

THE INFLUENCE OF PRIMED SOCIAL  
ROLES ON GENDER DIFFERENCES  
IN CONFORMITY

by

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A DISSERTATION

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## ABSTRACT

An examination of the literature on gender differences in conformity reveals a string of inconsistent results (e.g., Cooper, 1979; Eagly, 1978; Eagly & Carli, 1981). Some studies support the idea that women conform more than men, while other studies find no gender differences. The current research examined the influence of participant gender, primed social roles, and gender role on conformity. It was hypothesized that women would conform more when primed with a communal social role compared to an agentic social role or a neutral prime, while men would conform less when primed with an agentic social role compared to a communal social role or a neutral prime. Studies 1 and 2 provided tests of the manipulations to be used in the primary studies. Study 3 primed social roles using a writing prime. The results revealed that individuals with gender-incongruent gender roles (i.e., masculine women and feminine men) exhibited more conformity on one item. However, the results did not support the primary hypothesis. Study 4 was a conceptual replication of Study 3 using a questionnaire prime. The results did not support the primary hypothesis, however an unexpected pattern of conformity emerged. Individuals with gender-incongruent gender roles showed an atypical pattern of conformity behavior when they were primed with an agentic social role. On one item men and women with gender-incongruent gender roles conformed more, whereas on two items, men with feminine gender roles conformed less than other groups. These results highlight the importance of examining gender roles in future conformity research. Overall, the results support recent research that indicates a subtle change in women's gender roles (Diekmann & Eagly, 2000; Diekmann & Goodfriend, 2006).

## LIST OF ABBREVIATIONS AND SYMBOLS

e.g.	Exempli gratia or for example
i.e.	Id est or that is
$d$	Cohen's $d$ effect size measure
v.s.	versus
PAQ	Personal Attributes Questionnaire
$F$	Fisher's $F$ ratio
$p$	Probability associated with the occurrence under the null hypothesis of a value at least as extreme as the observed value
=	Equal to
$M$	Mean
$SD$	Standard deviation
$t$	Computed value of a $t$ -test
$\alpha$	Cronbach's Alpha reliability coefficient
$\eta^2_p$	Partial eta squared effect size measure
Wilk's $\lambda$	Wilk's Lambda multivariate test statistic
MANOVA	Multivariate analysis of variance
ANOVA	Analysis of variance

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## INTRODUCTION

A review of the literature on gender differences in conformity reveals a series of inconsistent results across studies (e.g., Collin, Di Sano, & Malik, 1994; Eagly, Wood, & Fishbaugh, 1981; Endler, 1966; Follingstad, 1979; Maslach, Santee, & Wade, 1987; Maupin & Fisher, 1989; Reysen & Reysen, 2004; Santee & Jackson, 1982; Sistrunk & McDavid, 1971) and meta-analyses (Cooper, 1979; Eagly, 1978; Eagly & Carli, 1981). While most researchers argue that there is little evidence to suggest that women *always* conform more than men, most researchers find at least some evidence to support the idea that women conform more than men *sometimes* or in *some* situations. The purpose of this research is to further examine the inconsistency in gender differences reported in the literature and, specifically, to determine how the activation of social roles moderates gender differences in conformity.

Although the results are mixed on whether or not women conform more than men, even the expectation that women are more likely to conform than men may have negative implications for women. This is particularly true for women in managerial roles and other traditionally masculine roles. In many situations, individuals who engage in conformity behavior are viewed as lacking leadership potential. People expect leaders to have dominant or assertive leadership styles and conforming to the behaviors and opinions of others is in direct contrast to such expectations (Eagly & Chin, 2010; Eagly and Karau, 2002). Regardless of actual behavior, the mere expectation of increased conformity in women may lead to the perception that they lack leadership potential. Although women make up about fifty percent of the labor force, they are less likely than men to fill upper management positions (Catalyst, 2008; Department of Labor

Women's Bureau, 2008; Federal Glass Ceiling Commission, 1995). The expectations that women are more likely to conform than men may be one factor that facilitates the perpetuation of the gender gap in upper management positions. That is, women may be absent from upper management positions because they are perceived to lack important qualities of leadership (i.e., assertiveness and dominance). The purpose of this research is to identify whether or not gender differences in conformity are reliable as well as help to identify particular situations in which women are likely to engage in higher rates of conformity. In particular, if women are particularly likely to conform when primed with a communal gender role, there is some reason to believe that social role prescriptions are influencing women's conformity behavior. Additionally, much of the research on gender differences in conformity is dated, so this research will provide a more contemporary analysis of this research question, which may have important implications for women in the modern workplace.

#### *Definitions and Terminology for Primary Constructs*

Conformity is defined as a change in behavior to match the beliefs, expectations, or behaviors of a real or imagined other (Cialdini & Trost, 1998). In a typical conformity paradigm, individuals are presented with a belief or attitude that is inconsistent with their current view. The belief or attitude is held by an influence agent, either another individual or more commonly a group, and is devoid of any supporting arguments. Participants make the decision to either change their belief or attitude to match that of the influence agent (conformity) or choose an attitude or belief from a selection of other possible alternatives (dissent; Eagly, 1978). The decision to conform or dissent is either made in the presence of or under the alleged surveillance of the influence agent (group pressure) or made in private (no group pressure).

This research will examine gender differences in conformity and its relationship to different social role expectations for men and women. While much of the literature reviewed in this paper has referred to the differences in conformity as sex differences, the term gender will be used as opposed to sex. Sex refers to the biological and physiological characteristics related to being male or female while gender refers to the non-biological aspects (e.g., social and cultural expectations) of being a man or woman (Unger, 1979). Although several of the authors whose work is reviewed below have referred to the differences in conformity behavior as sex differences, much of the research was conducted prior to the emphasis on differentiating biological sex from gender. Because the differences in conformity have been mostly explained in terms of social role expectations of men and women, the term gender will be used as opposed to sex and man and woman will be used as opposed to male and female.

An additional ambiguity in the literature is the differentiation of masculinity and femininity from agency and communion. Masculinity and femininity are multifaceted constructs that represent individuals' gender roles within society including attributes, traits, behaviors, occupations, interests, concerns, and physical appearances related more to being male or female (Deaux & Lewis, 1984; Helgeson, 1994; Spence, 1993). Masculinity and femininity have been demonstrated to be independent constructs, but are also related (Deaux & Lewis, 1984). The main focus of this research will be on two specific attributes related to gender roles – agency, which is a focus or orientation toward the self, and communion, which is a focus or orientation toward others (Helgeson, 1994). Both men and women possess agentic and communal traits. However, social roles dictate that men should be more agentic, while women should be more communal. Although there are subtle conceptual differences between masculinity and femininity and agency and communion, these concepts are typically used interchangeably in the literature

(Helgeson, 1994; Helgeson & Fritz, 1999). This research focuses primarily on the attributes of agency and communion, so these terms will primarily be used. Masculinity and femininity will be used only when referring to more global manifestations of being male or female.

#### *Meta-Analyses of Gender Differences in Conformity*

An early meta-analysis by Eagly (1978) used a tally method to compare the total number of studies that reported significant gender differences in conformity to the total number of studies that reported null findings. In this meta-analysis, the author differentiated between the presence and absence of group pressure when examining overall gender differences. There were 61 conformity studies with group pressure, 38 (62%) of which reported no gender differences, 21 (38%) of which reported that women conform more than men, and 2 (3%) of which reported that men conformed more than women. While there were more studies in which women conformed more than did men than there were studies in which men conformed more than women, the majority of studies showed no gender differences. There were 22 conformity studies without group pressure, 19 (86%) of which reported no gender difference, 2 (9%) of which reported that women conform more than men, and 1 (5%) of which reported that men conform more than women. These results suggest that gender differences are more likely to appear in group pressure conformity contexts, however, the tally method may not provide an accurate picture of the results as it does not take effect size of the results into account.

Cooper (1979) made the first attempt to average the effect sizes of studies on gender differences in conformity. Articles from a previous literature review on gender differences in conformity (Maccoby & Jacklin, 1974) were utilized and an average effect size across the studies was calculated. The author differentiated between face-to-face studies in which individuals interacted with influence agents who were present (similar to group pressure) and fictitious

group norm studies that provided information from fictitious influence agents who were not present (similar to no group pressure) conformity experiments. There were 16 group pressure, or face-to-face, conformity studies. The overall effect size suggests that women conform more than men ( $d = .28$ ; *Fail-safe*  $N = 125$ ). There were eight conformity studies without group pressure, or fictitious group norms studies, and no overall effect for gender differences in conformity was found. This meta-analysis involved a small sample of studies and also only included published studies, which may have restricted the number of null effects that were included in the analysis.

A subsequent meta-analysis aimed to rectify the small sample size problem of the previously described meta-analysis by including more published studies (Eagly and Carli, 1981). The authors again differentiated between the presence and absence of group pressure. There were 64 conformity experiments with group pressure. The results revealed that across these studies, women conformed more than men ( $d = .14 - .32$ ; *Fail-safe*  $N = 1331$ ). There were 23 conformity studies without group pressure. The results revealed less conclusive evidence that women conform more than men ( $d = .01 - .26$ ; *Fail-safe*  $N = 17$ ).

The two meta-analyses that averaged the effect sizes of previous studies provided more support for the presence of gender differences in conformity particularly when group pressure was present. However, there are still a large number of studies that find null effects. The interpretations of the meta-analyses are further complicated because gender differences in conformity are often reported peripherally to the main findings of the studies (Eagly, 1978; Cooper, 1979) and thus, there is some variability both in examining and reporting these findings. Additionally, in studies reporting null effects, the authors are less likely to report the necessary test statistics required for effect sizes to be calculated. In addition to these meta-analyses, more recent studies have continued to show gender differences in conformity (Collin et al., 1994; Ellis,

Nel, & Van Rooyen, 1991; Larsen, 1990; Lee, 2006; Griskevicius, Goldstein, Mortensen, Cialdini, & Kenrick, 2006; Reysen & Reysen, 2004). However, there continues to be inconsistency in the examination and reporting of gender differences.

#### *Moderators of Gender Differences in Conformity*

Further understanding of gender differences in conformity can be achieved by examining possible moderating variables for these effects. Understanding moderators of gender differences in conformity provides more insight into the specific circumstances under which gender differences in conformity are, or in some cases are not, found. The following discussion is not exhaustive, but will present several possible moderating factors that have been examined in the literature.

*Group pressure.* As is evident from the results of the meta-analyses reported above, the presence of group pressure moderates gender differences in conformity. Nearly all studies make a distinction between whether or not the participant chooses their response in the presence or under the alleged surveillance of the influence agent. This factor can make a difference in both the amount of conformity found and the gender differences in conformity. Specifically, gender differences in conformity were more common in group pressure studies than in studies without group pressure (Cooper, 1979; Eagly, 1978; Eagly & Carli, 1981). Additional research manipulating group pressure has found gender differences in conformity such that women conform more than men in group pressure situations, but not under conditions when group pressure is absent (Eagly & Chvala, 1986; Eagly, Wood, & Fishbaugh, 1981). However, contrary to previous explanations of gender differences being driven by women conforming more, these effects appear to result from group surveillance decreasing the likelihood of conformity behavior in men (Eagly, Wood, & Fishbaugh, 1981). Men under surveillance showed

less conformity than women under surveillance and both men and women not under surveillance. Regardless of the causality of the difference, there is reasonable evidence to suggest that there is a gender differences in conformity under group surveillance. Thus, in order to detect and further examine and explain gender differences in conformity, group pressure or group surveillance should be utilized.

*Content of conformity stimuli.* Another aspect of the influence situation that moderates gender differences in conformity is the topic of the conformity stimuli. Specifically, individuals who have more knowledge in a given content area may be less likely to conform as they are more likely to recognize that the majority response is incorrect, more likely to possess confidence in their response, and subsequently less likely to conform. Masculinity and femininity of the content area have been heavily researched and have been found to moderate gender differences in conformity. Several studies have demonstrated that men conform more than women on feminine topics, while women conform more than men on masculine topics (Goldberg, 1975; Javorinsky, 1979; Karabenick, 1983; Maupin & Fisher, 1989; Sistrunk, 1972; Sistrunk & McDavid, 1971). These effects are strengthened when the gender of the influence agent matches the content of the conformity stimulus (e.g. men conform more on feminine topics, particularly when the influence agents are women; Javorinsky, 1979). It was originally postulated that the overall tendency of women conforming more than men may have been due to an overrepresentation of masculine stimuli in the literature (Sistrunk & McDavid, 1971). However, Eagly and Carli's (1981) meta-analysis revealed that no such bias exists. This research suggests that women may be particularly likely to conform when the topic of the conformity stimuli is masculine.

*Expertise of women.* Expertise of men and women has also been manipulated within the experimental context and found to moderate gender difference in conformity. In one study, participants in mixed-sex dyads were assigned to either a female superiority condition – in which the woman partner allegedly answered more questions correct on a general knowledge questionnaire – or to a female equality condition – in which the participants allegedly answered the same number of questions correct on the general knowledge questionnaire (Maupin & Fisher, 1989). Men were more likely to conform to the opinion of their woman partner in the female superiority condition compared to the female equality condition. Women, on the other hand, showed no differences in conformity to their male partner across conditions. In another study, participants were assigned to either a female superiority condition – in which women were said to be superior at the target task – or a male superiority condition – in which men were said to be superior at the target task (Follingstad, 1979). Women conformed more in the male superiority condition compared to the female superiority condition, while there was no difference for men. Thus, the expectations for performance can influence conformity. Specifically, if expectations of expertise for a particular gender are provided, the opposite gender is likely conform more based on those expectations.

*Sex of the manuscript authors.* Another moderating variable of gender differences in conformity is sex of the manuscript authors (Eagly & Carli, 1981). Specifically, within the group pressure context, the effect size of experiments with more male authors was large enough to be noticeable in our natural environment ( $d = .23-.32$ ) while the effect size of experiments with more female authors was a near null effect ( $d = .01-.02$ ). Additional analyses revealed a medium-sized, positive correlation between percentage of male authors on the manuscript and the effect size of the study. Similar effects were found when examining sex of the first author, although the

size of those effects was slightly smaller. Eagly and Carli (1981) hypothesized that authors of each sex may be responsible for the differences as both male and female authors want to represent their own sex in a positive light. That is, male authors may cast themselves and other males in a positive light by showing that they may not be as susceptible to conformity as females. However, females may not want to appear more prone to conformity than males, so they may be more likely to report non-significant findings. This is especially important considering that gender differences are often reported as tangential results in studies primarily examining other effects. Researchers ultimately make the decisions whether or not to test and report gender differences.

#### *Unanswered Questions in the Gender Differences and Conformity Literature*

Although the examination of gender differences in conformity has a long history in the literature, there are still a number of unanswered questions. Studies examining differences in conformity and dissent and studies examining the gender roles of the participants have yielded mixed effects and further inquiry is necessary to resolve these issues.

*Conformity versus dissent.* Although much of the focus in the literature has been on the idea that women conform more than men, some studies have also found that men tend to dissent more or conform less than women. Specifically, men have a tendency to conform less or dissent when they are under surveillance (Eagly, Wood, & Fishbaugh, 1981), when they can choose an equally positive, but different alternative (Maslach, Santee, & Wade, 1987), or when they have been primed with a mating motive (i.e., asked to think about meeting a desirable mate on vacation) and can be viewed in a positive light (i.e., a desirable, independent mate) by dissenting from the group (Griskevicius et al., 2006). This suggests that closer attention should be paid to the exact pattern of means in relation to an appropriate comparison group in order to discern

whether differences are being driven by a higher likelihood of women going along with the influence agent or higher likelihood of men going against the influence agent. Additional research examining conformity and dissent suggests that both conformity and dissent are related to social anxiety, individuation, and self-esteem (Santee & Maslach, 1982). This suggests that conformity may be less about the power of the situation and also may be more related to individual differences than previously postulated.

*Individual differences in gender roles.* Beyond gender differences, some researchers have considered the effects of gender roles on conformity (Goldberg, 1975; Maslach, Santee, & Wade, 1987; Maupin & Fisher, 1989). Gender roles are defined in terms of masculinity and femininity (Bem, 1974). Masculine people can be described as being assertive, aggressive, dominant, and independent. Feminine people can be described as being more cooperative, affectionate, submissive, and dependent. While the feminine characteristics are consistent with social roles for women and the masculine characteristics consistent with social roles for men, gender role theories suggest that individuals express both traits to varying degrees.

Some research has found that gender roles can predict conformity over and above gender. Specifically, this research found that masculine participants were more likely to dissent and feminine participants were more likely to conform, regardless of gender (Maslach, Santee, & Wade, 1987). Additionally, men and women high in femininity have both been found to conform more to masculine items, while men and women high in masculinity have been found to conform more to feminine items (Goldberg, 1975). Alternatively, other investigators found no effects for gender roles in predicting conformity over and above that of gender (Maupin & Fisher, 1989). However, this study had a small sample and also selected those who had more extreme scores on gender roles. It may be that those who are extreme in either masculinity or femininity may

produce different results. In any case, taking gender roles into account may be important in order to further understand gender differences in conformity.

### *Social Role Explanations for Gender Differences in Conformity*

Because gender differences in conformity are typically reported tangential to the primary hypotheses of the research being conducted (Cooper, 1979; Eagly, 1978), there has been less effort to examine the reasons underlying these differences. Several explanations for gender differences in conformity have been posited in the literature, but most are made post hoc and have not been empirically tested (e.g., see Eagly, 1978; Maupin & Fisher, 1989). Several authors propose explanations that allude to social roles leading to gender differences in conformity (e.g., Eagly, 1987; Reysen & Reysen, 2004), however very little work has empirically examined the relationship between social roles and gender differences in conformity.

Social role theory was generated based on the idea that men and women in our society have traditionally filled different roles (Eagly, 1987; Eagly & Steffen, 1984). Historically women have fulfilled the role of the nurturing caregiver, taking primary responsibility for domestic responsibilities and playing an inferior role in domestic decision-making. Men, on the other hand, fulfill the role of provider, taking primary responsibility for gaining financial resources for the family and typically play a superior role within the family structure. As women have entered the workforce, they fill more lower prestige, lower paying jobs than men (Department of Labor Women's Bureau, 2008). This suggests that women have a higher likelihood of filling subordinate roles both domestically and professionally. These social roles also influence expectations for social behavior. The expectations prescribe that both men and women should carry out behavior that is consistent with their social role. These roles suggest specifically that men should have more agentic goals (e.g. independence, assertion, task-orientation) while

women have more communal goals (e.g., selflessness, concern for others, relationship-focus; Bakan, 1966).

Related to gender differences in conformity, the communal role prescribes that women should develop a more submissive role relative to men; researchers have postulated that women will be more likely to yield to the social influence of others and thus more likely to conform (Eagly, 1978; Kerch, Crutchfield & Ballachey, 1962; Middlebrook, 1974; Reysen & Reysen, 2004). Similarly, it has been suggested that because the agentic role prescribes that men should be more independent, men may be more likely to dissent, or less likely to conform, when their social role is accessible (Eagly, Wood, & Fishbaugh 1981). Furthermore, some research suggests that the inconsistency in gender difference findings may result from the fact that social roles will only influence conformity when the participants have accepted their ascribed social roles (Eagly & Chrvala, 1986; Goldberg, 1975).

Although several studies use social roles as a post hoc explanation for the gender differences in conformity, very little research has explicitly examined how the social roles of agency and communion influence conformity. That is, the authors use the social roles framework to either justify their study or explain their results, but little research has attempted to determine how social roles actually influence gender differences in conformity. Johnson and MacDonnell (1974) proposed that the gender differences in conformity would diminish for individuals who accepted more progressive opinions of women. Results showed a negative correlation between conformity and attitudes toward women's rights, but only for men. Men who held more positive, progressive attitudes toward women were less likely to conform, however this difference was not shown for women. Further research operationalized rejection of traditional gender roles as having a gender role that was inconsistent with participant gender (i.e., women high in

masculinity and men high in femininity; Goldberg, 1975). Participants who rejected traditional gender roles conformed less than those who held traditional gender roles. While both of these studies suggest that endorsement of traditional gender roles may lead to more conformity in women and less conformity in men, no study has actually manipulated the salience of social roles in order to determine how the salience of social roles influences gender differences in conformity. There is some reason to suggest that the activation of social roles can lead to role-consistent behavior. Previous research has found that the activation of a norm can lead to norm-consistent behavior (Griskevicius et al., 2006), and thus we might expect the same for social roles.

### Proposed Research

The proposed research will further examine the impact of social roles on gender differences in conformity by making social roles (i.e., agency and communion) salient to determine how the activation of these roles influence subsequent conformity behavior in both men and women. This research will also measure gender roles (i.e., masculinity and femininity) in order to more fully understand how these individual differences influence the relationship between social roles and gender differences in conformity. Two studies provided tests of the manipulations to determine if the manipulations had the intended effects. The results from these two studies (i.e., Studies 1 and 2) are reported before the complete description of the primary studies (i.e., Studies 3 and 4). Based on the literature reviewed, the following hypothesis and research questions will be addressed and tested:

*Hypothesis 1.* Based on the speculation in the literature that social roles underlie gender differences in conformity behavior, it is hypothesized that there will be an interaction between participant gender and social role prime on conformity behavior. Specifically, based on the idea

that the communal role prescribes submissiveness (Eagly, 1978; Kerch, Crutchfield & Ballachey, 1962; Middlebrook, 1974; Reysen & Reysen, 2004), it is predicted that women will conform more when primed with a communal role compared to an agentic role or a neutral prime. That is, when the social role of communion is activated for women, they will be more likely to engage in role-consistent behavior. Similarly, based on the idea that the agentic role prescribes independence (Eagly, Wood, & Fishbaugh, 1981), it is predicted that men will conform less when primed with an agentic role compared to a communal role or neutral prime. That is, when the social role of agency is activated for men, they will be more likely to engage in role-consistent behavior.

*Research Question 1.* Past literature examining gender differences in conformity has shown inconsistent findings of gender differences (i.e., Cooper, 1979; Eagly & Carli, 1981). Thus, it is not clear whether women will conform more than men. Thus, research question 1 is as follow: Collapsed across other independent variables, do men and women differ in the extent to which they engage in conformity behavior?

*Research Question 2.* With regard to gender roles (i.e., masculinity and femininity), there is no specific prediction that can be made on how gender roles will influence conformity. Some research has found that that gender roles influence conformity behavior such that feminine individuals conform more than masculine individuals (Maslach, Santee, & Wade, 1987). However, other research has shown null effects (Maupin & Fisher, 1989). Thus, research question 2 is as follows: Do gender roles influence conformity behavior?

*Research Question 3.* In addition to the independent influence of gender and gender roles on conformity, it is also unclear how gender roles influence the relationship between gender and

primed social roles on behavior. Thus, research question 3 is as follows: How do gender roles influence the relationship between gender and primed social roles on conformity?

## STUDY 1 INTRODUCTION

Two initial studies were conducted to determine if the manipulations proposed for the primary research increased the salience of social roles as hypothesized. In the first primary study (i.e., Study 3), it was proposed that participants would be asked to write a short passage that was either intended to increase the salience of participants' agentic or communal social roles or intended to be neutral. In the second primary study (i.e., Study 4), it was proposed that participants would complete a series of questions intended to increase the salience of participants' agentic or communal social roles or complete no questions prior to the conformity task. The two initial studies provided a test of the proposed manipulations and drew attention to changes that needed to be made prior to completing the primary studies.

Study 1 was conducted to determine if the primes affected participants' self-report ratings of gender roles. It was expected that the proposed manipulations would increase the saliency of the gender roles in individuals' self-concept and therefore individuals would rate themselves as higher in the gender roles more closely associated with the primed social role. Specifically, it was predicted that participants in the agentic prime condition would rate themselves as more masculine than participants in the communion and neutral prime conditions. Additionally, it was predicted that participants in the communion prime condition would rate themselves as more feminine than participants in the agency and neutral prime conditions.

## STUDY 1 METHODOLOGY

### *Participants & Design*

Participants were recruited from the University of Alabama psychology subject pool. The sample included 148 participants (99 females and 49 males). Participants received credit toward a class requirement for their participation. Participants were given an information sheet describing the risks and benefits of the study and informing them of their rights as participants. The study was a 2 (prime condition: writing prime vs. questionnaire prime) x 3 (social role prime: agency vs. communion vs. neutral) between-subjects design.

### *Manipulations*

In the writing prime condition, participants completed a writing prime intended to increase the saliency of social roles (adapted from Woike, Lavezzary, & Barsky, 2001; Appendix A) or a neutral prime. Participants were told that the study was examining the relationship between past experiences and memory. In the agency prime condition, participants were asked to write about a single event in their life that involved achieving something great and/or feeling powerful and exuberant over an accomplishment. They were instructed that they might also have felt as though they stood apart from others or were recognized with the distinction of being the best. In the communion prime condition, participants were asked to write about a single event in their life that involved being close to others and/or feeling part of a group in a way that was very satisfying. They were also instructed that they may also have felt as though they were interrelated with others or that they had similar experiences that helped to form a bond between them. In the neutral prime, participants were asked to write about a single event in their life that

involved them listening to music alone. All participants were instructed to take a moment to select a past experience, and then to take five minutes to write about the event as they now remember it. They were asked to describe how the event came about and how they felt in detail. Finally, they were instructed to take a few minutes to try to reexperience the event as vividly as possible before they began writing.

In the questionnaire prime condition, participants in the agency and communion conditions were asked to complete a series of four questions intended to prime the intended construct (Appendix B). Participants in the neutral condition did not complete any questions.

### *Measure*

*Personal Attributes Questionnaire.* The Personal Attributes Questionnaire (PAQ) was used as continuous dependent variable and measures both participants' masculinity and femininity independently (Spence, Helmreich, and Stapp, 1974; Appendix C). The PAQ includes twenty-four traits. Sixteen were used in this study: eight masculine traits (e.g., independent, competitive) and eight feminine traits (e.g., gentle, kind). The PAQ is a self-report measure on which participants are asked to rate the extent to which each of the adjective was characteristic of them on a scale of 1 (*not at all*) to 5 (*very*). The scale yields subscales of masculinity and femininity in which higher scores indicate that a given gender role is more characteristic of the individual. The masculinity score has also been conceptualized to represent agency, while the femininity score has been conceptualized to represent communion (Helgeson & Fritz, 1999).

### *Procedure*

Participants completed the entire study online in one thirty-minute session. Participants were given a link to the study and allowed to complete the study at a computer of their choice. Participants were randomly assigned to complete either the writing prime or the questionnaire

prime and were also randomly assigned to one of three social role prime conditions – agency, communion, or neutral. After participants completed their randomly assigned prime, participants completed the Personal Attributes Questionnaire. Participants were debriefed and thanked for their participation.

## STUDY 1 RESULTS

Analyses were conducted separately for each prime condition. For each prime condition, two one-way analyses of variance were conducted to examine the influence of the social role prime (agency vs. communion vs. neutral) on target's self-report ratings of masculinity and femininity. Effect sizes using Cohen's  $d$  (Cohen, 1988) were also computed for each ANOVA. The recommended cutoff values are as follows: values of .20 represent a small effect, values of .50 represent a medium effect, and values of .80 represent a large effect

For the writing prime to be used in Study 3, there was no main effect of the social role prime on masculinity,  $F(2, 82) = 1.22, p = .30, d = .35$ . However, the means were in the predicted direction. Participants in the agency condition rated themselves higher on masculinity ( $M = 3.71, SD = .60$ ) than participants in the communion condition ( $M = 3.56, SD = .52$ ) and the control condition ( $M = 3.49, SD = .35$ ). Additionally, there was no main effect of social role prime on femininity,  $F(2, 82) = .27, p = .76, d = .17$ . However, the means were in the predicted direction. Participants in the communion condition ( $M = 4.06, SD = .59$ ) rated themselves higher on femininity than participants in the agency condition ( $M = 3.95, SD = .62$ ) and the neutral condition ( $M = 4.03, SD = .51$ ). To ensure that the prime did not differentially influence men and women, participant gender was included in the models. The models did not yield significant main effects or interactions with participant gender.

For the questionnaire prime to be used in Study 4, there was no main effect of the social role prime on masculinity,  $F(2, 60) = .24, p = .79, d = .18$ . Examination of the means revealed that participants in the control condition rated themselves higher on masculinity

( $M = 3.60, SD = .48$ ) than participants in the agency condition ( $M = 3.52, SD = .44$ ) and the communion condition ( $M = 3.51, SD = .52$ ), although these differences were not significant. Additionally, there was no main effect of social role prime on femininity,  $F(2, 60) = .27, p = .76, d = .22$ . Examination of the means revealed that participants in the control condition rated themselves higher on femininity ( $M = 3.94, SD = .45$ ) than participants in the agency condition ( $M = 3.81, SD = .55$ ) and the communion condition ( $M = 3.86, SD = .51$ ), although these differences were not significant. To ensure that the prime did not differentially influence men and women, participant gender was included in the models. The models did not yield significant main effects or interactions with participant gender.

## STUDY 1 DISCUSSION

Study 1 suggested that the prime proposed for Study 3 may have influenced participants' gender roles, however the differences were not significant. Additionally, the prime proposed for the Study 4 did not appear to influence gender roles in the correct direction. However, these means were also not significantly different. Previous studies using these primes did not provide specific tests of the effects of the manipulations (Meyers-Levy, 1988; Woike, Lavezzary, & Barsky, 2001). Thus, it is unclear whether the previous studies would have found significant effects on these measures.

One reason for the lack of significant effects in this study may be the size of the sample. There were approximately 25 participants in each cell of the design. All of the effect sizes combined together average to  $d = .23$ . A power analysis was conducted in order to determine how many participants would be needed for each group in order to have sufficient power to find the desired effects. With a desired power of .80 and an alpha of .05, the power analysis concluded that it would require 52 participants per condition in order to obtain significant results from the F-tests (Cohen, 1988). Thus, the prime for the first studies may have shown the desired significant results with a larger sample.

The lack of significant results may also be attributed to the dependent variables used in this study. The Personal Attributes Questionnaire includes questions assessing both masculinity and femininity in the same questionnaire and the questions assessing each scale are spread throughout the questionnaire. Research on priming has found that questionnaires themselves may prime related constructs (Bargh & Chartrand, 2000). Thus, the dependent measure may have also

served to prime the other prime construct. That is, participants in the agency condition may have also been primed with the communal social role by reading the feminine items on the PAQ. Thus, a dependent variable that is less likely to prime the other conditions in the study may provide a better test of the hypotheses.

## STUDY 2 INTRODUCTION

The second study was also conducted to determine if the manipulations proposed for primary research increased the salience of social roles as hypothesized. However, this study utilized different dependent variables than the first pilot study in order to provide a better test of the hypotheses. Specifically, the dependent variables in this study were intended to have participants generate their own responses as opposed to having participants respond to questions about the two constructs in the study. It was predicted that participants in the agentic prime conditions would generate more self-related items than participants in the control condition. It was predicted that participants in the communion prime conditions would generate more other-related items than participants in the control condition.

## STUDY 2 METHODOLOGY

### *Participants & Design*

Participants were recruited from the University of Alabama psychology subject pool. The sample included 66 participants (44 females and 22 males). Participants received credit toward a class requirement for their participation. Participants were given an information sheet describing the risks and benefits of the study and informing them of their rights as participants. The study was a 2 (prime condition: writing prime vs. questionnaire prime) x 3 (social role prime: agency vs. communion vs. neutral) between-subjects design.

### *Measures*

*Word Fragment Completion Task.* The word fragment completion task was used as a dependent measure of self- and other-focus. The word fragment completion task included 27 words fragments with missing letters (e.g., C\_NQ\_ER, conquer) and participants were asked to complete the word with the first word that came to mind (similar to procedures used by Srinivas & Roediger, 1990; Appendix D). Participants were given three minutes to complete the task. Eighteen of the words were used as critical words for this study, nine words could be completed to form cooperative words (e.g., alliance, join, united) and nine words could be completed to form competitive words (e.g., contest, conflict, struggle). Individuals with a higher self-focus should complete more competitive words while individuals with a higher other-focus should complete more cooperative words. The total number of competitive and cooperative words was used as dependent variables for this study.

*Pronoun task.* The pronoun task was used as another dependent measure of self- and other-focus. The pronoun task included a series of sentences written in a foreign language (adapted from Davis & Brock, 1975; Appendix E). There were twenty sentences with fifty words underlined. Participants were told that the text was in an unknown language, but that people can often guess the correct translation of language to one that they already know. They were told that all underlined words were pronouns and that they should fill in each pronoun with either pronouns reflecting themselves as individuals (e.g., I, me, my, mine, myself) or word reflecting themselves as part of a group (e.g., us, ours, we). Individuals who have a higher self-focus should use more pronouns related to themselves as individuals while individuals who have a higher other-focus should use more pronouns related to themselves being part of a group. The total number of self-related and other-related pronouns was used as dependent variables for this study.

#### *Procedure*

Participants came into the lab in groups of one to five. They were each seated in individual cubicles within the larger lab room. The study was completed in one thirty-minute session. Participants were randomly assigned to complete either the writing prime or the questionnaire prime and were also randomly assigned to one of three social role prime conditions (agency, communion, or neutral). The primes were identical to those used in the first study. After participants completed their randomly assigned prime, participant completed the word fragment completion task and the pronoun task. Participants were debriefed and thanked for their participation.

## STUDY 2 RESULTS

Analyses were conducted separately for each prime condition. For each prime condition, a series of t-tests were conducted between participants in the agentic prime condition and participants in the control condition on the number of competitive words completed on the word completion task and the number of self-focused pronouns used in the pronoun task. Additionally, a series of t-tests were conducted for each prime between participants in the communion prime condition and participants in the control condition on the number of cooperative words completed on the word completion task and the number of other-focused pronouns used in the pronoun task. Effect sizes using Cohen's  $d$  (Cohen, 1988) were also computed for each t-test.

For the writing prime intended to be used in Study 3, there was not a significant difference in competitive words completed on the word completion task between participants in the agency prime condition ( $M = 5.40$ ,  $SD = 1.08$ ) and participants in the neutral prime condition ( $M = 4.44$ ,  $SD = 1.13$ ),  $t(18) = 1.89$ ,  $p = .08$ ,  $d = .91$ . However, the means were in the predicted direction. There was also not a significant difference between self-focused pronouns on the pronoun task between participants in the agency prime condition ( $M = 15.80$ ,  $SD = 8.78$ ) and participants in the neutral prime condition ( $M = 18.33$ ,  $SD = 4.97$ ),  $t(17) = -.76$ ,  $p = .33$ ,  $d = .91$ .

For the writing prime intended to be used in Study 3, there was not a significant difference in cooperative words completed on the word completion task between participants in the communion prime condition ( $M = 2.73$ ,  $SD = 1.19$ ) and participants in the neutral prime condition ( $M = 3.33$ ,  $SD = 1.50$ ),  $t(17) = -1.01$ ,  $p = .33$ ,  $d = .47$ . There was also not a significant difference between other-focused pronouns on the pronoun task between participants in the

communion prime condition ( $M = 10.00$ ,  $SD = 6.31$ ) and participants in the neutral prime condition ( $M = 12.00$ ,  $SD = 4.61$ ),  $t(18) = -.79$ ,  $p = .44$ ,  $d = .38$ .

For the questionnaire prime intended to be used in Study 4, there was not a significant difference in competitive words completed on the word completion task between participants in the agency prime condition ( $M = 4.82$ ,  $SD = 1.25$ ) and participants in the neutral prime condition ( $M = 5.00$ ,  $SD = .85$ ),  $t(21) = .813$ ,  $p = .43$ ,  $d = .36$ . There was also not a significant difference between self-focused pronouns on the pronoun task between participants in the agency prime condition ( $M = 17.00$ ,  $SD = 8.02$ ) and participants in the neutral prime condition ( $M = 15.36$ ,  $SD = 7.93$ ),  $t(23) = .51$ ,  $p = .61$ ,  $d = .21$ . However, the means were in the predicted direction.

For the questionnaire prime intended to be used in Study 4, there was not a significant difference in cooperative words completed on the word completion task between participants in the communion prime condition ( $M = 3.45$ ,  $SD = 2.30$ ) and participants in the neutral prime condition ( $M = 2.83$ ,  $SD = 1.27$ ),  $t(21) = .813$ ,  $p = .43$ ,  $d = .36$ . However, the means were in the predicted direction. Participants in the communion prime condition ( $M = 15.36$ ,  $SD = 5.48$ ) completed significantly more other-focused pronouns on the pronoun task than participants in the neutral prime condition ( $M = 9.93$ ,  $SD = 7.12$ ),  $t(23) = 2.09$ ,  $p = .05$ ,  $d = .87$ .

## STUDY 2 DISCUSSION

The results revealed some evidence to suggest that each of the primes increased the salience of social roles as intended. Several of the means were in the predicted direction, although only one difference was significant. The lack of significant effects may be due to the sample size of the study. There were approximately 12 participants in each cell of the design. All of the effect sizes combined together average to  $d = .47$ . A power analysis was conducted in order to determine how many participants would be needed for each group in order to have sufficient power to find the intended effects. With a desired power of .80 and an alpha of .05, the power analysis concluded that it would require 21 participants per group in order to obtain significant results from the t-tests (Cohen, 1988). Thus, several of these results that were in the predicted direction may have been significant with a larger sample. Studies 3 and 4 utilized this effect size to ensure the desired effects would be detected if the hypothesized relationships were present.

While the results of Studies 1 and 2 suggested that the manipulations were producing the desired effects, a more careful consideration of the prime manipulations for Study 3 revealed potential confounding variables that could complicate the interpretation of the results in the Studies 3 and 4. In the proposed agency prime condition, participants were instructed to think about a time in which they achieved something great in order to increase the salience of the agentic social role. Although this appeared to increase the salience of the agentic social role in Studies 1 and 2, this procedure also required participants to engaging in a self-affirming thought process. According to self-affirmation theory, individuals affirm different aspects of their

self-concept in response to threat and these affirmations attenuate the salience of that threat to the individual (Steele & Lui, 1983). Consistent with this idea, it is plausible that asking participants to write about an achievement may affirm an aspect of an individual's self-concept (e.g., remember when I performed well on a test reminds me that I am a good student) and subsequently lead them to engage in less conformity behavior as the threat of nonconformity may be attenuated. Furthermore, both increasing the salience of the agentic role and engaging in a self-affirming writing exercise should decrease conformity relative to other conditions making it difficult to determine and explain the cause of the conformity behavior.

Moreover, the proposed communion writing prime manipulation asked participants to think about a time in which they were part of a group. This prime was intended to increase the salience of the communal social role, but also emphasizes social inclusion to a larger extent than the agency prime. Self-esteem is closely related to the extent to which individuals feel as though they are part of a group (Leary, Tambor, Terdal, and Downs, 1995), so this may present a confounding variable and therefore complicate the interpretation of the results for the proposed studies. That is, participants' conformity behavior could vary to the extent that they have been reminded of a previous instance of social inclusion or exclusion, which would make it difficult to identify the cause of the conformity behavior.

For Study 3, the primes were changed so that the agentic and communal role conditions included similar degrees of self-affirmation and similar group membership information (see Appendix F). The primes were differentiated by the role the participant played in his or her group's achievement. In the agency condition, participants were asked to think about and describe a time in which they were the leader of a successful group and in the communion condition participants were asked to think about and describe a time in which they were a team

member of a successful group. This eliminated the potential confounds and resulted in a more parsimonious interpretation of the results. Additionally, the neutral prime used in the pilot studies may have made social exclusion salient as participants were asked to consider a time in which they listened to music alone. In the primary studies, the neutral prime was changed to avoid any possible consideration of other people or group behavior. Participants were instead asked to think about an experience related to being in a natural environment and experiencing nature.

The questionnaire prime also appeared to have the intended effect on the salience of social roles, however the mean difference was only significant for the use of other-focused pronouns in the communion condition. It is plausible that the wording of the questions may not have reflected agency and communion as concisely as possible. In particular, one question in each prime condition addressed the affection of other people. In the agency condition, the second statement was “I openly express my affection for others.” In the communion condition, the third statement was “I need the affection of other people.” The expression and need for affection are not as closely related to the constructs of agentic and communal social roles as the other questions included in the prime. For the two primary studies, the wording was changed to reflect expressing and seeking the opinions of others rather than the affection of others, which is more closely related to the intended social roles. Additionally, participants in the neutral condition in the primary studies were asked to answer questions in order to provide a more appropriate control group. Answering questions about one’s thoughts and feelings may increase the saliency of self-related constructs, and a no question control group does not adequately control for this possibility. Participants in the primary studies answered questions about their opinions and feelings on a topic, however the topic was nature, which is not directly related to social roles.

### STUDY 3 INTRODUCTION

Study 3 provided an initial examination of the hypothesis and research questions. Specifically, this study was intended to investigate how gender, primed social roles, and gender role influenced conformity behavior. Social roles were manipulated using a writing prime in which participants were asked to write about an experience that was intended to increase the salience of agentic or communal social roles or were asked to write about an experience intended to be neutral. The writing primes were altered based on the results of Studies 1 and 2. Following the social role prime manipulation, participants completed a conformity task in a simulated virtual chat room.

## STUDY 2 METHODOLOGY

### *Design*

This study employed a 2 (participant gender: men vs. women) x 3 (social role prime: agency vs. communion vs. neutral) between-subjects factorial design. A continuous measure of gender role was also collected for use in the analyses. The dependent variable was conformity to the influence agents measured by eight conformity items.

### *Participants*

Two hundred five participants were recruited from the University of Alabama psychology subject pool. Of the two hundred five participants, one hundred, seventy returned for the second part of the study resulting in an attrition rate of 17 percent. Sixteen participants were excluded from analysis: one participant was removed because he or she did not follow the instructions on experimental manipulation, ten participants were removed because they told the experimenter during the debriefing that were skeptical that the other participants in the chat room were actual people, one participant was removed because he or she mentioned the use of computer-generated responses on the conformity task in the suspicion probe, and four participants were removed due to experimenter error resulting in an inability to match the data from the two experimental sessions. The loss of participants was relatively equal across experimental condition (see Table 1).

Table 1

*Number of participant excluded from analyses across cells of the experimental design in Study 3*

Condition	Women	Men
Agency Condition	1	5
Communion Condition	1	5
Neutral Condition	1	3

The remaining sample included 154 participants. The sample included 73 women: 22 were classified as endorsing a masculine gender role, 25 were classified as endorsing a feminine gender role, and 26 were classified as endorsing an androgynous gender role. This included 81 men: 51 were classified as endorsing a masculine gender role, three were classified as endorsing a feminine gender role, and 27 were classified as endorsing an androgynous gender role.

An a priori power analysis was conducted to determine how many participants would be needed in order to have sufficient power to find the desired effects. With a desired power of .80, alpha of .05, and an effect size of  $d = .40$  based on the results of Study 2 the power analysis concluded that it would require 21 participants per cell in order to get significant results from the F-test (Cohen, 1988). The remaining sample included between 22 and 29 participants per cell, ensuring there was sufficient statistical power. Efforts, which are described below, were made to distribute participants evenly across conditions by gender and gender role. Participants received credit toward a class requirement via the psychology department's web-based participant recruitment system. A waiver of assent and consent was requested from the University of Alabama so that participants under the age of nineteen could participate in the study. Participants

were given an information sheet describing the risks and benefits of the study and informing them of their rights as participants.

### *Measures*

*Bem Sex Roles Inventory.* The Bem Sex Roles Inventory is an adjective checklist including 60 adjectives that can be defined as masculine attributes (e.g., self-reliant, independent, self-sufficient), feminine attributes (e.g., yielding, loyal, warm), and neutral attributes (e.g., helpful, unpredictable, likeable; Bem, 1974; Appendix G). It is a self-report measure on which participants are asked to rate each of the adjectives on a scale of 1 (*never or almost never true of me*) to 7 (*always or almost always true of me*). The scale yields subscales of both masculinity and femininity in which higher scores on each subscale indicate the endorsement of more masculine or feminine attributes. Both the masculinity ( $M = 5.03$ ,  $SD = .66$ ) and femininity ( $M = 4.70$ ,  $SD = .68$ ) scales yielded high reliabilities ( $\alpha = .84$  and  $\alpha = .84$ , respectively), so scale scores were computed using a mean of all of the items in the scale. A composite score for gender roles was assessed using a  $t$  ratio between the feminine and masculine scale scores (Bem, 1974; Bem & Lenney, 1976). The resulting  $t$ -score was used as a continuous measure of gender roles with higher (positive) scores indicating more identification with the feminine gender role and lower (negative) scores indicating more identification with the masculine gender role. This measure was also used in order to balance participants across experimental condition. As in previous research (Bem, 1975), participants with  $t$ -scores higher than +1 were classified as feminine, participants with  $t$ -scores between +1 and -1 were classified as androgynous, and participants with  $t$ -scores less than -1 were classified as masculine. Gender role and gender were taken into consideration when randomly assigning participants to

condition. Specifically, efforts were made to ensure that there were an equal number of individuals from each gender role and gender in all conditions.

### *Manipulation Check*

*Word Fragment Completion Task.* The word fragment completion task was used as a test of the manipulation. The word fragment completion task includes 27 words fragments with missing letters (e.g., C\_NQ\_ER, conquer) and participants were asked to complete the word with the first word that came to mind (similar to procedures used by Srinivas & Roediger, 1990; Appendix D). Participants were given three minutes to complete the task. Of the 27 words, nine words can be completed to form cooperative words (e.g., alliance, join, united), nine words can be completed to form competitive words (e.g., contest, conflict, struggle), and nine words can be completed to form neutral words (e.g., giraffe, classical, syllabus). Participants in the agentic prime condition were given competitive words and neutral words. It was predicted that participants in the agentic prime condition would complete more competitive words than participants in the neutral condition. Participants in the communal prime condition were given cooperative words and neutral words. It was predicted that participants in the communal prime condition would complete more cooperative words than participants in the neutral condition. Individuals in the neutral prime condition were given all of the words so they could serve as a comparison group for both the other two conditions. It was predicted there would be no differences in completion of neutral words across the three groups.

### *Procedure*

The experiment was completed across two sessions to ensure that the individual difference measure did not interfere with the manipulation. In the first session, participants came into the lab and completed the Bem Sex Roles Inventory and demographic information (See

Appendix H). Prior to the second session, participants' scores on the Bem Sex Role Inventory were examined and each participant's gender role was classified as masculine, feminine, or androgynous.

One week later, participants came back into the lab and completed the second session of the study in same-sex groups of one to five. Participants were seated in separate cubicles within a larger lab room. Participants were randomly assigned to complete a writing task intended to prime either agentic or communal social roles, or a neutral prime (adapted from Woike, Lavezzary, & Barsky, 2001). The randomization was done taking into account participant gender (i.e., men or women) and participant gender role (i.e., masculine, feminine, or androgynous) in order to balance these variables across experimental condition.

The results of Studies 1 and 2 were used to make modifications to the prime manipulations in order to be confident that they would have the intended effect without potential confounding variables (Appendix F). All participants were told that the study was examining the relationship between past experiences and memory. In the agency and communion prime conditions, participants were instructed that they would be asked to write about a single event in their life that involved a group they were involved in achieving something great. In order to prime the agentic social role, participants in the agency condition were further instructed to consider a time in which they felt like they were the leader of the successful group. They were instructed that they may have felt as though they were recognized with the distinction of being the best or stood apart from the other group members. In order to prime the communal social role, participants in the communion condition were further instructed to consider a time in which they felt as though they were a team member of this successful group. They were instructed that they might also have felt as though they were interrelated with others or shared similar

experiences with the other group members. In the neutral prime condition, participants were asked to write about a single event in their life that involved them being outside and enjoying nature. They were instructed to consider a time in which they felt like they were experiencing the earth's natural habitat. They were further told that they might have felt as though they truly understood and appreciated the earth's natural beauty and were an individual within a larger environment. Participants in all conditions were then asked to take a moment to select a past experience, and then to take five minutes to write about the event as they now remember it. They were asked to describe how the event came about and how they felt in detail. Finally, they were instructed to take a few minutes to try to reexperience the event as vividly as possible before they began writing.

After the participants completed the priming task, participants completed the conformity task on a computer (adapted from Griskevicius et al., 2006). All instructions were presented on the computer. The participants were informed that they would be interacting with three other same-sex individuals. They were told that the other individuals were completing the study in other rooms around the building, so they would be interacting through a chat room. They were instructed that they would give their preferences on a number of items and once they were finished they would meet in a larger lab room to discuss their opinions with the other groups members. Participants were be told that there would be a second face-to-face session in order to invoke group surveillance and accountability to the group for their answers. A progress bar was then displayed on the screen that said "starting chat room." The participants were instructed that for the following items, each individual would give their preference on a choice of two options. They were told to rate their preference from 1 (*definitely favor option A*) to 9 (*definitely favor option B*). They were instructed that as each group member made their choice their response

would appear on the screen for the rest of the group to see. They were instructed that they would always give responses in the same order and that the order would be randomly assigned. Participants then saw a progress bar that said “calculating response order.” Participants were always assigned to be the fourth person to give their response. Participants were then presented with a series of options to choose between. Half of the items were subjective and had no objectively correct answer. These items included two equally appealing options (e.g. Mercedes Benz – BMW; see Appendix I). Half of the items were objective and had an objectively correct answer, although the answer was not apparent or obvious. These items include two facts that are equally likely to be correct (e.g., more expensive to live in New York City or more expensive to live in San Francisco). As stated above, research shows that women are more likely to conform to masculine conformity stimuli (Goldberg, 1975; Javorinsky, 1979; Karabenick, 1983; Maupin & Fisher, 1989; Sistrunk, 1972; Sistrunk & McDavid, 1971). Because women are more likely to conform to masculine stimuli, this study utilized masculine stimuli in order to provide a stronger test of the social roles explanation of gender differences in conformity. That is, the use of masculine stimuli should increase the likelihood of finding gender differences and therefore provide a more powerful test of the underlying cause of the gender differences (e.g., primed social roles, gender roles). The stimuli were also intended to be relatively unfamiliar to participants. As discussed in the literature review, individuals who have more knowledge in a given content area may be less likely to conform as they are more likely to recognize that the majority response is incorrect, more likely to possess confidence in their response, and subsequently less likely to conform. Thus, it was important to use stimuli that participants were unlikely to have strong existing attitudes about. The unfamiliar stimuli should result in more conformity behavior and therefore a more powerful test of the experimental hypotheses.

The chat room was standardized so that each participant saw the same responses for all items. After each item was displayed on the screen, the response of each group member was displayed at random intervals to give them impression that the responses were being entered by actual participants. Each response was labeled “Group Member” and included the corresponding number of the response (e.g., Group Member 1). For half of the responses, the other group members favored option A (responses of 2, 2, and 3 on a scale of 1 to 9) and for the other half of responses, the other group members favored option B (responses of 8, 8, and 7 on a scale of 1 to 9). Conformity on the first half of the responses was indicated by scores closer to one, while conformity on the latter half was indicated by scores closer to nine. All conformity scores were standardized so that higher scores represented more conformity. A reliability analysis was conducted on the items and yielded an unexpected low reliability ( $\alpha = .33$ ), so each of the conformity items was examined independently in the analyses.

Following the conformity task, all participants were individually asked to state the purpose of the experiment on the computer in order to probe for suspicion. As reported above, one participant was removed from the analyses because he or she reported suspicion of the generated responses. Following the suspicion probe, all participants completed the manipulation check to ensure the prime had the intended effect. Finally, participants were verbally debriefed by the experimenter (see Appendix J for the debriefing script). Ten participants voluntarily mentioned that they did not believe the other participants’ responses were authentic and they were removed from the analyses.

## STUDY 3 RESULTS

Eta squared ( $\eta^2$ ) or partial eta squared ( $\eta_p^2$ ) was computed as an effect size for all significant results. The recommended cutoff values are as follows: values of .01 represent a small effect, values of .06 represent a medium effect, and values of .14 represents a large effect (Cohen, 1977).

### *Manipulation Check*

In order to determine if the manipulations increased the salience of the intended social roles as expected, the number of words completed on the word fragment completion task was examined. The total number of words completed in each category – competitive, cooperative, and neutral – served as the primary dependent variables for the analyses. The agentic and communal social role primes conditions were examined independently and each was compared to the neutral prime condition. It was predicted that participants in the agency condition would complete more competitive words than participants in the neutral condition. In order to examine if the agency prime increased the salience of the agentic social role, two t-tests were conducted examining the number of competitive and neutral words completed in the agentic and neutral prime conditions. As predicted, participants in the agency prime condition ( $M = 5.94$ ,  $SD = 1.25$ ) completed significantly more competitive words than participants in the neutral prime condition ( $M = 5.13$ ,  $SD = 1.49$ ),  $t(101) = 2.97$ ,  $p = .004$ ,  $\eta^2 = .08$ . Moreover, there was no difference in the number of neutral words completed between participants in the agency prime condition ( $M = 4.58$ ,  $SD = 1.37$ ) and the neutral prime condition ( $M = 4.51$ ,  $SD = 1.28$ ),  $t(101) = .29$ ,  $p = .78$ ,  $\eta^2 = .001$ . It was also predicted that participants in the communion prime condition would complete

more cooperative words than participants in the neutral prime condition. In order to examine if the communion prime increased the salience of the communal social role, two t-tests were conducted examining the number of cooperative and neutral words completed in the communion and neutral prime conditions. As predicted, participants in the communion prime condition ( $M = 3.81$ ,  $SD = 1.51$ ) completed significantly more cooperative words than participants in the neutral prime condition ( $M = 3.08$ ,  $SD = 1.79$ ),  $t(98) = 2.20$ ,  $p = .05$ ,  $\eta^2 = .44$ . Moreover, there was no difference in the number of neutral words completed between those in the communion prime condition ( $M = 4.50$ ,  $SD = 1.62$ ) and those in the neutral prime condition ( $M = 4.51$ ,  $SD = 1.28$ ),  $t(101) = -.03$ ,  $p = .98$ ,  $\eta^2 = .00001$ . These results suggested that manipulations did increase the saliency of the intended social roles.

#### *Research Question 1 and Hypothesis 1*

Research question 1 concerned whether men and women would differ in their conformity behavior. There was no strong prediction as the previous literature was mixed with some studies finding gender differences and other studies finding no gender differences. Hypothesis 1 predicted that there would be an interaction between participant gender and social role prime. Specifically, it is predicted that women would conform more when primed with a communal role compared to an agentic role or a neutral prime and men would conform less when primed with an agentic role compared to a communion role or neutral prime. In order to test hypothesis 1 and research question 1, a 2 (participant gender: men vs. women) x 3 (social role prime: agentic vs. communal vs. neutral) multivariate analysis of variance (MANOVA) on conformity was conducted. Due to low reliability of the conformity items, each conformity item was entered as a separate dependent variable in the MANOVA.

The MANOVA yielded no significant main effect of gender [Wilk's  $\lambda = .94$ ,  $F(8, 140) = 1.15$ ,  $p = .34$ ,  $\eta_p^2 = .06$ ], no significant main effect of condition [Wilk's  $\lambda = .88$ ,  $F(16, 280) = 1.18$ ,  $p = .29$ ,  $\eta_p^2 = .06$ ], and no significant gender by condition interaction [Wilk's  $\lambda = .90$ ,  $F(16, 280) = .95$ ,  $p = .51$ ,  $\eta_p^2 = .05$ ]. In relation to research question 1, the results of this study indicate that there were no differences in conformity between men and women (see Table 2 for all means and standard deviations).

Table 2

*Means and standard deviations by participant gender for Study 3*

Conformity Item	Women	Men
Mercedes or BMW	5.15 (2.58)	5.61 (2.49)
Silver Car or Green Car	3.06 (2.52)	3.84 (2.73)
Ferrari or Lamborghini	5.34 (2.21)	5.33 (2.88)
Van Gogh or Monet Painting	5.57 (2.36)	5.54 (2.10)
New York City or San Francisco	7.23 (1.88)	6.70 (2.09)
Southwest or American Airlines	5.25 (2.18)	5.41 (2.09)
Green or Blue Shirts	6.11 (1.76)	5.68 (2.19)
Finland or Norway	5.49 (1.60)	5.70 (1.56)

*Note.* Judgments were made on a 9-point scale (1 = *definitely favor option A*, 9 = *definitely favor option B*). All scores are standardized so that higher score indicate more conformity.

An examination of the means revealed that women conformed more than men on some items (e.g., New York City or San Francisco more expensive to live in, green or blue shirts are better at keeping people cool), men conformed more than women on other items (e.g., Mercedes or BMW, silver or forest green car), and women and men conformed to the same extent on other

items (e.g., Ferrari or Lamborghini, Van Gogh or Monet painting), although no differences were significantly different. Furthermore, the results of this study failed to support hypothesis 1 (see Table 3 for all means and standard deviations).

Table 3

*Means and standard deviations by condition and participant gender for Study 3*

Conformity Item	Agency		Communion		Neutral	
	Women	Men	Women	Men	Women	Men
Mercedes or BMW	4.23(2.79)	5.48(2.24)	5.64(2.43)	5.95(2.63)	5.58(2.39)	5.38(2.65)
Silver Car or Green Car	2.91(2.20)	3.70(2.55)	3.00(2.81)	3.92(2.65)	3.27(2.57)	3.90(3.03)
Ferrari or Lamborghini	5.09(2.20)	4.89(2.89)	6.40(1.94)	5.50(2.89)	4.54(2.12)	5.59(2.91)
Van Gogh or Monet Painting	5.60(2.40)	5.33(2.15)	5.68(2.21)	5.48(2.34)	5.42(2.53)	5.90(1.84)
New York City or San Francisco	6.82(2.20)	6.82(2.11)	7.68(1.41)	7.21(1.69)	7.19(1.98)	6.07(2.27)
Southwest or American Airlines	5.27(2.21)	5.44(2.08)	5.48(2.37)	5.75(2.29)	5.00(2.04)	5.03(1.94)
Green or Blue Shirts	6.32(1.46)	6.15(2.20)	6.04(1.84)	6.00(2.13)	5.66(1.95)	4.90(2.09)
Finland or Norway	5.36(1.68)	5.89(1.45)	5.64(1.68)	6.00(1.67)	5.46(1.50)	5.21(1.50)

*Note.* Judgments were made on a 9-point scale (1 = *definitely favor option A*, 9 = *definitely favor option B*). All scores are standardized so that higher score indicate more conformity.

There was no evidence that making social roles salient had an influence on conformity. Although this analysis yielded null results, it is unclear whether the gender differences in conformity have been attenuated since the initial research was completed or whether there was a

problem with the design of the study that led to problems detecting the hypothesized relationships.

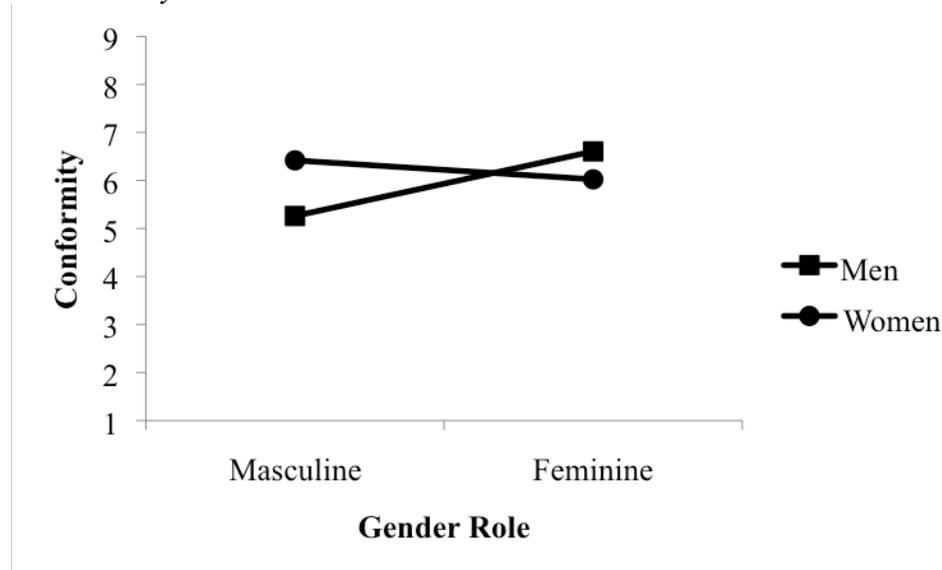
### *Research Questions 2 & 3*

The second research question asked if gender roles would influence conformity behavior. The third research question asked how gender roles would influence the relationship between gender and primed social roles. In order to test research questions two and three, a multivariate general linear model analysis was conducted with participant gender and social role prime as categorical independent variables, the continuous measure of gender role as a continuous independent variable, and conformity behavior as the dependent variable. Due to low reliability of the conformity items, each conformity item was entered as a separate dependent variable in the multivariate general linear model.

The multivariate general linear model yielded a significant interaction between gender and gender role [Wilk's  $\lambda = .89$ ,  $F(8, 133) = 2.14$ ,  $p = .04$ ,  $\eta_p^2 = .11$ ]. Follow-up univariate general linear models revealed a significant interaction between gender and gender role for the conformity item that asked participants to choose whether green or blue shirts are better at keeping people cool,  $F(1, 140) = 5.64$ ,  $p = .02$ ,  $\eta_p^2 = .04$  (See Figure 1). The more men endorsed feminine gender roles (reflected by higher scores on the continuous measure of gender role), the more likely they were to conform on this particular item. Alternatively, the less men endorsed feminine roles, the more likely they were to dissent. On the other hand, the more women endorsed feminine gender roles, the less likely they were to conform on this particular item. The slope of this line for men was steeper than the slope for women suggesting a larger difference in conformity behavior.

Figure 1

Gender by gender role interaction on conformity for green or blue shirts better at keeping people cool in Study 3



The remaining follow-up univariate general linear models did not yield significant interactions between gender and gender roles for the other seven conformity items. These results suggest that gender role may have some influence on conformity behavior. However, the effect was found for only one of the eight conformity items, so it is hard to draw conclusions because the pattern was not consistent across all of the conformity items.

The general linear model yielded no other significant main effects or interactions including: no significant main effect of gender [Wilk's  $\lambda = .94$ ,  $F(8, 133) = 1.02$ ,  $p = .42$ ,  $\eta_p^2 = .06$ ], no significant main effect of condition [Wilk's  $\lambda = .87$ ,  $F(16, 266) = 1.23$ ,  $p = .24$ ,  $\eta_p^2 = .07$ ], no significant main effect of gender role [Wilk's  $\lambda = .95$ ,  $F(8, 133) = .95$ ,  $p = .48$ ,  $\eta_p^2 = .05$ ], no significant gender by condition interaction [Wilk's  $\lambda = .84$ ,  $F(16, 266) = 1.47$ ,  $p = .11$ ,  $\eta_p^2 = .08$ ], no significant condition by gender role interaction [Wilk's  $\lambda = .85$ ,  $F(16, 266) = 1.38$ ,  $p = .15$ ,  $\eta_p^2 = .08$ ], and no significant three way interaction [Wilk's  $\lambda = .90$ ,  $F(16, 266) = .95$ ,  $p = .51$ ,  $\eta_p^2 = .05$ ]. Again, it is unclear whether the null finding reveals the lack of a relationship or if

there was a methodological problem with the design of the study that led to problems detecting any relationship between the variables.

## STUDY 3 DISCUSSION

Men who endorsed more feminine gender roles and women who endorsed less feminine gender roles were more likely to conform on the item that asked participants to choose whether green or blue shirts are better at keeping people cool. The results for men are consistent with previous literature suggesting that individuals who endorse more feminine roles are more likely to conform (Maslach, Santee, & Wade, 1987). However, these results, for both men and women, are inconsistent with previous literature suggesting that individuals who endorse a gender-incongruent gender role (i.e., men endorsing feminine gender roles and women endorsing masculine roles) were less likely to conform than individuals who endorse a gender-congruent gender role (Goldberg, 1975). In this case, individuals who endorsed gender roles incongruent with their gender (i.e., masculine women and feminine men) were more likely to conform than those who endorsed gender roles congruent with their gender. That said, the literature on the influence of gender roles on conformity is somewhat dated and may provide a poor comparison for the current results given recent research suggesting that perceptions of gender roles, at least for women, are dynamic and continue to change as individuals' roles in society change (Diekmann & Eagly, 2000; Diekmann & Goodfriend, 2006). Furthermore, it is hard to draw firm conclusions from these results as the other seven dependent variables did not yield significant interactions. It is difficult to discern whether there is something in particular about this conformity item that influenced conformity or if there was a Type 1 error that resulted in the significant finding. Study 4 is a conceptual replication of Study 3, which should help to clarify the relationships between these variables.

The results of Study 3 showed no independent influence of gender on conformity. Based on these results, there are two possible conclusions that can be drawn. One possibility is that the gender differences in conformity are decreasing or that previously found gender differences were artifacts of confounding variables. Alternatively, the chat room paradigm may have presented methodological challenges that lead to the null results. Both of these explanations are considered below.

Although the previous meta-analyses suggest that overall there is a relationship between gender and conformity (Cooper, 1979; Eagly, 1978; Eagly & Carli, 1981), there were also several studies that found no differences in conformity behavior between men and women (Cooper, 1979; Eagly, 1978; Eagly and Carli, 1981). The neutral prime condition can provide an indication of the pattern of gender differences in the absence of the salience of social roles being manipulated. The means in the neutral condition were not significantly different, however an examination of the means gives an indication of the pattern of conformity behavior. For all objective items that asked participants to choose between two equally plausible facts (New York City or San Francisco more expensive to live in; Southwest or American Airlines more ontime flights; green shirts or blue shirts better at keeping you cool; Norway or Finland has more consumers), women conformed more than men. However, for three of the four subjective items that asked participants to choose between two equally appealing options (silver car or forest green car; Ferrari or Lamborghini; Van Gogh or Monet painting), men conformed more than women. Considering all eight items together, there is no clear trend of one gender conforming more than the other and the difference seems to be moderated by the type of conformity item (i.e., objective or subjective). The lack of a clear pattern may indicate that overall gender differences are declining and that previously found gender differences may have been artifacts of

confounding variables such as the features of conformity stimuli used. Furthermore, because the primary hypothesis was dependent upon finding gender differences in conformity, it is not surprising that no effect of social role prime emerged.

Alternatively, the null results of this study may reflect a methodological problem with the chat room paradigm used to test conformity. One participant questioned the authenticity of the chat room in the suspicion probe and ten participants mentioned their skepticism for the authenticity of the responses during the debriefing. These participants were excluded from the analyses. Although participants who explicitly mentioned their suspicion were removed from the analyses, it is likely that other participants may have been skeptical of the chat room but failed to express their concerns. One potential problem with the authenticity of the chat room may be that all trials in this study were critical trials and therefore the three simulated participants in the chat room always expressed similar opinions. This may have made the chat room appear less authentic to the participants. Considering the concerns expressed by some participants, the chat room could have plausibly decreased the likelihood of finding the hypothesized pattern of results.

Finally, the experimental manipulation may have inadvertently increased the salience of group membership, which could have lead to more conformity in all conditions. With the exception of one item, the mean level of conformity was over the midpoint of the scale. Group membership was made salient both in the experimental manipulations (asking participants to write about a successful group) and in the chat room task. In the chat room task, the names of participants were listed as group member 1, 2, 3, & 4. This strong effect of group salience may have attenuated the effects of the social role prime such that all participants felt compelled to conform more to the group regardless of their experimental condition.

In order to provide a better test of the hypothesis and research questions, it was imperative to make several changes before conducting Study 4. The primary concern for Study 4 was to make the chat room paradigm more believable. This was accomplished both by making specific changes to the chat room and including some additional verbal experimenter instructions. The second concern for Study 4 was that the salience of group participation increased conformity in all participants. It may have been that the participants all experienced a strong group prime that attenuated any effect based on gender, social role prime, and gender role. A different prime was utilized in Study 4, which should largely eliminate this problem. Additionally, any direct reference to group membership was removed in Study 4. The changes to the methodology of Study 4 should provide a more sensitive test of the hypothesis and research questions.

## STUDY 4 INTRODUCTION

Study 4 provided a conceptual replication of Study 3 using a different prime manipulation. Specifically, Study 4 manipulated social roles using a questionnaire prime in which participants are asked to respond to series of questions related to agency or communion, or a set of questions about nature in the neutral condition. Additionally, there were some changes made to the chat room in order to make it appear more authentic and verbal instruction were added to the experimenter script in order to make the cover story more believable and to provide a stronger test of the manipulation.

## STUDY 4 METHODOLOGY

### *Design*

As in the previous study, this study employed a 2 (participant gender: men vs. women) x 3 (social role prime: agency vs. communion vs. neutral) between-subjects factorial design. A continuous measure of gender role was also collected for use in the analyses. The dependent variable was conformity to the influence agents measured by four conformity items.

### *Participants*

One hundred fifty one participants were recruited from the University of Alabama psychology subject pool. Of the 151 participants, 133 returned for the second part of the study resulting in an attrition rate of 12 percent. Ten participants were excluded from analysis: five told the experimenter during the debriefing that were skeptical that the other participants in the chat room were actual people, one participant was a statistical outlier, two were inadvertently administered the BEM Sex Roles Inventory twice due to experimenter error, and two were excluded due to missing dependent variable data due to experimenter error. The loss of participants was relatively equal across experimental condition (See Table 4). The remaining sample included 123 participants. This included 66 women: 13 were classified as endorsing a masculine gender role, 16 were classified as endorsing a feminine gender role, and 35 were classified as endorsing an androgynous gender role. This included 57 men: 39 were classified as endorsing a masculine gender role, six were classified as endorsing a feminine gender role, and 12 were classified as endorsing an androgynous gender role.

Table 4

*Number of participant excluded from analyses across cells of the experimental design in Study 4*

Condition	Women	Men
Agency	1	5
Communion	0	3
Neutral	0	1

An a priori power analysis was conducted to determine how many participants would be needed in order to have sufficient power to find the desired effects. With a desired power of .80, alpha of .05, and an effect size of .40 based on the results of the pilot study, the power analysis concluded that it would require 21 participants per cell in order to get significant results from the F-test (Cohen, 1988). This sample includes between 16 and 23 participants per cell, so there should be enough participants to find effects if they are present. Efforts, which are described below, were made to distribute participants evenly across conditions by gender and gender role. Participants received credit toward a class requirement via the psychology department's web-based participant recruitment system. A waiver of assent and consent was requested from the University of Alabama so that participants under the age of nineteen could participate in the study. Participants were given an information sheet describing the risks and benefits of the study and informing them of their rights as participants.

#### *Procedures*

The measures and procedure were the same as in Study 3 with the exception of the following changes. First, a different prime was used. Prior to completing the conformity task, each participant was randomly assigned to complete a series of questions intended to prime

either agency or communion, or a series of questions about nature in the neutral condition (See Appendix K). In the agency prime condition, participants were asked to rate the extent to which they agreed with four statements related to agentic concerns (e.g., I take charge of situations.) on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). In the communion prime, participants were asked to rate the extent to which they agreed with four statements related to communal concerns (e.g., I am sympathetic to the needs of others.) on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). In the neutral prime condition, participants were asked to rate the extent to which they agreed with four statements related to nature (e.g., I enjoy spending time outdoors.) on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*).

Second, there were several changes made to the chat room in order to ensure participants actually thought they were interacting with other individuals. Time intervals were adjusted to make it appear as though fictitious participants' response time to each item was longer and the length of time the progress bars appeared was doubled to make the simulated chat room more realistic. The progress bar message was changed from "starting chat room" to "waiting for other participants to connect" in order to give the impression that the chat room was waiting for other participants to begin the study. Additionally, the number of critical items was decreased and some items were converted to filler items on which the responses of other participants were more varied (e.g., 2, 7, 5) in order to make the pattern of the responses on the critical items less obvious and to decrease participants' suspicion of the critical items. The filler items were presented dispersed among the critical items. All subjective items that included two equally appealing options that had no objectively correct answer (e.g. Mercedes Benz – BMW) were changed to practice trials and all objective items that included two facts equally likely to be correct (e.g., more expensive to live in New York City or more expensive to live in San

Francisco) remained critical trials. The results from Study 3 suggested that women were more likely to conform than men when the items were objective rather than subjective in the neutral prime condition. This should increase the likelihood that women will show more conformity than men and therefore provide a better test of the experimental hypothesis. All conformity scores were standardized so that higher scores represented more conformity. A reliability analysis was conducted on the items and yielded an unexpected low reliability ( $\alpha = .25$ ), so each of the conformity items were analyzed independently.

There were also changes made to the experimenter script. Before the participants started the conformity task, the experimenter verbally instructed the participants that they would be interacting with three other participants who were participating in this study in another room upstairs. They were told that they had been randomly assigned to a group of four other same sex participants and that all of their computers were linked together in a virtual chat room. The experimenter then told participants that once they finished this part of the study, they would go upstairs and meet the other three participants in a larger lab room to discuss the responses they gave on the following task. Finally, they were instructed that when they were ready to connect to the other participants they could click the begin button and that it may take a minute for the other participants to connect.

Furthermore, due to the concern that the salience of the group may have attenuated gender differences in conformity, each person in the chat room was referred to as a “participant” rather than a “group member.” Additionally, the priming manipulation did not make group membership salient, so the salience of the group should be reduced in comparison to Study 3. Five participants voluntarily mentioned that they did not believe the other participants’ responses were authentic and they were removed from the analyses.

## STUDY 4 RESULTS

The masculinity ( $M = 5.10$ ,  $SD = .71$ ) and femininity ( $M = 4.78$ ,  $SD = .72$ ) scales yielded on the Bem Sex Roles Inventory again yielded high reliabilities ( $\alpha = .84$  and  $\alpha = .84$ , respectively), so scale scores were computed using a mean of all of the items in the scale. A continuous measure of gender role was again assessed using the  $t$  ratio between the feminine and masculine scale scores (Bem, 1974; Bem & Lenney, 1976). Eta squared ( $\eta^2$ ) or partial eta squared ( $\eta_p^2$ ) was computed as an effect size for all significant results. The recommended cutoff values are as follows: values of .01 represent a small effect, values of .06 represent a medium effect, and values of .14 represents a large effect (Cohen, 1977).

### *Manipulation Check*

In order to determine if the manipulations increased the salience of the intended social roles as expected, the number of words completed on the word fragment completion task was examined. The total number of words completed in each category – competitive, cooperative, and neutral – served as the primary dependent variables for the analyses. The agentic and communal social role primes conditions were examined independently and each was compared to the neutral prime condition. It was predicted that participants in the agency condition would complete more competitive words than participants in the neutral condition. In order to examine if the agency prime increased the salience of the agentic social role more than the neutral condition, two t-tests were conducted examining the number of competitive and neutral words completed in the agentic and neutral prime conditions. As predicted, participants in the agency prime condition ( $M = 6.49$ ,  $SD = 1.41$ ) completed significantly more competitive words than

participants in the neutral prime condition ( $M = 5.23$ ,  $SD = 1.43$ ),  $t(78) = 3.94$ ,  $p < .001$ ,  $\eta^2 = .17$ . Moreover, there was no difference in the number of neutral words completed between participants in the agency prime condition ( $M = 4.65$ ,  $SD = 1.25$ ) and the neutral prime condition ( $M = 4.58$ ,  $SD = 1.68$ ),  $t(78) = .20$ ,  $p = .84$ ,  $\eta^2 = .0006$ . It was predicted that participants in the communion condition would complete more cooperative words than participants in the neutral condition. In order to examine if the communion prime increased the salience of the communal social role, two t-tests were conducted examining the number of cooperative and neutral words completed in the communal and neutral prime condition. As predicted, participants in the communion prime condition ( $M = 3.72$ ,  $SD = 1.49$ ) completed significantly more cooperative words than participants in the neutral prime condition ( $M = 2.65$ ,  $SD = 1.46$ ),  $t(81) = 3.32$ ,  $p = .001$ ,  $\eta^2 = .12$ . Additionally, there was no difference in the number of control words completed between those in the communion prime condition ( $M = 4.68$ ,  $SD = 1.31$ ) and those in the neutral prime condition ( $M = 4.58$ ,  $SD = 1.68$ ),  $t(82) = .31$ ,  $p = .76$ ,  $\eta^2 = .001$ . These results suggested that manipulations did increase the saliency of the intended social roles.

### *Research Question 1 and Hypothesis 1*

Research question 1 concerned whether men and women differ in their conformity behavior. There was no prediction on the existence of this relationship as the previous literature was mixed with some studies finding gender differences and other studies finding no gender differences. Hypothesis 1 predicted that there would be an interaction between participant gender and social role prime. Specifically, it is predicted that women would conform more when primed with a communal social role compared to an agentic social role or a neutral prime and men would conform less when primed with an agentic social role compared to a communal social role or neutral prime. In order to test hypothesis 1 and research question 1, a 2 (participant gender:

men vs. women) x 3(social role prime: agency vs. communion vs. neutral) multivariate analysis of variance (MANOVA) on conformity was conducted. Due to low reliability of the conformity items, each conformity item was entered as a separate dependent variable in the MANOVA.

The MANOVA yielded a trending main effect of gender, [Wilk's  $\lambda = .94$ ,  $F(4, 114) = 1.91$ ,  $p = .11$ ,  $\eta_p^2 = .06$ ]. Follow-up univariate ANOVAs revealed a marginal main effect of gender on the item that asked participants to choose whether Southwest Airlines or American Airlines has more on-time flights,  $F(1, 117) = 6.88$ ,  $p = .01$ ,  $\eta_p^2 = .06$ . For this conformity item, women conformed significantly more than men (see Table 5 for all means and standard deviations).

Table 5

*Means and standard deviations by participant gender for Study 4*

Conformity Item	Women	Men
New York City or San Francisco	7.35 (1.71)	6.93 (2.19)
Southwest or American Airlines	5.03 (1.93)*	4.22 (1.42)*
Green or Blue Shirts	5.68 (1.86)	5.47 (2.19)
Finland or Norway	5.81 (1.46)	5.64 (1.77)

*Note.* Judgments were made on a 9-point scale (1 = *definitely favor option A*, 9 = *definitely favor option B*). All scores are standardized so that higher score indicate more conformity.

\*  $p = .001$

None of the other follow-up univariate ANOVAs yielded significant main effects of gender, however a review of the means revealed that women conformed more than men for each of the other items, although these differences did not reach significance. This is inconsistent with the results of Study 1, which showed no clear pattern of women or men conforming more.

Consistent with Study 1, there was no significant main effect of condition [Wilk's  $\lambda = .92$ ,  $F(8, 228) = 1.18$ ,  $p = .32$ ,  $\eta_p^2 = .04$ ] or significant gender by condition interaction [Wilk's  $\lambda = .95$ ,  $F(8, 228) = .69$ ,  $p = .70$ ,  $\eta_p^2 = .02$ ] (see Table 6 for means and standard deviations).

Table 6

*Means and standard deviations by condition and participant gender for Study 4*

Conformity Item	Agency		Communion		Neutral	
	Women	Men	Women	Men	Women	Men
New York City or San Francisco	7.96(1.29)	7.13(1.82)	6.96(1.77)	6.53(2.52)	7.14(1.90)	7.14 (2.17)
Southwest or American Airlines	5.05(2.01)	4.63(1.09)	4.52(2.25)	3.68(1.34)	5.52(1.29)	4.36 (1.62)
Green or Blue Shirts	5.91(2.16)	5.75(2.60)	5.61(1.75)	5.11(1.94)	5.52(1.69)	5.55(2.13)
Finland or Norway	5.46(1.71)	5.94(1.88)	6.26(1.45)	5.42(1.87)	5.71(1.06)	5.55(1.65)

*Note.* Judgments were made on a 9-point scale (1 = *definitely favor option A*, 9 = *definitely favor option B*). All scores are standardized so that higher score indicate more conformity.

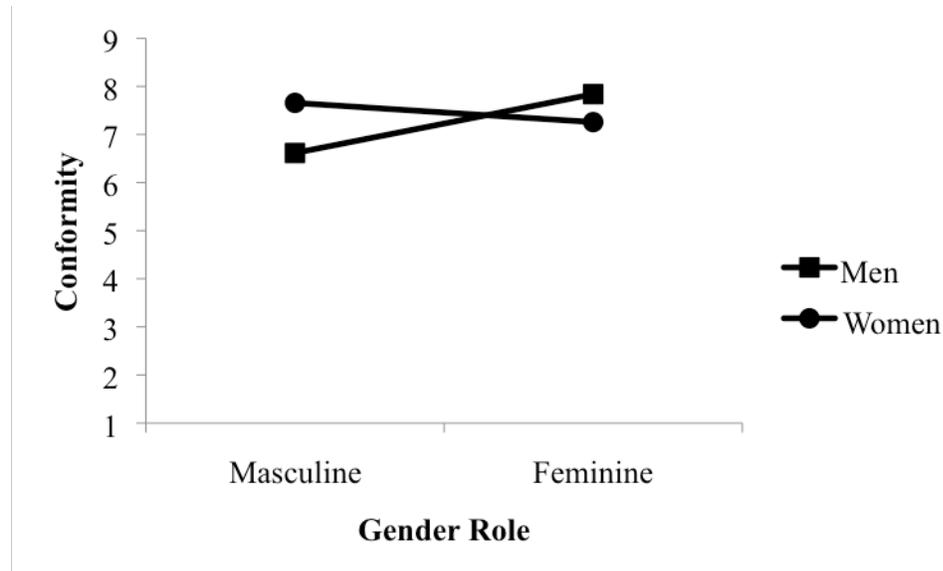
### *Research Questions 2 & 3*

The second research question asked if gender roles would influence conformity behavior. The third research asked how gender roles would influence the relationship between gender and primed social roles. In order to test research questions two and three, a multivariate general linear model analysis was conducted with participant gender and social role prime as categorical independent variables, the continuous measure of gender role as continuous independent variable, and conformity behavior on the four conformity items as the dependent variables. Due to low reliability of the conformity items, each conformity item was entered as a separate dependent variable in the general linear model.

Similar to the previous MANOVA, the multivariate general linear model yielded a significant main effect of gender, Wilk's  $\lambda = .90$ ,  $F(4, 106) = 2.83$ ,  $p = .03$ ,  $\eta_p^2 = .10$ . Consistent with Study 1, the multivariate general linear model yielded a significant interaction between gender and gender role [Wilk's  $\lambda = .89$ ,  $F(4, 106) = 3.38$ ,  $p = .01$ ,  $\eta_p^2 = .11$ ]. Follow-up univariate analyses of variance revealed significant interactions between gender and gender role for two of the four conformity items (green or blue shirts being better at keeping people cool,  $F(1, 109) = 3.84$ ,  $p = .05$ ,  $\eta_p^2 = .03$ ; Finland or Norway having more consumers,  $F(1, 109) = 4.01$ ,  $p = .05$ ,  $\eta_p^2 = .04$ ) and a marginal effect on another conformity item (New York City or San Francisco being more expensive to live in,  $F(1, 109) = 3.56$ ,  $p = .06$ ,  $\eta_p^2 = .03$ ). For the judgment about New York City or San Francisco being more expensive to live in, the pattern was consistent with the pattern of means found in Study 3. The more men endorsed feminine gender roles (reflected by a higher score on the continuous gender role measure), the more likely they were to conform (or the less likely they were to dissent) on this particular item. The more women endorsed feminine gender roles, the less likely they were to conform on this particular item (See Figure 2). Again, the slope of the line for men was steeper than the line for women suggesting that relationship was stronger for men.

Figure 2

Gender by gender role interaction on conformity for New York City or San Francisco more expensive to live in in Study 4



For the other two conformity items – blue or green shirts better at keeping you cool and Finland or Norway having more consumers – was inconsistent with the results found in Study 1. For these items, the more men endorsed feminine gender roles, the less likely they were to conform (or more likely they were to dissent). The more women endorsed feminine gender roles, the more likely they were to conform, however the difference for men was more pronounced (see figures 3 and 4 respectively). The final follow-up univariate general linear model (Southwest Airlines or American Airlines has more ontime arrivals) did not yield a significant interaction between gender and gender role.

Figure 3

*Gender by gender role interaction on conformity for blue shirts or green shirts better at keeping people cool in Study 4*

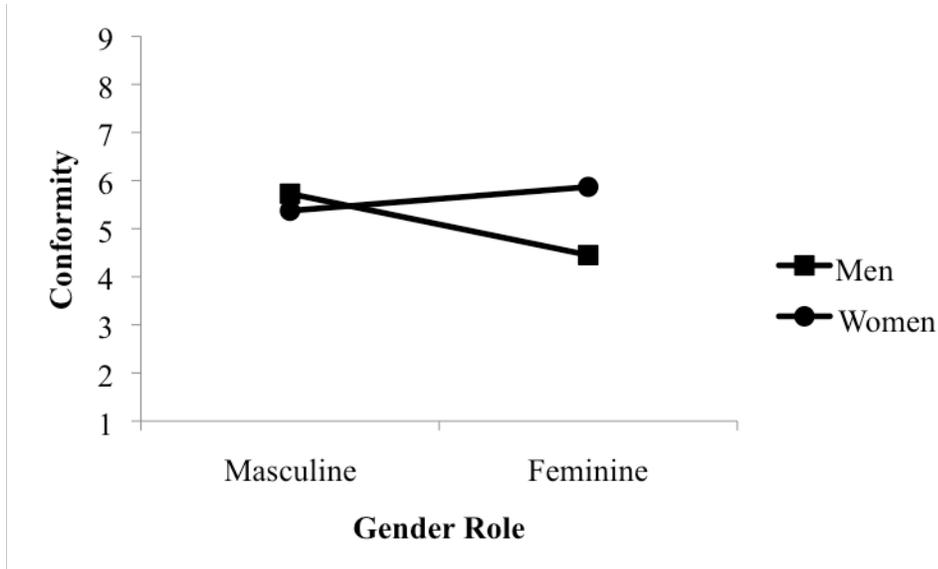
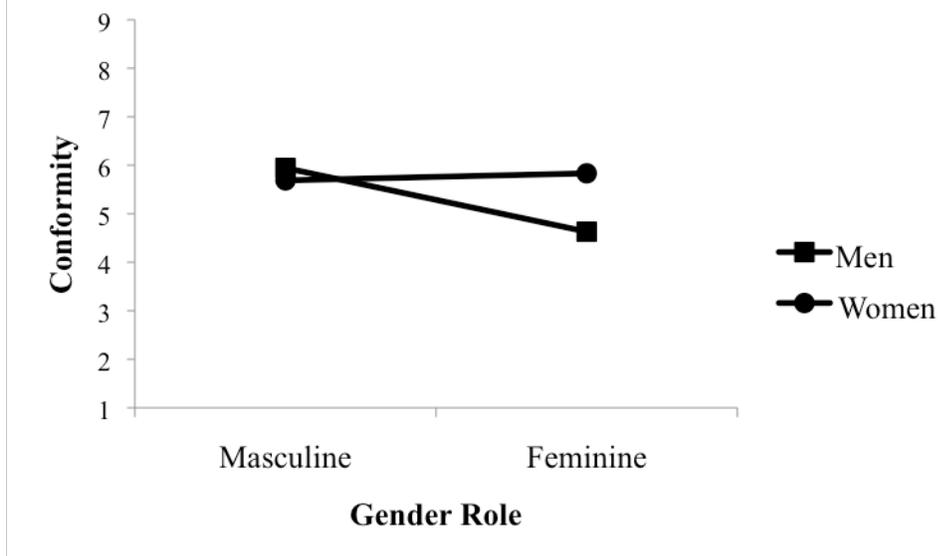


Figure 4

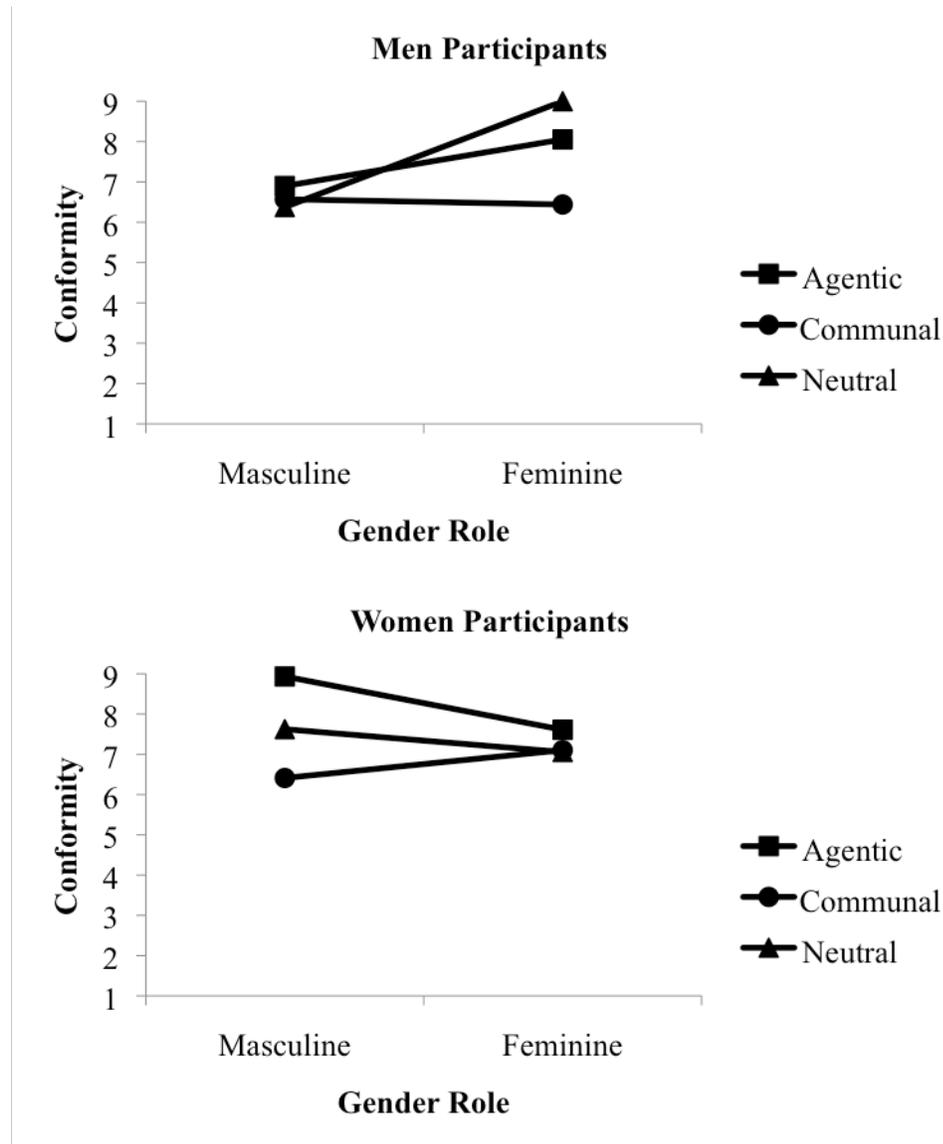
*Gender by gender role interaction on conformity for Finland or Norway having more consumers in Study 4*



This two-way interaction was qualified by a significant three way interaction between gender, social role prime, and gender role [Wilk's  $\lambda = .84$ ,  $F(8, 212) = 2.12$ ,  $p = .04$ ,  $\eta_p^2 = .07$ ]. Follow-up univariate general linear models revealed marginal three way interaction on for one item (New York City or San Francisco is more expensive to live in,  $F(2, 109) = 2.96$ ,  $p = .06$ ,  $\eta_p^2 = .05$ ). For men who endorsed more feminine gender roles, participants in the agency and neutral condition conformed more than those in the communion condition whereas there were no differences for men who endorsed less feminine gender roles (see Figure 5). For women who endorsed more masculine gender roles, participants in the agency condition conformed more than those in the neutral and communion conditions while there were no differences for women who endorsed more feminine gender roles. Taken together, participants whose gender roles were incongruent with their gender (i.e., men endorsing feminine roles and women endorsing masculine roles) were more likely to conform when the agentic social role was made salient compared to when the communal social role was made salient.

Figure 5

Gender by condition by gender role interaction on conformity for New York City or San Francisco more expensive to live in in Study 4.

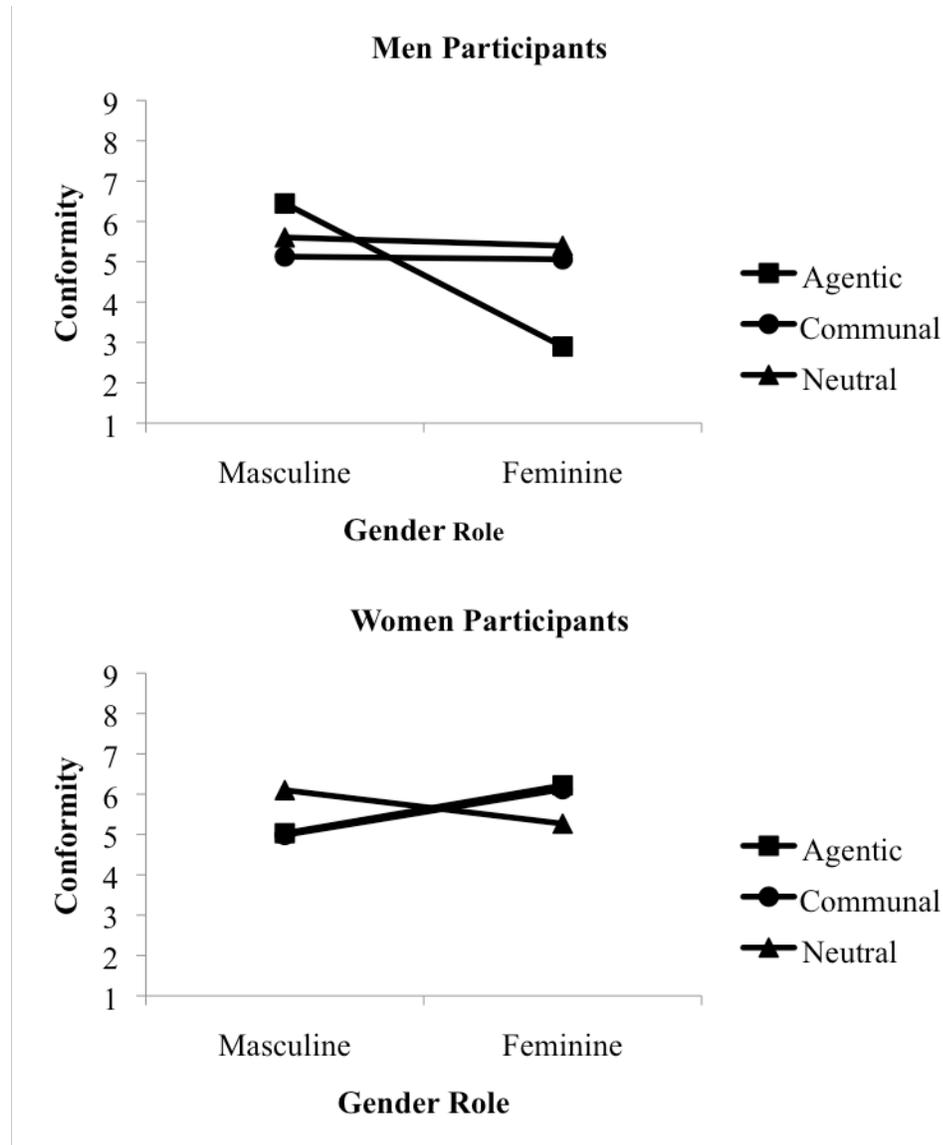


The follow-up univariate ANOVAs also revealed a marginal three way interaction on the item in which participants choose whether green or blue shirts were better at keeping people cool,  $F(2, 109) = 2.38, p = .10, \eta_p^2 = .04$ . This item revealed a different pattern (See Figure 6). For men who endorsed more feminine gender roles, those in the agency condition conformed less than those in the neutral and communion conditions whereas there were no differences for men who endorsed more masculine gender roles. There were no differences for women regardless of social role prime or gender role.

The general linear model yielded no other significant main effects or interactions including: no significant main effect of condition [Wilk's  $\lambda = .90, F(4, 106) = 2.83, p = .03, \eta_p^2 = .05$ ], no significant main effect of gender role [Wilk's  $\lambda = .95, F(4, 106) = 1.51, p = .21, \eta_p^2 = .05$ ], no significant gender by condition interaction [Wilk's  $\lambda = .97, F(8, 212) = .47, p = .87, \eta_p^2 = .02$ ], no significant condition by gender role interaction [Wilk's  $\lambda = .94, F(8, 212) = .86, p = .55, \eta_p^2 = .03$ ].

Figure 6

Gender by condition by gender role interaction on conformity for blue or green shirts better at keeping people cool in Study 4



## STUDY 4 DISCUSSION

In this study, women conformed more than men overall. Although the differences were only significant on one conformity item (Southwest Airlines or American Airlines has more ontime flights), the pattern of means was in the same direction for all of the other conformity items. Given the efforts to increase the conformity of women in the Study 4, these results were not surprising. Unfamiliar, masculine stimuli were used in this study, which have been previously shown to increase the conformity of women relative to men (Goldberg, 1975; Javorinsky, 1979; Karabenick, 1983; Maupin & Fisher, 1989; Sistrunk, 1972; Sistrunk & McDavid, 1971). Additionally, the critical items for this study were all items on which women conformed more on in Study 1 in the neutral condition. Although this suggests there may be a trend for women to conform more than men in some conformity situations, it also suggests that one important variable for future research to consider is the attributes and features of the conformity stimuli, which may be an important determinant for gender differences in conformity.

As stated in the introduction, several researchers postulated, but have never tested, the hypothesis that social roles influenced gender differences in conformity. Specifically it was hypothesized that social roles prescribe that women should be more communal and therefore likely to conform and men should be agentic and therefore more likely to dissent (Eagly, 1978; Eagly, Wood, & Fishbaugh, 1981; Kerch, Crutchfield & Ballachey, 1962; Middlebrook, 1974; Reysen & Reysen, 2004). Despite the overall gender differences in conformity in this study, the hypothesized relationship between gender and social role prime was not supported by the results of this study suggesting that social roles did not independently influence conformity.

The results did, however, indicate that gender role is an important variable to consider when examining this relationship. Specifically the results suggested that individuals who have gender-incongruent gender roles (i.e., masculine women and feminine men) might show an atypical pattern of conformity behavior. For one conformity item, both men and women with gender-incongruent gender roles were more likely to conform, particularly when the agentic social role was made salient. Individuals who experience gender role conflict, resulting from gender role incongruence, have been previously shown to experience psychological distress and poor psychological wellbeing (Lui, Rochlen, & Mohr, 2005; Sharpe & Heppner, 1991; Zamarripa, Wampold, & Gregory, 2003). Furthermore, conformity behavior has been shown to increase when individuals are publically self-conscious, experiencing social anxiety, or are self-monitoring (Santee & Maslach, 1982), all behaviors that may be linked to psychological distress. Based on this literature, individuals who have gender-incongruent gender roles may use conformity as a way to blend into the group, particularly when they have been primed with agency, or independence, as opposed to a communal social role or a neutral prime. For other conformity items, men who endorsed a more feminine gender role were less likely to conform, particularly when the agentic role was made salient in one case, whereas women did not show differences in conformity. Another strategy that individuals use in order to lessen the negative consequences of being perceived as having a gender role inconsistent with their gender is to engage in gender-consistent behavior (Rudman & Fairchild, 2004). Perhaps on some items, men were engaging in more dissent in order to appear more masculine and in order to appear more gender-consistent. Women, on the other hand, continued to engage in conformity, which made their behavior, appear similar to others. Although these results are inconsistent across items, each pattern of results may represent potential strategies for individuals with gender-incongruent

gender roles to lessen the impact of appearing gender-deviant to the their interaction partners. Based on the seemingly opposing pattern of results for individuals with gender-incongruent gender roles, it may be that the changes in behavior reflect self-presentational attempts to avoid appearing gender-incongruent. That is, the responses of these individuals is inconsistent across conformity items which may suggest that the behavior of these individuals is influenced by the situation and is done in effort project an image of gender-consistent behavior. Further work is needed in order to determine the precise motives that may have lead feminine men and masculine women to engage in this pattern of conformity behavior.

Another important issue in is the lack of reliability between the conformity items. The conformity behavior of participants was variable depending upon the specific conformity item. This suggests that there may be a potential moderating variable that is unaccounted for in the design. Specifically, there may be some feature of the conformity items that elicits varying level of conformity, particularly for individuals who have gender-incongruent gender roles. Although previous research shows that the masculinity or femininity of an item may influence gender differences in conformity (Goldberg, 1975; Javorinsky, 1979; Karabenick, 1983; Maupin & Fisher, 1989; Sistrunk, 1972; Sistrunk & McDavid, 1971), other characteristics of the conformity items need to be more carefully examined.

## GENERAL DISCUSSION

The aim of this research was to examine unresolved questions in the existing literature on gender differences in conformity and specifically to examine how the activation of social roles moderated gender differences in conformity. Therefore, the primary objective of the present studies was to empirically examine the potential explanation that social roles account for some of the variability in gender differences in conformity. It was predicted that women who were more communal would be more likely to conform and men high in agency would be more likely to dissent. Across studies three and four, there was little evidence to support the idea that social roles influence gender differences in conformity. Due to the combination of null and inconsistent findings across the latter two studies, the results are relatively inconclusive and implications for this work are difficult to assess. Below, several speculative explanations for these results are proposed.

One potential reason for the lack of support for the hypothesized relationship between gender roles, gender, and conformity may be the changes in gender role norms over the past decades since the seminal research in this area was conducted. The meta-analyses examining gender differences in conformity were completed nearly thirty year ago (Cooper, 1979; Eagly, 1978; Eagly & Carli, 1981). Current literature on gender roles suggests that gender role prescriptions may be changing as women's role in society shifts. Specifically, stereotypes about women -- which people use to base their expectations for behavior -- now include masculine and agentic qualities in addition to feminine and communal qualities (Diekman & Eagly, 2000; Duehr & Bono, 2006; Eagly & Sczesny, 2009). However, the changes in gender stereotypes are

subtle and may not reflect the extent of the large scales changes in societal roles over time. Furthermore, other research has shown relative stability in gender stereotypes from the mid 1970s until the late 1990s (Lueptow, Garovich-Szabo, & Lueptow, 2001). Although there is some evidence to suggest subtle change in gender roles over time, researchers in this area caution interpreting these subtle changes to indicate that gender role biases have been completely attenuated. Additionally, the increased variability of women's stereotypes has not been paralleled by a change in men's stereotypes. That is, men's stereotypes continue to be more rigid and the expression of femininity and communion in men may still be viewed as gender-inconsistent. Applied to the present investigation, this has potential relevance to the results of this study showing that feminine men were particularly likely to be influenced by the situational aspects of the conformity paradigm.

An examination of the gender roles of the individuals in our samples provides a good illustration of the changing nature of gender roles. Across the studies three and four, women were evenly spread out across endorsement of the three gender roles – 26% of women endorsed a masculine gender role, 30% of women endorsed a feminine gender role, and 44% of women endorsed an androgynous gender role. Men, on the other hand, still predominantly endorsed a masculine gender role. Specifically, 65% of men endorsed a masculine gender role, 7% of men endorsed a feminine gender role, and 28% of men endorsed an androgynous gender role. Given the changes in social roles and the subtle changes in gender stereotypes, it seems plausible that gender differences in conformity may be waning. Furthermore, gender differences that have been reported recently in the literature (Collin et al., 1994; Ellis, Nel, & Van Rooyen, 1991; Larsen, 1990; Lee, 2006; Griskevicius et al., 2006; Reysen & Reysen, 2004) may have been caused by variables other than social role differences.

Additionally, the chat room context may have inadvertently limited the ability of the study to provide a good test of the primary hypothesis. Much of the early work on conformity was conducted in face-to-face contexts and the chat room paradigm in these studies may have attenuated the salience of the other simulated participants in the study. Since group pressure is one moderator of gender differences in conformity (Cooper, 1979; Eagly, 1978; Eagly & Carli, 1981; Eagly & Chryala, 1986; Eagly, Wood, & Fishbaugh, 1981), it is plausible that the null results may have resulted from the chat room removing the salience of group pressure. Although more recent research on conformity has used a chatroom paradigm (Griskevicius et al., 2006), there may be certain features and attributes of the chat room paradigm that increase or attenuate group pressure in online contexts. Furthermore, recent research has shown that women are less likely to be persuaded in online communication compared to face-to-face communication (Guadagno & Cialdini, 2002, 2007). It may be that gender differences in conformity are attenuated in online behavior because women are less influenced by interaction partners in online contexts relative to comparable face-to-face contexts. Future research should examine the primary hypothesis of this study in a face-to-face context.

One clear implication of this research is that gender role, and particularly gender role incongruence, may influence individuals' conformity behavior to a larger extent than previously thought. Although previous literature has shown that individuals who adhere to more traditional gender roles may be more likely to conform (Johnson & MacDonnell, 1974; Goldberg, 1975), the results of Study 4 showed that individuals with a gender-incongruent gender role were more influenced by the conformity paradigm particularly when the agentic social role was made salient. In some cases the salience of the agentic social role led individuals with gender-incongruent gender roles to conform more in order to fit into the group (i.e., feminine men and

masculine women engaged in more conformity). However, in other cases, the salience of the agentic social role led these individuals to engage in behavior consistent with gender expectations (i.e., feminine men engaged in more dissent). In both cases, this behavior appears to represent efforts to minimize potential negative repercussions faced by individuals who have gender-incongruent gender roles. Furthermore, there were only a small number of feminine and androgynous men in this study, so these results may not be representative of feminine men in general. Future research should examine mechanisms that might help to identify when individuals with gender-incongruent gender role may be more or less likely to conform. Specifically research should aim to identify why gender role incongruence may lead to more conformity to some conformity stimuli and more dissent to other conformity stimuli. The salience of the agentic social role seems to be one factor that influences these behaviors.

This research used masculine, unfamiliar conformity stimuli, which is one limitation of the current work. Future research should examine other types of conformity stimuli to examine how the attributes of the conformity stimuli might influence the relationships that were found in the current study. Additionally, the results of this research emphasize the importance of conducting further studies examining how the properties of conformity stimuli influence conformity behavior. For instance, the items in the present studies yielded low reliability suggesting that there was a moderating variable not accounted for in the current design that influenced overall conformity behavior. The lack of reliability among the items limits the generalizability of the results. While past research has examined how the masculinity and femininity of the item influenced conformity behavior (Goldberg, 1975; Javorinsky, 1979; Karabenick, 1983; Maupin & Fisher, 1989; Sistrunk, 1972; Sistrunk & McDavid, 1971), the current research suggests that there may be other factors that should also be considered. Future

research should examine how the objectivity of the stimuli, knowledge of the content of the stimuli, previous exposure to the stimuli, and other variables influence conformity behavior.

One limitation of this research is the origin of the participant sample. Participants were all college students at the University of Alabama. The Southern United States is known for having more traditional gender roles (Wayde, Murphy, & Guadagno, 2010) and this may have influenced the results of the study. Individuals with gender-inconsistent gender roles may exhibit different behaviors when they are in a culture that promotes traditional gender roles in comparison to a culture that is more accepting of nontraditional gender roles. It is also plausible that a college sample may be more agentic than a sample of individuals who have not attended college. College students are likely to have chronic accessibility of their career goals and aspirations, which may lead to increased agency due to a constant focus on education and the development of skills and abilities to be independent employees.

In addition to the theoretical implications, there are practical implications of this research as well. These results are consistent with recent literature suggesting that gender roles are changing (Diekmann & Eagly, 2000; Duehr & Bono, 2006; Eagly & Sczesny, 2009). Thus, one implication of the present studies is that behavioral differences for women and men may be waning and therefore opportunities for egalitarian roles in society may be closer to becoming a reality. As expectations for men and women become more similar, discrimination against women in careers, compensations, and education should also begin to decrease as well. Furthermore, the results of this research suggests that future research should focus on individuals with gender-incongruent gender roles, particularly feminine men as they responded differently to the conformity paradigm across these studies and there is a paucity of research on this group.

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APPENDIX A  
Study 1 & 2 Proposed Writing Prime

Agency Prime:

In this part of the study, we are interested in the relationship between past experiences and memory. For this exercise we would like you to think of a single event in your life that involved achieving something great and/or feeling powerful and exuberant over an accomplishment. You may also have felt as though you stood apart from others or were recognized with the distinction of being the best.

Take a moment to select a past experience, then take five minutes to write about the event as you now remember it. In particular, please describe how the event came about and how you felt in detail—as vividly as you can. In fact, before you begin writing, take a few minutes to try to reexperience this event as vividly as possible.

Communion Prime:

In this part of the study, we are interested in the relationship between past experiences and memory. For this exercise we would like you to think of a single event in your life that involved being close to others and/or feeling part of a group in a way that was very satisfying. You may also have felt as though you were interrelated with others or that they had similar experiences that helped to form a bond between you.

Take a moment to select a past experience, then take five minutes to write about the event as you now remember it. In particular, please describe how the event came about and how you felt in detail—as vividly as you can. In fact, before you begin writing, take a few minutes to try to reexperience this event as vividly as possible.

Control Prime:

In this part of the study, we are interested in the relationship between past experiences and memory. For this exercise we would like you to think about a single event in your life that involved you listening to music alone.

Take a moment to select a past experience, then take five minutes to write about the event as you now remember it. In particular, please describe how the event came about and how you felt in detail—as vividly as you can. In fact, before you begin writing, take a few minutes to try to reexperience this event as vividly as possible.

APPENDIX B  
Study 1 & 2 Proposed Questionnaire Prime

Agentic Prime:

1. I take charge of situations.
2. I openly express my affection for others.
3. I succeed because of my skills rather than hard work or luck.
4. I feel a need to compete against others.

Communal Prime:

1. I am sympathetic to the needs of others.
2. I share with others.
3. I need the affection of other people.
4. I am charitable.

## APPENDIX C

### Personality Attribute Questionnaire (Spence, Helmreich, & Stapp, 1974)

The items below inquire about what kind of person you think you are. Each item consists of a pair of characteristics, with the letters A – E in between. For example:

Not at all artistic      A.....B.....C.....D.....E      Very artistic

Each pair describes contradictory characteristics – that is you cannot be both at the same time, such as very artistic and not at all artistic.

The letters form a scale between the two extremes. You are to choose a letter which describes where **you** fall on the scale. For example, if you think you have no artistic ability, you would choose A, if you think you are pretty good, you might choose D. If you are medium you might choose C, and so forth.

Not at all aggressive	A.....B.....C.....D.....E	Very aggressive
Not at all independent	A.....B.....C.....D.....E	Very independent
Not at all emotional	A.....B.....C.....D.....E	Very emotional
Very submissive	A.....B.....C.....D.....E	Very dominant
Not at all excitable in a major crisis	A.....B.....C.....D.....E	Very excitable in a major crisis
Very passive	A.....B.....C.....D.....E	Very active
Not at all able to devote self completely to others	A.....B.....C.....D.....E	Able to devote self completely to others
Very rough	A.....B.....C.....D.....E	Very gentle
Not at all helpful to others	A.....B.....C.....D.....E	Very helpful to others
Not at all competitive	A.....B.....C.....D.....E	Very competitive
Very home oriented	A.....B.....C.....D.....E	Very worldly
Not at all kind	A.....B.....C.....D.....E	Very kind
Indifferent to other's	A.....B.....C.....D.....E	Highly needful of

approval

Feelings not easily hurt A.....B.....C.....D.....E

Not at all aware of other's feelings A.....B.....C.....D.....E

Can make decisions easily A.....B.....C.....D.....E

Gives up very easily A.....B.....C.....D.....E

Never cries A.....B.....C.....D.....E

Not at all self-confident A.....B.....C.....D.....E

Feels very inferior A.....B.....C.....D.....E

Not at all understanding of others A.....B.....C.....D.....E

Very cold in relations with others A.....B.....C.....D.....E

Very little need for security A.....B.....C.....D.....E

Goes to pieces under pressure A.....B.....C.....D.....E

other's approval

Feelings easily hurt

Very aware of other's other's feelings

Has difficulty making decisions

Never gives up easily

Cries very easily

Very self-confident

Feels very superior

Very understanding of others

Very warm in relations with others

Very strong need for security

Stands up well under pressure

## APPENDIX D

### Word Fragment Completion Task

Instructions: For the following words, please try to complete the word with the first thing that comes to your mind. Write the missing letters in the blanks. Try your best to complete as many as you can.

1. C_AME_EO_	Chameleon	Neutral
2. GI_A_F	Giraffe	Neutral
3. C_NQ_ER	Conquer	Competitive
4. AL_I_N_E	Alliance	Cooperative
5. S_RU_G_E	Struggle	Competitive
6. CO_LA_OR_TE	Collaborate	Cooperative
7. J_I_	Join	Cooperative
8. CL_S_IC_L	Classical	Neutral
9. C_E_I_G	Chewing	Neutral
10. FRE_U_N_	Frequent	Neutral
11. CO_P_TIT_ON	Competition	Competitive
12. VI__OR_	Victory	Competitive
13. CO_F_IC_	Conflict	Competitive
14. PE_P_E	People	Neutral
15. LE_G_E	League	Cooperative
16. EL_CT_O_	Election	Neutral
17. E_I_IN_TE	Eliminate	Competitive
18. W_N	Win	Competitive
19. L_SE	Lose	Competitive
20. A_TO_OB_LE	Automobile	Neutral
21. U_I_E_	United	Cooperative
22. SY_L_BU_	Syllabus	Neutral
23. CO_T_IB_TE	Contribute	Cooperative
24. CO_PE_AT_ON	Cooperation	Cooperative
25. TO_ET_E_	Together	Cooperative
26. T_A_WO_K	Teamwork	Cooperative
27. CO_TE_T	Contest	Competitive

APPENDIX E  
Pronoun Task

Directions: There are many languages in our world - most of them are unknown to us. Surprisingly, people can often guess the correct translation of a language that we know. In this text below, you find a (probably) unknown language. As you can see, fifty words are underlined in this text. These underlined words are ALL pronouns. The words could be words reflecting ourselves (e.g., I, me, my, mine, myself, us, ours, we), or others (e.g., she, he, him, her, them, theirs, they). We would like to examine whether it is indeed possible to guess the correct translation of a foreign language. Try to guess the correct translation of each of the underlined words. Please do so, by writing the pronoun (that you think is the correct translation) right above the underlined word. Let your gut feeling help you in deciding which pronoun is the best translation.

Я(1) часто прошу его(2) родителей забрать меня(3) из моего(4) офиса.

Ты(1) всегда был очень добр к нам(2).

Мы(1) нечего не теряем, потому что он(2) украл все из нашего(3) дома.

Мы(1) пришли в её(2) дом чтобы посмотреть последний боевик.

Они(1) были очень счастливы что Джон получил его(2) первую золотую медаль.

В этом матче он(1) показал им(2), что он(3) один из лучших игроков.

Во время их(1) романтического путешествия она(2) была очень горяча с ним(3).

Наш(1) маленький племянник был выбран как лучший игрок турнира – он(2) является действительно большим!

Мой(1) брат был настолько сердит, что он(2) нарушил окно.

Они(1) запели «Я(2) – чемпион» потому что кубок был их(3).

Ты(1) и я(2) всего лишь млекопитающие, поэтому давай делать это как они(3) это делают в телевизоре.

По нашему(1) пониманию, не нужно объяснять почему это произошло.

Родители хотят лучшее для их(1) детей.

Моя(1) сестра дала нам(2) конфеты, которые она(3) купила в магазине.

Это большой шанс для нас(1), чтобы достигнуть того, что мы(2) хотим.

Это стало ясным, что мой(1) друг и я(2) не напишут этот тест.

Ты(1) не поверишь в это, но Джон и Джерк увидели меня(2) и он(3) и его(4) друзья сказали, что их(5) машину украли.

Мать махала в нас(1) – она(2) была установлена, мы(3) должны были уехать.

Мальчик хотел бы сказать ему(1), что игра закончена.

Чтобы позвонить им(1), полицейский взял телефон.

APPENDIX F  
Study 3 Social Roles Prime

Agency Prime:

In this part of the study, we are interested in the relationship between past experiences and memory. For this exercise we would like you to think of a single event in your life that involved a group you were involved in achieving something great. Particularly, consider a time in which you felt like you were a leader of this group. You may have felt as though you were recognized with the distinction of being the best or stood apart from the other group members.

Take a moment to select a past experience, then take five minutes to write about the event as you now remember it. In particular, please describe how the event came about and how you felt in detail—as vividly as you can. In fact, before you begin writing, take a few minutes to try to reexperience this event as vividly as possible.

Communal Prime:

In this part of the study, we are interested in the relationship between past experiences and memory. For this exercise we would like you to think of a single event in your life that involved a group you were involved in achieving something great. Particularly, consider a time in which you felt a though you were a team member of this group. You may also have felt as though you were interrelated with others or shared similar experiences with the other group members.

Take a moment to select a past experience, then take five minutes to write about the event as you now remember it. In particular, please describe how the event came about and how you felt in detail—as vividly as you can. In fact, before you begin writing, take a few minutes to try to reexperience this event as vividly as possible.

Neutral Prime:

In this part of the study, we are interested in the relationship between past experiences and memory. For this exercise we would like you to think about a single event in your life that involved you being outside and enjoying nature. Particularly, consider a time in which you felt like you were experiencing the earth's natural habitat. You may have felt as though you truly understood and appreciated the earth's natural beauty and were an individual within a larger environment.

Take a moment to select a past experience, then take five minutes to write about the event as you now remember it. In particular, please describe how the event came about and how you felt in detail—as vividly as you can. In fact, before you begin writing, take a few minutes to try to reexperience this event as vividly as possible.

APPENDIX G  
Bem Sex Role Inventory (Bem, 1974)

Instructions: Rate the following attributes on a scale of 1 (never or almost never true of me) to 7 (Always or almost always true of me), depending on how much each of the attributes describes you.

1. Self- reliant
2. Yielding
3. Helpful
4. Defends your beliefs.
5. Cheerful
6. Moody
7. Independent
8. Shy
9. Conscientious
10. Athletic
11. Affectionate
12. Theatrical
13. Assertive
14. Flatter-able
15. Happy
16. Strong Personality
17. Loyal
18. Unpredictable
19. Forceful
20. Feminine
21. Reliable
22. Analytical
23. Sympathetic
24. Jealous
25. Has leadership abilities
26. Sensitive to the needs of others
27. Truthful
28. Willing to take risks
29. Understanding
30. Secretive
31. Makes Decisions easily
32. Compassionate
33. Sincere
34. Self- Sufficient
35. Eager to soothe hurt feelings
36. Conceited
37. Dominant
38. Soft spoken
39. Likeable
40. Masculine

41. Warm
42. Solemn
43. Willing to take a stand
44. Tender
45. Friendly
46. Aggressive
47. Gullible
48. Inefficient
49. Acts as a leader
50. Childlike
51. Adaptable
52. Individualistic
53. Does not use harsh language
54. Unsystematic
55. Competitive
56. Loves Children
57. Tactful
58. Ambitious
59. Gentle
60. Conventional

APPENDIX H  
Demographic Information

Age: \_\_\_\_\_

Gender:

- A. Male
- B. Female

Ethnicity:

- A. White/Caucasian American
- B. Black/African American
- C. Asian
- D. Hispanic
- E. Biracial/Multiracial
- F. Other

APPENDIX I  
Study 3 Conformity Task Stimuli

Option A	Option B
Mercedes Benz	BMW
Silver Car	Forest Green Car
Ferrari	Lamborghini
Van Gogh painting	Monet painting
More expensive to live in New York City	More Expensive to live in San Francisco
Southwest Airlines has more on-time arrivals	American Airlines has more on-time arrivals
Green shirts are better at keeping people cool	Blue shirts are better at keeping people cool
Finland has more consumers	Norway has more consumers

APPENDIX J  
Experimenter Debriefing Script

Before you leave, I'd like to tell you a little more about this study. We are interested in studying how the experience you wrote about influenced your likelihood of conformity to past participants' response to the survey questions.

In this investigation, some groups were asked to write about a situation in which they were (answer questions related to being) independent or agent, some groups were asked to write about a situation in which they were (answer questions related to being) part of a group or communal, and some groups were asked to write about a situation from a class they had taken (were not asked to answer any questions). Additionally, the information given about previous participants' responses to the survey questions was generated by the researcher to give you the impression that some participants preferred one response over the other. These were not actually previous participants' responses. *(Make sure participant understand what you are saying. If they don't, then go into further detail until they fully understand. If they feel upset by the manipulation, let them know that no one ever figures it out and of its necessity for scientific research)*

Some research shows that women conform, or go along with the group, more than men, while other research shows there are no differences. This study is designed to determine if women are more likely to conform, particularly when they have previously written about a situation in which they were part of a group.

Do you have any questions about the study? *(Wait five seconds and move forward.)* You know that all of your responses are *completely* anonymous and your name won't be associated in any way with our findings.

Finally, I'd like to ask you not to tell anyone else about what happens during this study or what the real purpose of the study is. If people come into the study with any sort of suspicions or prior expectations, it could really bias our results. Even if you told someone who isn't in PY 101, word could get around and have severe effects on our results. Can you see how this could cause a real problem for our research if subjects participated who already knew something about what we were studying? *(Wait five seconds and move forward.)* Can I count on you then to maintain confidentiality about this experiment? *(Wait five seconds and move forward.)*

Thank you for participating in our study.

APPENDIX K  
Study 4 Social Roles Prime

Agentic Prime:

1. I take charge of situations.
2. I openly express my opinions to others.
3. I succeed because of my skills rather than hard work or luck.
4. I feel a need to compete against others.

Communal Prime:

1. I am sympathetic to the needs of others.
2. I share with others.
3. I seek out the opinions of other people.
4. I am charitable.

Neutral Prime:

1. I enjoy spending time outdoors.
2. I would rather be outside than inside.
3. I like to observe animals in their natural environment.
4. I prefer spring days compared to fall days.