence and likability. For competence, a significant main effect of confederate gender showed that

female confederates ($M = 5.02$, $SD = 1.36$) rated participants as more competent than male confederates ($M = 4.43$, $SD = 1.60$). There was no significant main effect of article and no interaction.

For likability, a marginal main effect of confederate gender showed that female confederates ($M = 5.54$, $SD = 1.23$) rated participants as slightly more likable than male confederates ($M = 5.15$, $SD = 1.43$). The main effect of article condition and the interaction were not significant. Due to normality issues (i.e., negative skew), Kruskal-Wallis tests were conducted. There were no differences between the medians of male and female confederates ratings of participant likability ($\chi^2(1) = 2.31$, $p = .129$). Using the Kruskal-Wallis tests, the effect of confederate gender was no longer significant.

Global impression. For confederates' overall impression of the participants, a significant main effect of confederate gender showed that female confederates ($M = 7.21$, $SD = 1.18$) had more positive impressions of participants than male confederates ($M = 6.21$, $SD = 1.07$). There was no significant main effect of article and no interaction.

Behavioral temptations. For confederates' temptations to aggress towards the participants, a marginal main effect of article condition showed that confederates had slightly fewer temptations to aggress towards participants who read the implicit threat article ($M = 2.39$, $SD = 0.72$) than participants who read the explicit threat article ($M = 2.76$, $SD = 0.85$; $p = .087$) and threat nullification article ($M = 2.75$, $SD = 0.84$; $p = .088$). There was no significant main effect of confederate gender and no interaction.

Desire to work with manager. For the degree to which confederates enjoyed working with the participant and would like to again in the future, there was no significant main effect of article or confederate gender. There was also no significant interaction.

Discussion

Women were assigned to a leadership role for a simulated work task where they led either a man or woman through the construction of a Lego model. Prior to the task they were either explicitly reminded about gender and leader stereotypes (explicit threat), provided information that countered the stereotypes (threat nullification), or provided information irrelevant to gender and leadership (implicit threat) through reading an article. Performance was evaluated based on objective measures and subjective measures. The women's psychological experiences during the task and the followers' evaluations of the women's personal qualities were also assessed.

Overall, I aimed to examine how women are affected by stereotype threat when asked to lead someone through a masculine task. The complex, interaction design allowed for comparisons of the effects from various types and combinations of threat manipulations (i.e. articles and confederate gender) on outcomes from multiple perspectives (i.e. leader and follower).

Assessment of the Article Manipulation

The results indicate that the manipulation articles only slightly worked in altering the stereotypical beliefs of participants and generally had little effect on the dependent measures. Despite pulling the means in the expected directions, the articles did not appear to be able to overcome years of socialization and awareness of stereotypes to change participants' stereotype perceptions to a significant degree for the task. Therefore, the few seemingly sporadic significant effects of the article are not discussed further.

Impact of Follower Gender

The gender of the person women were asked to lead had consistent effects across the variety of outcomes assessed. As hypothesized, women who led a male confederate performed worse on all three objective performance measures than women who led a female confederate. The leaders of men put together fewer pieces, had more errors, and overall put together fewer pieces correctly during the task. These findings are consistent with past research. In a study by Bergeron, Block, and Echtenkamp (2006), the accuracy and quantity of performance suffered for women primed to compare themselves with a man. Researchers have also generally found implicit threats to have larger negative effects on women than explicit threats (Nguyen & Ryan, 2008). Male confederates served as an implicit threat in the current study and produced a large negative effect on objective leadership performance.

Not only did the women who led men objectively underperform, they also correctly perceived their own performance to be worse than the leaders of women. These results oppose the work by Hoyt and colleagues (2010), where they found no difference in self-performance appraisals between group compositions, controlling for their other threat manipulation. Women who were under the impression they were leading a group of all women rated their performance as equivalent to those who thought they were leading a group with at least one man. Perhaps the results differ because women in the current study actually had to lead a person (male or female) through a task, whereas those in the previous study did not. People can imagine their behavior would not differ depending on whom they interact with, but in real situations they may alter their behavior, perhaps through an unconscious process. In addition, the prior study used a task that did not have any objective performance measure that participants could base their evaluations on. In the current study, participants could visually examine the Lego in relation to how many more

steps were left in the directions. If there were not many steps left and the Lego appeared to be accurate, they could perceive their performance as relatively good. These outward, observable signs of performance provided participants more information to base performance evaluations on than the abstract ideas regarding leadership performance in the other study.

Also as hypothesized, women who led a male confederate had more negative experiences during the leadership task than women who led a female confederate. When leading a man, the leaders reported feeling more of a burden, less in control, and less enjoyment of the task than those leading a woman. However, as previous studies have found, there were no differences in general self-reported stress during the task (Bosson, Haymovitz, & Pinel, 2004). These findings suggest other more task-specific psychological variables besides stress may be more important in understanding the effects of stereotype threat in female leadership and deserve more attention by researchers. Women who experience leadership tasks negatively are probably less likely to have a desire to continue doing them.

From the perspective of the followers, male confederates perceived their leaders to be less competent and had an overall less favorable impression of them compared to female confederates. Perceived competence was, therefore, the only outcome from the confederate's perspective to support hypotheses. Leaders who perform well should be perceived as more competent. In the current study, leaders of women objectively performed better and were justifiably perceived as more competent than leaders of men. All of the other hypotheses from the confederate's perspective were not supported. Countering the hypothesized direction of overall impressions, male confederates actually had more negative impressions of their leaders than female confederates. These results could stem from confederates simply generalizing a number of good qualities to their leader because of good performance; leaders objectively

performed better with female confederates and the female confederates had more favorable impressions of their leaders. They also could be due to women in general being more likely than men to describe others in a favorable light or demonstrate less bias toward female leaders. The latter explanations are less likely because perceptions of likability did not reflect this tendency and the gender bias literature suggests both men and women equally prefer men as leaders (Koenig, Eagly, Mitchell, & Ristikari, 2011; Rudman & Kilianski, 2000; Scott & Brown, 2006). Women in leadership were not evaluated negatively based on success in the task; in fact, they were perceived more favorably when they did perform well. In addition, there were no perceived differences between male and female confederates in leader performance evaluations, leader likability ratings, temptations to aggress against their leader, and desire to work with their leader. These null findings could be due to a number of factors, such as imprecise measures or design flaws, which future research should address.

Limitations and Future Directions

Although this study extends previous work on stereotype threat with women in leadership, the design does have several limitations. First, the complexity of the interpersonal interaction clouds the cause of the effects. For example, although we know women paired with a male confederate performed worse than women paired with a female confederate, we cannot assume that the female leaders did a better job of communicating to the female confederates. Male confederates may have been less willing to listen to the female leader resulting in poorer performance. Using a dynamic interaction increased external validity, but decreased internal validity. Many factors such as differences in personality or physical appearance are not controlled for and could influence the interaction. For example, leaders who were dressed professionally during the study were most likely perceived better than those dressed in gym

clothes. These types of extraneous factors contribute to larger error variance than highly controlled experiments.

A few potential confounds were tested, which included the demographic variables: race or ethnicity, age, years of work experience, years of leadership experience, and Lego-building experience. All except years of employment and leadership experience were evenly distributed throughout conditions. Participants in the explicit threat condition reported more work and leadership experience than participants in the implicit threat condition. These items were self-reported measures asked at the end of the study and it is very likely they were affected by the manipulation. Women who were explicitly reminded of the stereotype likely demonstrated a reactance effect and tried very hard to think of and include any type of experience they could consider as work and leadership experience, resulting in a higher number of years reported. Those in the implicit threat condition have no increased motivation to do so. For these reasons, the analyses were conducted without controlling for these variables despite the potential confounds.

The manipulations as well as some of the items asked in the initial questionnaire also may have limited the results. The article manipulation was modeled after previous research (Gupta, Turban, & Bhawe, 2008). However, the manipulation check showed that the articles had a weak effect on participants' stereotype beliefs. Therefore, the article was not as salient as confederate gender and had a weaker effect on the variables of interest. The explicit threat article stated masculine qualities as important for leadership. Women may perceive themselves to have both masculine and feminine qualities, which could have lessened the possibility of perceiving the information as threatening. Future work should directly state the connection of men with leadership to avoid this weak effect. Researchers could also have explicit stereotypical

information or explicit counter-stereotypical information presented sometime at the beginning of the task, such as allowing the participant to overhear a verbal statement made by a confederate whom they believe they will be leading. Presenting the information in this manner would make it more salient and relevant in the situation. The initial questionnaire contained several items to assess gender and leadership identification and views about sexism. These items themselves may have induced threat because previous work has found effects when participants simply checked off their group status before the task (Steele & Aronson, 1995). Given this, all participants responded to these items and they should have affected them similarly. However, the items may have added an additional implicit threat to all participants.

The generalizability of the findings is also limited. Results are based on interactions with only nine different followers. Perhaps there were fundamental differences between the male and female confederates that we did not assess (e.g., sexist beliefs) that could have contributed to confederate gender effects. It is also possible that the Lego-building task did not actually simulate a work environment where a leader must effectively communicate with her follower to get a task completed in a timely manner. In the workplace, leaders and followers usually know each other and have an interaction history. However, the current study only involved leaders and followers who were strangers prior to the task. Female leaders are usually in their position because of expertise or previously demonstrated skills and are typically older. Most of the leaders in this current sample were not experts at Lego-building and were relatively young. Lastly, the final sample size left tests for the interaction underpowered. It is possible more effects are present, but the current study may not have been able to detect them.

Beyond finding solutions to address this study's limitations, future research should add male comparison groups. Based on role congruity theory, men should perceive that their agentic

qualities match with the agentic qualities needed in leadership roles. Therefore, they should not experience stereotype threat or face its consequences if placed in a leadership situation. Adding male participants would allow researchers to make more definitive conclusions regarding the reactions (reactance or vulnerability) of women in these situations. On a similar note, researchers could examine if perceived role incongruity is essential for stereotype threat effects to occur. Researchers could have tasks that vary on masculinity and femininity. According to role congruity theory, male leaders would have the advantage in masculine tasks and women could show stereotype threat effects (similar to current study). However, female leaders may have the advantage in feminine tasks, while the men show stereotype threat effects.

General Discussion

Overall, women in leadership positions seem to be more affected by the gender of their follower than when presented with stereotypical information in an article. Follower gender is probably more salient in interactions than information provided beforehand. The current study's findings support previous work showing that implicit threats have larger effects on women than explicit ones (Nguyen & Ryan, 2008). During leadership tasks, a male follower is a situational cue that may bring to mind gender stereotypes. When these gender stereotypes combine with leadership stereotypes brought to mind by the task, together they imply a mismatch for women with leader roles. The perceived role mismatch, even if processed unconsciously, can then negatively affect objective performance, self-performance evaluations, and the psychological experiences of women in positions of leadership.

The results also indicate that followers' perceptions of their leaders may not be as biased as previously thought. Past research has suggested that women who are successful in positions of leadership are perceived as less likable and less desirable to work with. This research has mainly

involved evaluators being exposed to relatively little information about the person, such as reviewing resumes, without having to actually speak with him or her (Heilman & Okimoto, 2007; Heilman, Wallen, Fuchs, & Tamkins, 2004; Parks-Stamm, Heilman, & Hearn, 2008). These methods may force evaluators to rely on stereotypes when assessing the person and why findings suggest female leaders are perceived negatively. The interaction in the current study seemed to allow followers enough time to form opinions of their leaders that were not solely based on stereotypes, but on actual performance and personal characteristics. However, more research is needed, especially utilizing male leader comparison groups, to help understand these effects better and relate them back to the gender bias literature.

Taken together from both the female leaders' and their followers' perspectives, there were more negative implications for women in leadership due to their own behaviors and perceptions than their followers demonstrating signs of gender bias. Under conditions of threat, especially implicit threat, women in leadership positions seem aware of their poor performance and feel more of a burden, less in control, and less task enjoyment. These perceptions and feelings may prevent women from moving ahead in their careers by making it less likely for them to advocate for themselves and more likely for them to leave their positions for ones they perceive as a better fit. Women's performance also suffered when under conditions of threat, which also works against women's career progress. Women need to perform well to earn promotions or keep their positions. The findings demonstrated weak evidence for gender bias on the part of the follower. That is not to say gender bias does not work against women in leadership, but it appears that it may be more of a problem during the hiring process than when they already hold a position. Coworkers have time to get to know their female leaders, which can reduce the odds of them using stereotypes against them. When women move up in the hierarchy

of organizations, threats such as working with men often become more commonplace and this in turn can lead to higher proportions of women opting out or career stagnation. Therefore, the underrepresentation of women in leadership positions, especially at the top, may be in part due to women experiencing stereotype threat stemming from perceived role incongruity.

Appendix A

Participant Recruitment Information

Workplace Simulation Study

Participants logged into the SONA system and will see the following study description:

Title: Workplace Simulation Study

Credit: 1 hour

Description: Participants will come into the lab to complete the study. After arrival, participants will complete an initial survey that contains individual difference measures. Then they will work with a partner to complete a simulated work task. Last, participants will complete a final survey that asks them questions regarding their experience during the task. Participants will be video recorded during the simulated work task.

Possible risks: Minimal (The risks are no greater than those encountered in daily social interactions.)

Benefits: Participants may gain insight into the nature of psychological research and will receive 1 hour of credit in the SONA system.

Restrictions: Must be 18 years or older to participate

Faculty Member: Dr. Ashley Batts Allen, Ph.D., Psychology Department, a.allen@unf.edu, 904-620-6143

Contact Person: Samantha Snyder, samantha.snyder@unf.edu

Appendix B

Lego Models

3-in-1 Creators:

Mini Digger (5761)

Mini Plane (5762)

Mini Helicopter (5864)

Mini Dumper (5865)

Mini Jet (6741)

Mini Off Roader (6742)

Mini Sports Car (6910)

Mini Fire Rescue (6911)

Appendix C

Informed Consent Form
Workplace Simulation Study
Samantha Snyder
Department of Psychology
University of North Florida

Purpose of Research: In this study, the researchers are interested in how people perform in a simulated work environment. You will be asked to complete a survey that includes several popular psychological measures and questions asking you to indicate previous experience with certain job roles. Then you will be assigned a “job” to complete with a partner. Finally, you will be asked to complete a final survey with questions regarding the “job” you were assigned to complete.

Specific Procedures to be Used: You will be asked to come to the lab at your designated time and complete a questionnaire, complete a workplace simulation task, and then complete a final questionnaire. During the workplace simulation task, you will be assigned to work with a partner. You and your partner will be assigned to either the manager or worker role. You will be videotaped during the workplace simulation task.

Duration of Participation: Your participation should take no more than 1 hour today. If your instructor allows it, you will receive 1 hour of experiment credit for your participation.

Benefits of Participation: You will have the opportunity to learn more about yourself and how you handle and complete an assigned job. If your instructor allows it, you will also have the opportunity to earn one hour of SONA credit. No monetary compensation will be given.

Risks to the Individual: Minimal - Risks are not greater than those encountered in daily social interactions.

Confidentiality: Strict confidentiality of all data will be upheld to the extent allowable by law. Your responses will remain confidential and will be stored in a secure location. Video recordings will be viewed and coded by the researchers then securely stored. The data containing your informed consent will be separated from the questionnaire data. Data may be used subsequently in future research projects or in further analyses of this research project, however video recordings will be destroyed at study completion. The project’s research records may be inspected by the University of North Florida Institutional Review Board or its designees to ensure participants’ rights are being protected.

Voluntary Nature of Participation: Your participation in this research project is strictly voluntary. You do not have to participate. If you agree to participate, you can withdraw at any time without penalty. You will receive your 1 credit whether you complete the study or withdraw. You do not have to answer any question you find objectionable.

Human Subject Statement: If you have any questions about this research project, you can contact Samantha Snyder, _____, or Dr. Ashley Allen, _____. If you have concerns about the treatment of research participants, you can contact Dr. Katherine Kasten, UNF Institutional Review Board, _____. If after participating, you feel as though you have suffered emotionally or psychologically, please visit the Counseling Center here on campus, Bldg 2, Founders Hall, Room 2300, where services are free and strictly confidential (904) 620-2602.

I ATTEST THAT I AM AT LEAST 18 YEARS OLD. I HAVE HAD THE OPPORTUNITY TO READ THIS CONSENT FORM, ASK QUESTIONS ABOUT THE RESEARCH STUDY & I AM PREPARED TO PARTICIPATE IN THIS STUDY.

_____ (Participants were given a box in which to type their name and N number in order to indicate consent online).

Appendix D

Initial Questionnaire

For the first part of this study, you will be asked to complete a survey. Please answer questions as honestly as possible and to the best of your ability.

Q1 What is the number on the card provided to you? (filled in blank)

Investment in Gender Ideals (Wood, Christensen, Hebl, & Rothgerber, 1997)

Q2 Instructions: Please think of how society defines the ideal man and the ideal woman and circle the number that best represents your responses to the following two questions based on the scale provided below: 1(not at all) to 9 (a great deal); or N/A (not a woman)

How important is it for you to be similar to the ideal woman?
To what extent is being similar to the ideal woman an important part of who you are?

Q3 Instructions: Please think of how society defines the ideal man and the ideal woman and circle the number that best represents your responses to the following two questions based on the scale provided below: 1(not at all) to 9 (a great deal); or N/A (not a man)

How important is it for you to be similar to the ideal man?
To what extent is being similar to the ideal man an important part of who you are?

Social Dominance Orientation (Pratto, Sidanius, Stallworth, & Malle, 1994)

Q4 Rate on a scale from 1 (very negative) to 7 (very positive) the following sentences:

Some groups of people are simply inferior to other groups.
In getting what you want, it is sometimes necessary to use force against other groups.
It's OK if some groups have more of a chance in life than others.
To get ahead in life, it is sometimes necessary to step on other groups.
If certain groups stayed in their place, we would have fewer problems.
It's probably a good thing that certain groups are at the top and other groups are at the bottom.
Inferior groups should stay in their place.
Sometimes other groups must be kept in their place.
It would be good if groups could be equal.
Group equality should be our ideal.
All groups should be given an equal chance in life.
We should do what we can to equalize conditions for different groups.
Increased social equality.
We would have fewer problems if we treated people more equally.
We should strive to make incomes as equal as possible.
No one group should dominate in society.

Modern Sexism (Swim, Aikin, Hall, & Hunter, 1995)

Q5 Rate on a scale from Strongly Disagree (1) to Strongly Agree (5) the following statements:

Discrimination against women is no longer a problem in the United States.

Women often miss out on good jobs due to sexual discrimination.

It is rare to see women treated in a sexist manner on television.

On average, people in our society treat husbands and wives equally.

Society has reached the point where women and men have equal opportunities for achievement

It is easy to understand the anger of women's groups in America.

It is easy to understand why women's groups are still concerned about societal limitations of women's opportunities.

Over the past few years, the government and news media have been showing more concern about the treatment of women than is warranted by women's actual experiences.

Ambivalent Sexism Inventory (Glick & Fiske, 1997)

Q6 Below are a series of statements concerning men and women and their relationships in contemporary society. Please indicate the degree to which you agree or disagree with each statement using the scale below. Disagree Strongly (1) to Agree Strongly (6)

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

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

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

Most women interpret innocent remarks or acts as being sexist.

Women are too easily offended.

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

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

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

Women should be cherished and protected by men.

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

Women seek to gain power by getting control of men.

Every man ought to have a woman whom he adores.

Men are complete without woman.

Women exaggerate problems they have at work.

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

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

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

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

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

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

Feminists are making entirely reasonable demands of men.

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

Stigma Consciousness (Pinel, 1999)

Q7 Indicate the degree to which you agree or disagree with each of the following statements using the scale below: Strongly Disagree (1) to Strongly Agree (7)

- Stereotypes about women have not affected me personally.
- I never worry that my behaviors will be viewed as stereotypically female.
- When interacting with men, I feel like they interpret all my behaviors in terms of the fact that I am a woman.
- Most men do not judge women on the basis of their gender.
- My being female does not influence how men act with me.
- I almost never think about the fact that I am female when I interact with men.
- My being female does not influence how people act with me.
- Most men have a lot more sexist thoughts than they actually express.
- I often think that men are unfairly accused of being sexist.
- Most men have a problem viewing women as equals.

Leadership Domain Identification (Lipka, 2008)

Q8 Instructions: The following questions concern interests in holding leadership positions. Please use the scale below to answer how much each of the following statements is descriptive of you as a person: 1 (not at all) to 5 (a great deal)

- I have a genuine interest in having leadership positions.
- I hope to obtain a position of leadership in my future career.

Q9 Instructions: The following questions concern your previous experience as a leader compared to your peers. Please use the scale below when responding to the following questions: 1 (very limited) to 5 (very extensive)

- In high school, I would describe my social experience as a leader as being...
- In high school, I would describe my academic experience as a leader as being...
- In college, I would describe my social experience as a leader as being...
- In college, I would describe my academic experience as a leader as being...

Locus of Control IPC Scale (Levenson, 1973)

Q10 Indicate the degree to which you agree or disagree with each of the following statements using the scale below: Strongly Disagree (1) to Strongly Agree (7)

- Whether or not I get to be a leader depends mostly on my ability
- To a great extent my life is controlled by accidental happenings
- I feel like what happens in my life is mostly determined by powerful people
- Whether or not I get in to a car accident depends mostly on how good of a driver I am
- When I make plans, I am almost certain to make them work
- Often there is no chance of protecting my personal interests from bad luck happening
- When I get what I want, it's usually because I am lucky
- Although I might have good ability, I will not be given leadership responsibility without appealing to those positions of power

How many friends I have depends on how nice a person I am
 I have often found that what is going to happen will happen
 My life is chiefly controlled by powerful others
 Whether or not I get into a car accident is mostly a matter of luck
 People like myself have very little chance of protecting our personal interests when they conflict
 with those of strong pressure groups
 It's not always wise for me to plan too far ahead because many things turn out to be a matter of
 good or bad fortune
 Getting what I want requires pleasing those people above me
 Whether or not I get to be leader depends on whether I am lucky enough to be in the right place
 at the right time
 If important people were to decide they didn't like me, I probably wouldn't make many friends
 I can pretty much determine what will happen in my life
 I am usually able to protect my personal interests
 Whether or not I get in a car accident depends mostly on the other driver
 When I get what I want, it is usually because I worked hard for it.
 In order to have my plans work, I make sure that they fit in with the desires of people who have
 power over me
 My life is determined by my own actions
 It's chiefly a matter of fate whether or not I have few friends or many friends.

Self-efficacy for Leadership (Murphy, 1992)

Q11 Instructions: Please read each statement carefully. Then indicate the extent to which you agree or disagree with each of the statements, using the following scale:

Strongly Disagree (1) to Strongly Agree (5)

I know a lot more than most students about what it takes to be a good leader
 I know what it takes to make a group accomplish its task.
 In general, I'm not very good at leading a group of my peers.
 I am confident of my ability to influence a group I lead.
 I have no idea what it takes to keep a group running smoothly.
 I know how to encourage good group performance.
 I am able to allow most group members to contribute to the task when leading a group.
 Overall, I doubt that I could lead a group successfully.

Rosenberg Self-Esteem Scale (Rosenberg, 1965)

Q12 Indicate the degree to which you agree or disagree with each of the following statements using the scale below: Strongly Disagree (1) to Strongly Agree (5)

I feel that I'm a person of worth, at least on an equal plane with others.
 I feel that I have a number of good qualities.
 All in all, I am inclined to feel that I am a failure.
 I am able to do things as well as most people.
 I feel that I have much to be proud of.
 I take a positive attitude toward myself.
 On the whole, I am satisfied with myself.
 I wish I could have more respect for myself.

I certainly feel useless at times.

At times I think I am no good at all.

Self-Compassion Scale, Short-form (Raes, Pommier, Neff, & Van Gucht, 2011)

Q13 Please read each statement carefully before answering. Indicate how often you behave in the stated manner, using the following scale: Almost Never (1) to Almost Always (5)

I'm disapproving and judgmental about my own flaws and inadequacies.

When I'm feeling down I tend to obsess and fixate on everything that's wrong.

When I fail at something important to me I become consumed by feelings of inadequacy.

When something upsets me I try to keep my emotions in balance.

When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

I'm intolerant and impatient towards those aspects of my personality I don't like.

When I'm going through a very hard time, I give myself the caring and tenderness I need.

When I'm feeling down, I tend to feel like most other people are probably happier than I am.

When something painful happens I try to take a balanced view of the situation.

I try to see my failings as part of the human condition

When I fail at something that's important to me, I tend to feel alone in my failure.

I try to be understanding and patient towards those aspects of my personality I don't like.

Bem Sex Role Inventory (Bem, 1974)

Q14 Indicate the degree to which each trait describes you on a scale from 1 (not at all) to 7 (extremely).

Acts as a leader

Aggressive

Ambitious

Analytical

Assertive

Athletic

Competitive

Defends own beliefs

Dominant

Forceful

Has leadership abilities

Independent

Individualistic

Makes decisions easily

Masculine

Self-reliant

Self-sufficient

Strong personality

Willing to take a stand

Willing to take risks

Adaptable

Conceited
Conscientious
Conventional
Friendly
Happy
Helpful
Inefficient
Jealous
Likable
Moody
Reliable
Secretive
Sincere
Solemn
Tactful
Theatrical
Truthful
Unpredictable
Unsystematic
Affectionate
Cheerful
Childlike
Does not use harsh language
Eager to soothe hurt feelings
Feminine
Flatterable
Gentle
Gullible
Loves children
Loyal
Sensitive to the needs of others
Shy
Soft spoken
Sympathetic
Tender
Understanding
Warm
Yielding
Compassionate

Appendix E

Manipulation Articles

Explicit Threat Article- Taken with some revisions from (Gupta, Turban, & Bhawe, 2008)

Steve Jobs and Donald Trump: Go Get 'em!
Business Leaders Show Characteristics of American
Masculinity, Harvard Study Shows by Chris Smith

BOSTON, MA. Professor Smith at Harvard University finds passion in studying leadership. A new study by researchers at Harvard University shows that most business leaders possess typically masculine characteristics and these characteristics help them succeed in their companies. “This study reaffirms prevalent American thinking about leadership,” said Chris Smith, Harvard professor of Business Management who conducted the study. Hundreds of new and established successful business leaders were examined as part of the study. The researchers found that though one does not have to have all three of the vitally important characteristics to become or succeed as a business leader, the more one has in common with these characteristics, the closer the person is to being ready to take on the lead role in the company.

Leaders are aggressive. Business leaders are born fighters and have aggression in their blood. As one successful manager famously said, “I wanted to become a leader of *xyz company* and if I had to step on somebody to become successful, I swear to God I was ready to stomp on the guy.” They will do anything to achieve their objective.

Leaders are risk takers. Business leaders take risks by launching new ventures under great uncertainty and, often, with limited resources. Not only this, most successful leaders tend to engage in risk-taking activities even outside business. For example, one successful manager likes to go bungee jumping, another has a passion for high-speed all-terrain motorbike racing, and yet another gets an adrenaline rush by hunting for sharks.

Leaders are autonomous. Business leaders do not count on getting support from others and believe that everybody is looking out for themselves. They believe that they alone control their destiny and no one else can tell them what to do or how to do it. Many successful leaders claim, “I do not have any supporting family or friends. The credit for what I have goes only to me and no one else.”

The research findings were not surprising, Smith said, as they confirmed what Americans have believed all along—so far as leadership is concerned, it pays to have masculine characteristics. The study will appear in an upcoming issue of *International Journal of Business Management*.

*Threat Nullification Article***What Do Most Business Leaders Have in Common?
Findings of a Harvard Study by Chris Smith**

BOSTON, MA. Professor Smith at Harvard University finds passion in studying leadership. A new study by researchers at Harvard University shows that most business leaders possess characteristics that are both masculine as well as feminine and that these characteristics help them succeed in their companies. “This study reaffirms prevalent American thinking about leadership,” said Chris Smith, Harvard professor of Business Management who conducted the study. Hundreds of new and established successful business leaders were examined as part of the study. The researchers found that though one does not have to have all three of the vitally important characteristics to become or succeed as a business leader, the more one has in common with these characteristics, the closer the person is to being ready to take on the lead role in the company.

Leaders are creative. Business leaders explore new ideas that will allow their businesses to grow and succeed. As one successful manager said, “I wanted to become a leader of *xyz company*, so I proposed a cutting-edge way to handle customer complaints. The company implemented my idea and it led to increased customer satisfaction ratings. I received a big promotion because of my originality.”

Leaders are well-informed. Business leaders constantly monitor how their company is running and how it compares to similar businesses. They research upcoming trends in the field and economy. A successful manager explained, “Around the clock I find myself reading department updates, tracking our stock, and scanning market research reports.”

Leaders are steady. Business leaders are dependable and remain levelheaded, even in times of crisis. Their employees, investors, and customers trust them to provide excellent products and work environment. Many successful leaders claim, “I aim to always follow through on my promises and accept responsibility when I cannot.”

The research findings were not surprising, Smith said, as they confirmed what Americans have believed all along—so far as leadership is concerned, it pays to have both masculine and feminine characteristics. The study will appear in an upcoming issue of *International Journal of Business Management*.

*Implicit Threat Article***Feeling Frazzled? Utilize These Time Management Techniques
Findings of a Harvard Study by Chris Smith**

BOSTON, MA. Professor Smith at Harvard University finds passion in studying time management. A new study by researchers at Harvard University shows that most effective business people use specific strategies to manage their time. “They are able to get more things accomplished in less time,” said Chris Smith, Harvard professor of Business Management who conducted the study. Hundreds of new and established business people from several companies were examined as part of the study. The researchers found that though one does not have to use all three of the vitally important strategies to succeed at time management, the more strategies one utilizes, the more likely one can achieve all required work tasks as well as maintain a flourishing personal life.

Set Goals. Successful employees tend to set both short and long term goals. As one businessperson from xyz Company stated, “I jot down in my journal all the things I hope to achieve each year, both in my career and for my life in general, with specific action steps. It helps keep me motivated and on track. I feel so proud of myself when I get to check off something that I accomplished or even one step on the way to a large goal.”

Make a Schedule. It is important to create a schedule. Having one place where all assignments, meetings, and other activities and important dates are located makes it easy to stay organized and generally is more efficient. One businessperson noted, “Since I have everything scheduled in my phone, I don’t have to waste time or mental energy trying to remember what I am supposed to be doing at any given time or searching desperately for that sticky note with my appointment date.”

Prepare for the Unexpected. Plan ahead knowing that things, good or bad, may pop up out of nowhere. In your schedule leave some timeslots free, so you can take care of these surprise events or assignments without feeling overwhelmed. As one businessperson said, “I have learned to leave 1 to 2 hours open in my schedule every day. You never know when you might get asked to take on an extra work assignment or invited to dinner with a few friends.”

The research findings were not surprising, Smith said, as they confirmed what most Americans have believed all along—so far as time management is concerned, it pays to do it effectively. You can get more things done in less time and can maintain a great work-life balance. The study will appear in an upcoming issue of *International Journal of Business Management*.

Appendix F

Participant Role Assignment and Description

You are now ready to move on to the workplace simulation task in which you will be working with a partner to complete a job.

You have been randomly selected to be the _____ (manager or employee). [*Note: all participants were managers.*]

On the next page, managers saw task directions:

Managers:

As a manager, it will be your job to inform your employee about the task and lead him or her through it. When you finish reading these directions, please leave the room and get the researcher. Inform the researcher that you were selected as the manager. He or she will then provide you with directions for building a LEGO set and the box of LEGOs. The researcher will then lead you to the “office” where you will sit. Once both you and your employee are seated, the researcher will turn on the video cameras and leave the room. As soon as he or she leaves, you can start. You will have 10 minutes to complete the task. When you have completed the task, get the researcher immediately. The researcher will come and get you if you have exceeded the 10-minute time limit.

Job Summary

- You are the manager.
- You need to describe the task to your employee and lead them through it. They have not been provided a description of the task.
- DON'T show the directions you were given to your employee. ONLY you as the manager can view the directions.
- You CAN'T touch the LEGO pieces or point to the pieces. Your employee CAN hold up pieces to confirm that he or she has the correct ones.
- You have 10 minutes to complete the task. When you finish, you need to get the researcher immediately. If you pass the 10-minute limit, the researcher will come and get you.
- You will be measured on your leadership ability and the ability to have as much of the task completed correctly as possible in a timely manner.

Managers saw at the end of their directions:

Please make sure you have read and understood the job you have been assigned. By clicking next, you are acknowledging that you understand your job in the next task.

Appendix G

Confederate Protocol

Workplace Simulation Study

You are the employee in the interaction task. As an employee, it will be your job to follow the directions provided by your manager in order to complete a task of building a Lego set. After you have reviewed your job description, the researcher will lead you to the “office” where you will sit. Once both you and your manager are seated, the researcher will turn on the video cameras and leave the room. As soon as he or she leaves, the task will start. Your manager will provide you with all further directions.

Job Summary

- You are the employee.
- You will receive task instructions from your manager. As a confederate, act as though you did not know what the task entailed (i.e. Building LEGOs). The manager is under the impression that you do not know anything about the task.
- Please follow the directions given by your manager.
- You will be measured on your ability to complete the task in a timely manner.

REMEMBER: BE YOURSELF AND ACT LIKE YOU WOULD NORMALLY. PARTICIPANTS BELIEVE YOU ARE ANOTHER PARTICIPANT.

DO NOT START TALKING TO THE RA LIKE YOU KNOW THEM. PARTICIPANTS MAY BECOME SUSPICIOUS OF YOUR INVOLVEMENT.

IF PARTICIPANTS START SHOWING SIGNS OF DISTRESS, GET THE RA IMMEDIATELY.

Appendix H

Final Questionnaire

Q1 What job were you assigned to for the interaction task? (selected option)

- Manager
- Employee

Q2 For the following questions provide a rating on a scale from 1 (Not at all) to 7 (Extremely).

- I was satisfied with being assigned to the manager position.
- I would have rather been assigned to be the employee.
- I performed well as the manager.
- I fulfilled the job responsibilities that were described to me.
- I am content with how well I performed.
- I tried to fulfill my job responsibilities to the best of my ability.
- I would deserve a promotion or special recognition if this were a real work environment.
- My employee and I worked well together.
- I communicated well with my employee.
- It was difficult to know what to say to my employee.
- I was an effective leader.
- I felt like I burdened our group.
- I felt like I kept the group from achieving its goal.
- The task would have been done better with another female leader.
- The task would have been done better with a male leader.
- I described the task goals and rules thoroughly to my employee.
- I provided detailed descriptions of the pieces and how to put them together.
- I provided feedback to my employee when he or she picked the wrong piece or placed it in the wrong place.
- I provided feedback to my employee when he or she picked the right piece and placed it correctly.
- To what extent do you care what your employee thought about you?
- To what extent did you try to make a good impression on your employee?
- Did you feel like you made a positive impression on your employee?
- How concerned were you with managing how you came across during the task?
- I complimented my employee in order to be seen as likable.
- I praised my employee when they placed pieces correctly in order to be seen as a nice person.
- I tried to make my employee aware of my talents or qualifications to be a leader.
- I tried to appear intimidating in order to get the task completed.
- I pretended not to understand the task in order to gain sympathy from my employee.
- I tried to appear masculine.
- I tried to appear feminine.

Q3 For the following questions provide a rating on a scale from 1 (None) to 7 (Complete).

How much control did you feel that you had during the interaction task?

How much control did you feel that you had over what your employee thought about you?
I tended to dominate the conversation.
My employee followed my directions
I felt like the boss during the task.

Q4 Indicate how you felt during the interaction task on a scale from 1 (not at all) to 7 (extremely). I felt...

Competent
Competitive
Confident
Warm
Likable
Sensitive
Decisive
Understanding
Motivated
Enthusiastic
Charismatic
Powerful
Intelligent
Clever
Attractive
Demanding
Under pressure
Humiliated
Inferior
Like a burden
Discouraged
Tense
Nervous
Calm
Uncomfortable
Aggressive
Autonomous
Supportive
Creative
Well-informed
Steady
Dependable
Understood
Adaptable
Friendly
Helpful
Inefficient
Willing to take risks

Displeased with myself

Q5 Indicate how you think your employee sees you on the following traits by marking anywhere along each of the scales below: (9-point bipolar scale)

unfriendly:friendly

warm:cold

unlikable:likable

competent:incompetent

unintelligent:intelligent

foolish:wise

ethical:unethical

moral:immoral

bad:good

unselfish:selfish

humble:conceited

self-centered:other-centered

feminine:masculine

Q6 Use the scale below to rate your pain (1 means 'no pain' and 10 'worst pain imaginable').

How much pain did you experience during this interaction task?

Q7 Use the scale below to rate your pain (1 means 'neutral' and 10 'extremely unpleasant').

How unpleasant was this pain during this interaction task?

Q8 What are your career aspirations? (open response)

Q9 For the following questions provide a rating on a scale from 1 (Not at all) to 7 (Extremely).

How likely is it that you will achieve your career goals?

Leadership skills are important to my future career goals.

I want to take on more roles that require leadership in the future.

I have a genuine interest in having leadership positions.

I hope to obtain a position of leadership in my future career.

Evaluation of your Employee

Q10 For the following questions provide a rating on a scale from 1 (Not at all) to 7 (Extremely)

I think my employee was satisfied with his or her position.

I think my employee would have rather been assigned to the manager position.

My employee performed well.

My employee followed the instructions I provided.

My employee seemed content with how well he or she performed.

My employee would deserve a promotion or special recognition if it were a real work environment.

My employee communicated with me well.

My employee selected the right pieces.

My employee put together the pieces the way I told him or her to.

My employee listened and responded accordingly to my feedback.

My employee was a burden to our group.

My employee prevented us from reaching our goal.

I would have chosen a different employee if I had the choice.

My employee tried to make a good impression on me.

My employee made a positive impression.

I would avoid working with my employee in the future.

I would want to work with my employee again in the future.

Q11 Indicate how you felt about your employee during the interaction task on a scale from 1 (not at all) to 7 (extremely). My employee was...

Competent

Competitive

Confident

Warm

Likable

Sensitive

Decisive

Understanding

Motivated

Enthusiastic

Charismatic

Powerful

Intelligent

Clever

Attractive

Demanding

Under pressure

Humiliated

Inferior

Discouraged

Tense

Nervous

Calm

Uncomfortable

Aggressive

Autonomous

Supportive

Creative

Well-informed

Steady
 Dependable
 Understood
 Adaptable
 Friendly
 Helpful
 Inefficient
 A burden
 Willing to take risks
 Displeased with self

Q12 Give your honest impression of your employee by marking anywhere along each of the scales below: (9-point bipolar scale)

unfriendly:friendly
 warm:cold
 likable:unlikable
 competent:incompetent
 unintelligent:intelligent
 foolish:wise
 ethical:unethical
 moral:immoral
 bad:good
 unselfish:selfish
 humble:conceited
 self-centered:other-centered
 feminine:male

Q13 Imagine for a moment that you were face-to-face with your employee. How tempted would you be to do each of the following behaviors towards him or her? Note that we are not asking whether you would have actually done each behavior, but rather the degree to which you would have been tempted (or had the urge) to do each one. Use the scale below to indicate your response. not at all tempted (1) to very tempted (9)

Smile at them
 Show interest in what they said
 Humiliate them in front of others
 Purposely ignore them
 Make them feel good
 Insult or swear at them
 Shout or yell at them
 Try to make them laugh
 Throw something at them that could hurt them
 Compliment them
 Put them at ease
 Push or shove them

Treat them nicely
Slap them
Show that you enjoyed talking to them
Threaten to hit or throw something at them

Q14 Employee's Gender: (selected response)

Male
Female

Evaluations of the Task

Q15 For the following questions provide a rating on a scale from 1 (Not at all) to 7 (Extremely).

I enjoyed the interaction task.
I found the task to be challenging.
I feel my performance on the task is reflective of my abilities.
I felt as though I was in a real work environment during the task.
The video cameras were distracting.
The LEGO directions were easy to understand.
The LEGO model was difficult to build.
I would like to do the task again.
I would describe the task of building LEGOs as masculine.
I would describe the task of building LEGOs as feminine.

Demographics and Final Questions

Q16 Your Gender: (selected response)

Male
Female

Q17 Your Age: (open ended)

Q18 How would you describe yourself (select all that apply):

Caucasian/White
African-American (Black)
Asian-American/ Asian (including the Indian subcontinent)
Hispanic/Mexican American/Latino
Native American, Alaska Native
Other

Q19 I have been employed (paid or volunteer) for _____ years.

Q20 I have held a leadership position (paid or volunteer) for _____ years.

Q21 I would classify my LEGO building experience level as: (selected response)

No Experience

Novice/Beginner
 Intermediate
 Advanced
 Expert

Q22 Which of the following traits or strategies were discussed in the article you read? (selected response)

Honest, Passionate, Helpful
 Creative, Well-informed, Steady
 Risk Taker, Aggressive, Autonomous
 Set Goals, Make a Schedule, Prepare for the Unexpected

Q23 What was the main idea of the article you read? Select the best answer.

It is most important to have masculine characteristics to be an effective leader
 It is most important to have feminine characteristics to be an effective leader
 It is important to have both masculine and feminine characteristics to be an effective leader.
 Time management is important to be successful at work and school.

Q24 For the following statements, rate your agreement on a scale from 1 (strongly disagree) to 9 (strongly agree):

Males are more likely to possess the same traits as effective leaders.
 Some people think that I have less ability as a leader because of my gender.
 In leadership roles, people of my gender are often viewed as poor performers.
 Both men and women can be effective leaders.
 People of the same gender as me lack the right traits to be successful.

Q25 Did you know your employee before today? (selected response)

Yes
 No

Answered if Yes was Selected

Q26 On a scale from 1 (not at all) to 7 (very well):

How well do you know him or her?

Answered if Yes was Selected

Q27 On a scale from 1 (very negative) to 7 (very positive):

What is your view of him or her in general?

You are now finished. Thank you for participating! Please submit your survey and get the researcher.

Appendix I

Confederate Questionnaire

Participant Number: _____

Confederate Number: _____

For the following questions, provide a rating from 1 (Not at all) to 7 (Extremely).

- _____ 1. My manager was an effective communicator.
- _____ 2. My manager performed well.
- _____ 3. My manager and I worked well together.
- _____ 4. My manager made for an effective leader.
- _____ 5. My manager tried to complete the task correctly and in a timely manner.
- _____ 6. My manager would deserve a promotion or special recognition if this were a real work environment.
- _____ 7. It seemed difficult for my manager to know what to say.
- _____ 8. I would want to work with my manager again in the future.
- _____ 9. I would avoid working with my manager in the future.
- _____ 10. I would have preferred to work with someone else.
- _____ 11. I found the task challenging.
- _____ 12. I enjoyed the task.
- _____ 13. I tried to follow the directions of my manager to the best of my ability.
- _____ 14. The LEGO model was difficult to build.
- _____ 15. My manager did not communicate clearly.
- _____ 16. My manager made me feel confused.
- _____ 17. My manager knew what to do to effectively make the LEGO.
- _____ 18. I enjoyed working with my manager.

Give your honest impression of your partner by marking an X anywhere along each of the scales below:

- unfriendly : _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : friendly
- warm : _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : cold
- unlikeable : _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : likeable
- competent : _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : incompetent
- unintelligent : _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : intelligent
- foolish: _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : wise
- ethical: _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : unethical
- moral: _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : immoral
- bad : _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : good
- unselfish : _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : selfish
- humble : _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : conceited
- self-centered : _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : other-centered
- feminine : _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ : masculine

On a scale from 1 (not at all) to 7 (extremely), my manager was:

- _____ 1. Competent
- _____ 2. Competitive
- _____ 3. Confident
- _____ 4. Warm
- _____ 5. Likeable
- _____ 6. Sensitive
- _____ 7. Decisive
- _____ 8. Understanding
- _____ 9. Motivated
- _____ 10. Enthusiastic
- _____ 11. Charismatic
- _____ 12. Powerful
- _____ 13. Intelligent
- _____ 14. Clever
- _____ 15. Attractive
- _____ 16. Demanding
- _____ 17. Under Pressure
- _____ 18. Discouraged
- _____ 19. Tense
- _____ 20. Nervous
- _____ 21. Calm
- _____ 22. Uncomfortable
- _____ 23. Aggressive
- _____ 24. Autonomous
- _____ 25. Supportive
- _____ 26. Creative
- _____ 27. Well-informed
- _____ 28. Steady
- _____ 29. Dependable
- _____ 30. Understood
- _____ 31. Adaptable
- _____ 32. Friendly
- _____ 33. Helpful
- _____ 34. Inefficient
- _____ 35. A burden
- _____ 36. Willing to take risks
- _____ 37. Displeased with self

Appendix J

Debriefing Form

Workplace Simulation Study

Thank you for participating! The purpose of this study is to explore how female leaders under stereotype threat communicate and perform in a simulation where they must lead another person through a task. We are also interested in seeing how stereotype threatened female leaders perceive themselves and their interaction partners, as well as how their partners perceive their leader.

Stereotype threat occurs when a person becomes aware of a stereotype for a group that he or she belongs to, which has to do with that group's inability to perform well on a given task. Then when placed in a situation where he or she has to perform the stereotype relevant task, he or she feels threatened by the potential to confirm the stereotype and performance is effected (Hoyt, Johnson, Murphy, & Skinnell, 2010).

All participants were assigned to the manager role and interacted with a confederate (not a real participant), serving as the employee, for the workplace simulation task. You were randomly assigned to a stereotype threat, threat nullification, or control condition. Participants in the threat condition read an article that showed evidence that masculine characteristics are important for effective leadership, while those in the nullification condition read an article that provided evidence that both masculine and feminine characteristics are important for effective leadership. The control condition participants read an article unrelated to gender and leadership. All articles were fabricated. The purpose of the stereotype threat article was to make participants aware of a negative stereotype associated with a group to which they belong (women having poorer leadership ability compared to men) and ask them to complete a task where they would be evaluated on their effectiveness (being an effective leader during the LEGO task).

We expect women under stereotype threat to show a more masculine communication style, have better task performance, rate themselves less favorably, and receive less favorable ratings from their partners. We also expect the stereotype threatened women to identify more with the belief that men make better leaders. We expect this heightened belief in the stereotype to result in more masculine communication, better task performance, and more negative perceptions of the self and partner.

We appreciate you participating in this study and being willing to play along in the workplace simulation task. We hope that you enjoyed your experience and learned something about yourself!

Here are some additional readings on stereotype threat and research showing that both men and women make effective leaders:

Eagly, A. H. & Carli, L. L. (2003). The female leadership advantage: An evaluation of the evidence. *Leadership Quarterly*, 14, 807-834.

Rosette, A. S. & Tost, L. P. (2010). Agentic women and communal leadership: How role prescriptions confer advantage to top women leaders. *Journal of Applied Psychology*, 95, 221-235.

Schmader, T. (2010). Stereotype threat deconstructed. *Current Directions in Psychological Science*, 19, 14-18.

Please do not discuss or reveal the study tasks and hypotheses with any potential participants. Doing so can skew or invalidate the data, in which case we would not be able to make substantial conclusions and contribution to the literature.

If you think of any questions, if you have any concerns about this project, or if you want to know how the results turn out, please contact Samantha Snyder at _____ or Dr. Ashley Allen, Building 51/3213, email _____. If you have questions about your rights as a participant, you can also contact Dr. Katherine Kasten, UNF Institutional Review Board, _____. If after participating you feel as though you have suffered emotionally or psychologically please visit the Counseling Center here on campus, Building 2, Founders Hall, Room 2300 where services are free and strictly confidential (904) 620-2602.

Appendix K

Researcher Protocol

1. Check Sona for participant sign-ups during your availability.
 - a. Double check for cancelations close to the study time.
 - b. Text and/or email confederate to notify of cancellation.
2. Arrive to lab 10-15 minutes before participants are due to arrive.
3. Set up lab for study.
 - a. Secure room and unlock.
 - b. Turn on computer (nearest wall) and load informed consent form page for participant
 - c. Check on list for Lego to be used. [Do NOT want an overlap of numbers and need to have randomized Lego model] Check to make sure confederate did not already build model. Cross off number on list. Take with you Lego and card for it.
 - d. Grab the participant cards with numbers (and confederates). Participants are A and confederates are B for same number.
 - e. Set up the cameras (don't turn on yet)
 - f. Have debriefing form, confederate survey, confederate protocol sheet, Lego survey, and copy of this protocol ready and take with you. Record Lego # and Confederate # (not "participant #" on card, but on other note card in protocol section of folder) on confederate survey at top.
4. Meet participant at designated location (by water fountain across from elevators).
 - a. Check to make sure name matches to Sona sign-up.
 - b. If participant is 15 minutes late, DO NOT start them.
5. Bring participant into lab and seat them at computer nearest the wall.
 - a. Inform them: "Please read the informed consent form. I am available to answer any questions you may have. If you agree to participate, please enter your full name and N-number to indicate consent. After, you will be redirected to the initial survey. The survey will indicate when to come get me for the next task."
 - b. Give the participant the note card with participant #.
6. Wait for participant to come to you.
 - a. The participant will inform you that they have been selected to be the "manager" in the next task. If they do NOT say anything, ask her: "What role were you assigned to for the next task?"
 - b. If the participant is still on the initial survey at 35 past the hour, DO NOT continue the study. [Don't want to back up participants]
7. Seat the participant in the interaction room in chair furthest from computers and nearest blank wall.
 - a. Hand the participant the Lego directions. Inform them which model they are to build (have the directions opened to that page). Provide note card with Lego info.
 - b. Dump Legos out on the side for the confederate.
 - c. You can say "We will now wait for the other participant to finish the first part and then I will bring him or her into the room. You will then be able to start."
8. Get the confederate from designated waiting spot (couches).

- a. Have him or her read their instructions for a review. Hand note card with participant number.
 - b. Seat the confederate in the interaction room in chair nearest computers.
9. Turn on both cameras and hit record.
 - a. Check camera angle and focus. Make sure participants will stay in view even if they move a little.
 - b. Have both the participant and confederate hold up their cards with participant number displayed to their designated camera. Also have participant hold up the Lego card.
 - c. Say: "Reminders about your role are on the partition in front of you. If you finish before 10 minutes, please come get me. I will come stop you if you exceed the 10 minutes."
10. Leave interaction room.
 - a. Start a timer immediately after leaving (using cell phone or stop watch).
 - b. Wait for participant to come to you. Stop the timer when she opens the door to come get you. If more than 11 minutes pass, go into the room and stop the interaction.
 - c. Have confederate hold up the Lego model to camera. Try to get from several angles.
11. Stop the camera from filming and then shut off both cameras.
12. Tell the participant to go back to their computer to complete the final survey. Grab and take with you the Lego and scoop extra pieces into container. Lead confederate back to couches and give them confederate survey to fill out (paper).
13. While waiting for them to finish, grab the LEGO and complete LEGO survey.
 - a. Store all pieces and directions in container.
14. Once participant finishes, she will come get you. Bring her back into the room and hand her a debriefing form to read.
 - a. Ask if she has any questions and answer them
 - b. Tell her she can keep a copy of the form if she desires, but she needs to be careful with the information on it. Tell her not to allow anyone who could become a participant to see it.
 - c. Thank her for participating and respectfully ask that she does not discuss the study with others, especially about the confederates and Legos.
15. Confederates will bring you their completed survey and they are free to go. Thank them for their time.
16. Clean up.
 - a. Store cameras, Legos, and all forms in cabinet and lock it (hide key). Keep tripods up.
 - b. Shut down or log off computer, but first check to make sure they submitted the survey (it is not still on last page).
 - c. Lock up room. THANK YOU!

If participant becomes distressed during the experiment:

- Medical Emergency- call 911
- Severe Stress or Psychological Symptoms- either refer them to the counseling center or walk them there (info is on bottom of debriefing form)

- Report ANY out of the ordinary things that occur to Samantha Snyder or Dr. Allen immediately.

REMEMBER:

- Participants have the right to stop participating at ANY point. Do not try to persuade them to stay or say something to make them feel bad for leaving.
- We must keep participant information confidential. Do not discuss what happens during a participant's time slot with anyone outside of lab. Do not include participants' names on any document.
- Do not start chatting with confederates during the experiment because the walls are thin and we do not want participants to become suspicious that the confederate is not a real participant.

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Samantha Haley Snyder

EDUCATION

- 2013 **University of North Florida**
M.A. General Psychology
- 2011 **University of Central Florida**
B.S. Psychology
B.A. Sociology, *Honors in Major*
Summa Cum Laude
- 2008 **Valencia Community College**
A.A. General Studies

RESEARCH EXPERIENCE

- 2011-2013 **Self, Well-Being, & Social Behavior Lab**
Graduate Research Assistant
- Advisor: Dr. Ashley Batts Allen
- 2010 **Sociology Honors Thesis, Burnett Honors College**
- Advisor: Dr. David A. Gay
 - Title: Impact of Sport Participation on Academic Achievement
- 2009-2010 **Productivity Measurement and Enhancement System Lab**
Undergraduate Research Assistant
- Advisor: Dr. Robert Pritchard
- 2008-2009 **Senior Research Project**
- Advisor: Dr. Amy Donley
 - Title: Littering Behaviors Among College Students

TEACHING EXPERIENCE

- 2012-2013 **University of North Florida Department of Psychology**
Graduate Teaching Assistant for Research Methods Lab
- 2012-2013 **Kelly Educational Staffing**
Substitute Teacher

SELECTED PRESENTATIONS

- Snyder, S. H., Allen, A. B., & Wirth, J. (2013). *Women in charge: Performance and appraisals under stereotype threat*. Symposium presentation at the S.O.A.R.S. Conference at University of North Florida, Jacksonville, FL.
- Snyder, S. H., Walsh, J., & Allen, A. B. (2013). *Perceptions of Prejudice and Emotional Responses in Group Interactions*. Poster presented at the Society for Personality and Social Psychology Conference, New Orleans, LA.
- Snyder, S. H., Walsh, J., & Allen, A. B. (2012). *Self-presentation and prejudice: Examining impression management strategies in group scenarios*. Poster presented at the S.O.A.R.S. Conference at University of North Florida, Jacksonville, FL.