LOOKING BEYOND BIOLOGY: THE IMPACT OF PSYCHOLOGICAL GENDER ON SMALL GROUP LEADERSHIP EMERGENCE

by

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ABSTRACT

The purpose of this study was to examine the respective impacts of biological sex and psychological gender on leadership emergence in small groups performing sex-typed tasks. Whereas past research involved participants experiencing fellow group members’ biological sex and psychological gender simultaneously, the present study’s use of computer-mediated communication (CMC) as a means to manipulate anonymity effectively “untied” participants’ biological sex and psychological gender. The current study posited a two-way interaction between biological sex and sex-typing of the task to be performed such that males would emerge as leaders in male-typed tasks and females would emerge as leaders in female-typed tasks. This relationship would be accentuated when participants were identified to one another. Additionally, the current study posited a two-way interaction between psychological gender and sex-typing of the task to be performed such that masculine individuals would emerge as leaders in male-typed tasks and feminine individuals would emerge as leaders in female-typed tasks. This relationship would be accentuated when participants were anonymous to one another.

Two hundred and twenty people (n = 220) completed a pretest to determine their psychological gender. Participants were then randomly paired into dyads and assigned to one of four conditions: anonymous/male-typed task, anonymous/female-typed task, identified/male-typed task, identified/female-typed task. Participants were then given 15 minutes to discuss the task they were assigned. Immediately following their conversation, participants completed several questionnaires measuring their
perceptions of their partner’s leadership. Results did not support the proposed hypotheses. However, those participants who were identified to their partner were rated higher as maintenance leaders than those who were not. Additionally, those participants who performed a female-typed task were also rated higher as maintenance leaders than those who performed a male-typed task.

Though the proposed hypotheses were not supported, the current study provides valuable insight into the effects of anonymity and sex-typing of tasks on leadership emergence. Additionally, this study provides support for the notion of utilizing CMC to facilitate anonymity in future group communication research.
Chapter 1

Introduction

Demographic changes in the structure of the American workforce have created an environment in which the roles of men and women are less segregated than they have been in the past (Jackson, 1992). Consequently, men and women are increasingly being asked to collaborate in groups to achieve a common goal, forcing women to take on tasks that have traditionally been dominated by men. The increased integration of women into work groups indicates a step in the right direction for organizations wishing to take advantage of the skills that all employees have to offer. However, because men have historically made the important decisions in most organizational groups, predetermined notions that men are more adept than women at making those decisions may exist (Thomas-Hunt & Phillips, 2004).

As a consequence, countless pages of research pertaining to leadership emergence have reported that in task-oriented groups, males are generally more likely to emerge as leaders than females. This may be a result of most traditional group problems being viewed as stereotypically male. There are, however, certain types of tasks that are seen as stereotypically female as well. Extant research in this area has shown a two-way interaction between biological sex and sex-typing of a task with regard to leadership emergence, such that men tend to emerge as leaders in male-typed tasks and women tend
to emerge as leaders in female-typed tasks (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972; Dovidio, Ellyson, Keating, & Heltman, 1988; Williams & Best, 1990).

Traditionally, communication scholars have explained this interaction with biological sex alone. However, another possible factor, power cues, may explain what causes a leader to emerge in a group performing a given task. Existing research suggests that those who display assertive verbal and nonverbal power cues tend to emerge as leaders more regularly than those that do not. Since most significant research regarding group interaction has been done through face-to-face communication, biological sex and power cues are fundamentally confounded—people simultaneously see each other’s biological sex and experience each other’s power cues simultaneously. The entanglement of biological sex and power cues poses a conundrum for those wishing to definitively conclude which, if either, is the more salient predictor of emergent leadership.

There are two viable options for distinguishing biological sex and power cues. The first option is to make the interaction between group members anonymous. If group members are anonymous, then stereotyping cannot be accurately based on simple recognition of biological sex. Thus, if sex-typing still occurs, then biological sex recognition cannot be the sole cause of this phenomenon. The second option is to consider psychological gender as a predictor of emergent leadership. Psychological gender has traditionally been defined in terms of masculinity and femininity. Masculinity refers to that group of characteristics that are thought of as being inherently male-oriented (e.g., strength, assertion, confidence). In contrast, femininity refers to that group of
characteristics that are conventionally considered female-oriented (e.g., politeness, submission). If, independent of biological sex, masculinity is related to powerful cues—which are characterized by assertion and confidence, and femininity is related to powerless cues— which are characterized by submission and diffidence, then we can examine the respective impacts of biological sex recognition and psychological gender as distinct and separate variables. If in doing so, we find that masculine women are still linked to female tasks and feminine men with male tasks, then biological sex recognition is the driving force behind power attribution within the groups. If masculine women are related to male tasks and feminine men are related to female tasks, then power cues associated with psychological gender are the reason. By measuring participants’ levels of masculinity and femininity as well as their perceptions of leadership within decision-making dyads, and allowing for the manipulation of participant anonymity by conducting this decision making through computer mediation, we are able to determine which is the better predictor of emergent leadership in a sex-typed task: biological sex or psychological gender and associated power cues.

This study intends to advance the long history of research devoted to small group leadership emergence by purposively distinguishing biological sex and psychological gender. To fully understand all conceptual elements involved in this endeavor, a thorough literature review concerning these elements is warranted. First, to illustrate the connection between communicative style and possession of power within a group, literature concerning biological sex differences and power cues will be reviewed. Second, a discussion of sex-typing of tasks will be offered. Third, to introduce and
explain psychological gender and associated power cues as potential predictors of emergent leadership, an examination of relevant literature will be presented. Fourth, several studies pertaining to biological sex and leadership emergence will be discussed. While there is a vast amount of scholarly work dedicated to examining biological sex recognition and its impact on emergent leadership, the studies detailed in the literature review were chosen because of their specific relevance in the context of this study. Finally, a brief discussion of anonymity as a method of distinguishing biological sex and psychological gender will be offered.

The goal of this study is to shed light on a problem that has, thus far, been taken for granted. Communication scholars have long discussed emergent leadership as a function of either biological sex or psychological gender. However, there has been no reasonable attempt to separate one from the other to examine their individual respective influences. This project seeks to make that distinction, and to subsequently determine which is the more viable predictor of emergent leadership.

**Biological Sex and Power Cues**

Societal stereotypes that women are less capable of leading groups than men are widespread. This may be a result of lingering status beliefs that remain prevalent in contemporary society despite increased inclusion of women in decision-making work groups. *Status beliefs* are widely held cultural beliefs that associate higher levels of social significance and general competence with one category of a social distinction (for example, men or Whites) compared to another category (for example, women or African Americans; Berger, Fisek, Norman, & Zelditch, 1977). Shared status beliefs are likely to
develop in groups whose members must regularly work together to achieve what they want or need (Glick & Fiske, 1999; Jackman, 1994; Ridgeway, Boyle, Kuipers, & Robinson, 1998), as is increasingly the case in organizations. It is the nature of status beliefs that provides the foundation for Berger’s Expectation States Theory (EST).

Berger and his colleagues (1977) claim that in the absence of any explicit demonstration of expertise, an individual will ascertain another individual’s competence regarding a given subject or task based on his or her preexisting stereotypes about what type of person is most proficient or intelligent in the context of that task (Berger et al., 1977). Therefore, the specific skills or knowledge one group member (who may belong to a given social group, e.g., White, male) attributes to another (who may be a member of a different social group, e.g., African American, female) reveals the history and nature of the two groups’ relationship with one another (Ridgeway, 2001). Expectation states research by Ridgeway and Walker (1995) suggests that when people interact to achieve collective goals, status beliefs shape the way social hierarchies are constructed within the group. Therefore, since men are generally seen as more competent than women (Ridgeway, 2001), it follows that group members (both male and female) generally hold lower performance expectations for women than men (Berger, Rosenholtz, & Zelditch, 1980; Lockheed & Hall, 1976; Meeker & Weitzel-O’Niel, 1977). Several implications arise out of the performance expectations gap between men and women. Specifically, examining small group behavior from an expectation states standpoint illustrates differences between men and women regarding leadership, power, and influence.

EST accounts for the formation of hierarchies of influence among group members
and explains how this formation is influenced by preexisting status beliefs (Berger et al., 1977). The development of these micro-social hierarchies within groups is central to the process by which individuals obtain positions of influence. According to EST, individuals have preconceived notions regarding their own level of expertise about a particular topic. In deciding whether to speak up or keep quiet in a group setting, individuals form implicit assumptions about the value of their input relative to what they believe others can offer to the group. Unfortunately, low performance expectations for oneself can have self-fulfilling effects on an individual’s communicative behavior (Harris & Rosenthal, 1985; Miller & Turnbull, 1986). Low performance expectations for oneself can lead to less initiation of one’s own task suggestions, more requests for others’ suggestions, more positive evaluation of others’ ideas, and more acceptance of others’ influence (Ridgeway, 2001). By participating in these activities, those individuals who feel that their contributions are not as valuable as their fellow group members’ contributions effectively take themselves out of the leadership race.

Women generally hold lower performance expectations for themselves than men (Lockheed & Hall, 1976; Maccoby and Jacklin, 1974; Meeker & Wietzel-O’Neil, 1977). Research reviewed by Maccoby and Jacklin (1974) has indicated that in small mixed-sex groups, females tend to express less confidence in their own future task performance than males. Additionally, Maccoby and Jacklin (1974) and Lockheed and Hall (1976) found females generally express less confidence in their own future performance with regard to tasks in which participants use their past performance as a standard, even those tasks that females have traditionally performed as well or better than males.
In addition to revealing feelings of self-doubt regarding their ideas, women also tend to participate in a number of behaviors that other group members may perceive as weak, thus strengthening barriers women face in acquiring positions of power and influence within the group (Pavitt & Curtis, 1994). Pavitt and Curtis (1994) and Harper (1985) outline a number of these communicative behaviors and characteristics, and assert they are indicative of two distinct types of communication styles: the powerful and the powerless speaking styles. Those speakers that utilize a powerful speaking style are traditionally granted more power and influence in a group discussion than those that utilize a powerless style (Erickson, Lind, Johnson, and O’Barr, 1978). Nonverbally, powerful speakers traditionally have a more relaxed body posture, position themselves less symmetrically to those they are speaking to, make more arm gestures and movements, are less likely to smile, and allow their bodies to take up more room than powerless speakers. In addition, compared to powerless speakers, powerful speakers are more likely to face away from or turn their backs on those they are speaking to. Vocally, powerful speakers tend to speak louder, have deeper voices, speak for longer periods of time, interrupt more, and hesitate less during the conversation. In sharp contrast to the powerful style, the powerless communication style is characterized by a number of behaviors that indicate a definite lack of confidence on the part of the speaker. Verbally, powerless speakers use more hedges, explicit indications that they are not confident about what they are saying, than powerful speakers. Similarly, in addition to using rising intonations at the end of statements to make them seem as if they are asking a question, powerless speakers often ask tag questions, explicit questions that are added to the end of
a declarative statement, implying a need for approval for what they are saying. Powerless speakers also tend to speak and interrupt less than powerful speakers. Nonverbally, powerless speakers take up less physical space while talking, make few hand or arm gestures, and tend to pay noticeable attention to other speakers in the group.

Previous research (Lee & Ofshe, 1981) has provided evidence that powerful and powerless communicative behaviors are correlated with amount of influence within a group. In their study, Lee and Ofshe had participants read a description of a personal injury case. Based on what they read, participants were to decide on a financial award to give to the injured person. Before they were to decide on how much to award the injured party in the case, participants were also asked to watch a videotape of three people discussing the situation. On each videotape, two confederate actors argued for a financial award of $15,000 for the injured party while a third confederate actor argued for an award of only $2,000. Lee and Ofshe found that the dissenting confederate’s communicative style had a considerable effect on the participants’ opinions regarding how much to award the injured party. When the dissenting confederate utilized a powerful nonverbal communication style (strong tone of voice, assertive facial and hand gestures), the participants’ average award was $4,778 closer to what he suggested. When the dissenting confederate utilized a neutral nonverbal communication style (neither excessively powerful nor powerless), the participants’ average award was only $2,426 closer to his suggested award. In contrast, when the dissenting confederate communicated in a powerless fashion, participants moved the award $2,843 further away from his suggestion. Through Lee and Ofshe’s study, we can see how people evaluate
powerful speakers as being more credible, attractive, and convincing than powerless speakers (Pavitt & Curtis, 1994). By appearing more powerful and attractive, powerful speakers may be deemed more capable to lead a group than powerless speakers. The higher level of influence and power attributed to powerful speakers relative to powerless speakers has implications in the context of gender due to the differences in the speaking styles of men and women.

Generally, the differences between male and female communication styles are similar to the differences evident between powerful and powerless communication styles, respectively (Pavitt & Curtis, 1994). During conversation, women look more at men than men look at women. Women take up less physical space than men. In a group environment, women talk less, suggest fewer ideas, and interrupt less often than men. Women also behave in a way that lends toward perceptions of low confidence. Relative to men, women are more likely to use rising intonations, tag questions, and hedges (Lakoff, 1973). Coupled with the fact that women are generally seen as less competent and less intelligent (Ridgeway, 2001) than men, the extent to which women employ a powerless speaking style may further hamper their ability to obtain power or influence within a group, thus making it more difficult for women to emerge as leaders.

**Sex-Typing of Tasks**

Taken together, EST and power cues may help to explain leadership attribution practices within groups. Furthermore, *sex-typing* of the task being performed may also serve as a predictor of how group members may behave with regard to power and influence ascription. Sex-typing is the act of stereotyping a particular task as being
inherently masculine or feminine (Pavitt & Curtis, 1994), thus more suitable for either
males or females. For example, in contemporary American society, tasks such as
working on a car or building a bookshelf are typically seen as male-typed due to the
gender stereotype that males are stronger and more capable of performing physical work
than females. In contrast, cooking a meal or taking care of children are typically seen as
female-typed tasks due to the gender stereotype that females are more adept at performing
domestic tasks than males. Though many tasks can be seen as innately masculine or
feminine, some tasks may be considered gender-neutral, such as rearranging a jumbled
group of letters to form a number of different words (see Gilbert & Thompson, 1999;
Hackett & Campbell, 1987). Groups performing a gender-neutral task traditionally grant
more power to the males in the group due to 1) the general belief that males are more
competent or intelligent than women (Dovidio et al., 1988), and 2) males’ ability to assert
themselves more powerfully than females in gender-neutral situations (Dovidio et al.,
1988; Ellyson, Dovidio, & Brown, 1992). According to EST, in male-typed tasks,
gender’s direct relevance to completing the task will amplify the male power-attribution
behaviors within small groups. Groups performing female-typed tasks generally grant
more power to its female members (Broverman et al., 1972; Williams & Best, 1990). To
illustrate these concepts, let us consider past research that has examined power attribution
and influence in a group context.

Dovidio et al. (1988) examined mixed-sex dyads discussing issues that were
categorized as masculine, feminine, and gender-neutral. As expected, Dovidio et al.
found that when discussing gender-neutral tasks, men held a moderate advantage over
women with regard to power attribution and influence. That is to say, when a mixed-sex dyad was discussing a topic that was not gender linked, on average, the male in the dyad was seen as being more powerful and having more influence on the direction of the discussion. When the mixed-sex dyads discussed masculine tasks, the power attribution and influence advantages that the males held over the females were more pronounced. When discussing a feminine task, the female in the dyad was attributed slightly more power and influence.

Along a similar line of research, Lockheed (1985) examined groups performing tasks that were considered to be male-typed, female-typed, and gender-neutral. When groups performed tasks that were deemed to be gender-neutral, males still tended to have more influence in getting their suggestions considered than females. Of the 32 groups tested, 20 had males that were more influential than females. Only one of the 32 groups had a female as the most influential person in the group. When working on a male-typed task, men had more influence than women in all of the groups tested. In contrast, when working on a female sex-typed task, females were considered to be the most influential in three of the six groups examined while a male was seen as most influential in one of the six groups. No one leader emerged in the remaining two groups working on a female-typed task.

Gourley (1997) examined mixed-sex groups performing a male-typed task called the Bushfire simulation. The Bushfire simulation involves ranking 12 items based on their importance in surviving an Australian bushfire. Gourley found that participants had significantly lower performance expectations for females than for males and that females
were significantly less confident in their own rankings than were males. Gourley examined similar outcomes in his study as Lockheed (1985) and Dovidio et al. (1988) found in theirs—women were perceived as less competent with regard to a male-typed task. Women also exerted less influence in getting their suggestions considered than males. Based on these three studies, we can see that the gender-type of the task being performed has a considerable effect on the attribution of competence to group members. Quite simply, groups performing male-typed tasks perceive males to be more competent in the task at hand while groups performing female-typed tasks perceive females to be more competent. In a gender-neutral task, EST predicts that males will still be assumed to be slightly more competent than females due to the effects of gender status beliefs on performance expectations.

EST seems to paint a bleak picture for females hoping to obtain power, influence, or positions of leadership in a group setting. Even being an expert regarding a specific topic may not be sufficient to emerge as a leader. Though it is possible for a woman to have expertise in performing a male-typed task, a woman will only be perceived as more competent than a man when there is clear and explicit evidence (such as a demonstration of expertise) of her superiority (Shackelford, Wood, & Worchel, 1996; Wagner, Ford, & Ford, 1986; Wood & Karten, 1986). Unless a woman is able to plainly demonstrate her expertise in performing a given task, stereotypes regarding performance expectations will prevail (Berger et al., 1977) and expectations of conformity to gender-based social roles will emerge (Eagly, 1987). Doubly problematic is the potential for backlash when a woman is able to demonstrate her expertise in performing a male-typed task. Because of
preexisting stereotypes regarding a woman’s ability to perform male-typed tasks, females are forced to display a higher level of recognized competence than males. When a woman is able to display her competence in a male-typed task and obtain some power within a group, it may be perceived by others as an assertion of authority (Heilman, 2001). In asserting her expert authority on a group working on a male-typed task, a woman violates the essential hierarchical element of gender status beliefs. Research (Carli, 1990) has shown that women who attempt to assert authority in mixed-sex groups are disliked or perceived as untrustworthy. Further, a woman asserting authority in a mixed-sex group working on a male-typed task may achieve less influence over the group compared to similar acting men or less assertive women. Thus, it becomes it more difficult for an assertive woman to emerge as a group’s leader, despite her competence with regard to the task being performed. Unfortunately, for situations in which the task is not inherently feminine, gender status stereotypes will often prevail, either hindering a woman from asserting authority at all or trapping her in a situation where she “breaks the gender mold,” causing resistance from other group members.

In sum, individuals working in leaderless groups will often turn to gender stereotypes as means to determine another person’s competence regarding a specific topic. EST tells us that men are generally regarded as more competent than women unless the task at hand is inherently feminine. Consequently, it becomes very difficult for a woman to emerge as a leader in group that is performing a task that is not inherently feminine. Due to existing gender stereotypes, assumptions regarding competence and expertise may be too strong for females to overcome in a group context if the task being
undertaken is gender-neutral or male-typed.

However, recent research has revealed that leadership emergence is not decided by biological sex alone. Rather, the manner in which an individual delivers his/her message, including indications of power and assertion (or lack thereof), may contribute to the likelihood of an individual’s emerging as a leader. Because biological sex may not be the sole predictor of emergent leadership in sex-typed tasks, a review of literature pertaining to power cues, including discussion of the psychological gender orientations associated with these power cues, is warranted.

**Psychological Gender and Power Cues**

Historically, communication researchers have sought to reveal relationships between communicative behavior and biological sex. Many researchers have claimed an interaction effect exists between biological sex of a speaker and his/her verbal style. For example, communication researchers have claimed that men and women differ verbally with regard to power assertion, politeness, and directness (Kim & Aune, 1997). Despite the long history of research claiming communication differences exist between men and women, more recent research has begun to abandon biological sex as a predictor of communicative behavior. Canary and Hause (1993) claim that biological sex differences in social interaction are quite small and inconsistent, accounting for only 1% of the verbal differences between men and women. Similarly, Kim and Bresnahan (1996) state that the empowerment of women in contemporary society invalidates previous assumptions about communication differences between men and women, particularly with regard to power assertion. Additionally, males and females have been found to be relatively
homogeneous in their self-perceptions of preferred conversational styles (Kim & Aune, 1997). Pearson (1985) claims that our simplified understanding of communication disparities in terms of biological sex is a result of our natural tendency to exaggerate verbal differences between obviously different groups (i.e., men and women). To summarize, use of biological sex as the sole predictor may not be adequate in uncovering “gender differences” in cognition and communication.

Since biological sex has been debunked as the *sole* predictor of communication style, researchers have begun focusing on psychological gender as a construct that may better explain differences that have previously thought to be biologically-sex based (Stephen & Harrison, 1985). An individual’s psychological gender refers to a set of stereotypical masculine or feminine behaviors internalized to that individual, regardless of biological sex (Greenblatt, Hasenauer, & Freimuth, 1980; Rancer & Dierks-Stewart, 1990). Put simply, an individual’s psychological gender is how masculine or feminine he/she believes him/herself to be. Since males and females can be either masculine or feminine in sex-role orientation, the construct of psychological gender rejects the dichotomization of individuals based on biological sex (Kim & Aune, 1997).

Originally, researchers thought of psychological gender as one continuum with masculinity at one pole and femininity at the other. However, Bem (1974) posited that an individual’s psychological gender could be measured as a function of two independent dimensions: masculinity *and* femininity. For example, Bem would not state that an individual who is highly masculine is necessarily deficient of femininity. Rather, several researchers (Bem, 1974, 1975; Constantinople, 1973; Marsh & Byrne, 1991; Spence,
theorized that an individual could be both highly masculine and feminine at the same time. Through the person’s responses to the Bem Sex Role Inventory (BSRI), we are able to determine whether an individual is masculine, feminine, androgynous, or undifferentiated. If an individual has internalized behaviors considered highly masculine and low feminine, then we consider that individual masculine. If an individual has internalized behaviors considered highly feminine and low masculine, then we consider that individual feminine. If an individual has internalized behaviors considered highly masculine as well as internalized behaviors considered highly feminine, that individual is deemed to be androgynous. Finally, if an individual has internalized behaviors considered low masculine as well as internalized behaviors considered low feminine, that individual is considered undifferentiated.

Traditionally, masculine individuals tend to exhibit more independence and unemotional orientations in their communication (Eagly, 1987; Gilligan, 1982). Eagly (1987) states that those individuals with masculine identities focus more on autonomy, agency, self-assertion, and individuality than those individuals with feminine identities. Compared to feminine individuals, masculines are more concerned with getting their own way and serving oneself through communication (Kim & Aune, 1997). Mulac and Lundell (1994) found that generally, masculine language is rated as more instrumental (concerned with action and autonomy) and commanding.

Conversely, feminine individuals tend to exhibit a socioemotional or relational orientation in their communicative interactions with others. Specifically, the feminine identity is characterized by a focus on the connection between oneself and others in
intimate communicative group settings and the definition of oneself in the context of their relationships with others (Kim & Aune, 1997). Chodorow (1978) suggests that feminine identities are more relational and empathetic in their communication than masculine identities because of the fact that women, universally, are more responsible for child care. Therefore, awareness of and sensitivity to others are the significant features of the feminine identity (Gilligan, 1982; Kim & Aune, 1997; Lykes, 1985). As a result, feminine language is generally rated as more socially positive and accommodating than masculine language.

Though it is important to highlight the general differences between the masculine and feminine identities, it is equally important to describe androgyny in the context of psychological gender and communication. Highly masculine or feminine individuals are traditionally motivated to keep their behavior consistent with an internalized sex role standard, leading to a suppression of undesirable or inappropriate behaviors for their sex (Kagan, 1964; Veenendall & Braito, 1990). Communicatively, Bem (1975) believes that androgynous individuals are better equipped to respond to changing situational demands because they are not restricted by these traditional expectations for masculine or feminine behavior and can choose to emphasize masculine or feminine characteristics at any given time. Additionally, androgynous individuals generally have higher self-esteem and confidence with regard to their communicative skill (Bem & Lenney, 1976; Heilbrun, 1976; Spence, Helmreich, & Stapp, 1975; Whitley, 1983).

Like androgynous individuals, undifferentiated individuals have no clear-cut association with masculinity or femininity. Therefore, it follows that like androgynous
individuals, undifferentiated individuals are free of societal constraints to adhere to an internalized sex role standard. Despite the similarities present between androgynous and undifferentiated individuals, the two groups are different communicatively. Bem’s (1975) belief that androgynous individuals are better equipped to adapt their communicative styles to match conversational demands is based on the fact that androgynous individuals can emphasize their masculine or feminine communicative skills at any time. In contrast, undifferentiated individuals are neither highly masculine nor highly feminine. Therefore, undifferentiated individuals may have a harder time adapting their communicative style to a particular line of conversation. To other group members, this may appear to be a deficiency in communicative skill, and may likewise hinder attempts by undifferentiated individuals to emerge as leaders in small groups.

Though researchers have made several generalizations about the communicative behaviors of masculine, feminine, and androgynous individuals, there has been some empirical work to identify specific communicative behaviors of these groups. For example, Stephen and Harrison (1985) conducted a Q-sort analysis to examine self-reported behavioral differences between masculine, feminine, and androgynous individuals. Stephen and Harrison found that of 100 Q-items that the participants were asked to sort, 42 were significantly related to biological sex (see Table 1 in Stephen and Harrison for a comprehensive list of these 42). The profiles created by the 42 discriminating items were consistent with traditional cultural stereotypes for male and female behavior. Males described their communication behavior by endorsing items that indicate repressed emotional expression, increased self-confidence, and a willingness to
use manipulation and threats to achieve one’s own ends. Females were more likely to rate themselves as showing emotions, using facial gestures, gossiping, chattering, touching others during conversation, and speaking in a soft tone. Though there was an apparent tendency for males and females to behave in ways that were “appropriate” for their respective biological sex, there appeared to be a greater concern to fulfill gender stereotypes for males than for females.

In addition to analyzing the participants’ communicative behavior in terms of their biological sex, Stephen and Harrison examined participants’ self-reported communicative behavior in terms of their psychological gender. Stephen and Harrison found that feminines believe they are characterized by blushing more easily, being sympathetic and considerate to others, being sensitive to others during conversation, and using a generally less assertive communication style. Stephen and Harrison found masculines to believe they behave assertively overall through their tendency to start conversations, express their ideas clearly, use sarcasm, change topics abruptly, and behave in a fast-paced way. Generally speaking, Stephen and Harrison found that masculines were more verbally assertive and powerful than feminines.

In addition to their findings regarding masculine and feminine individuals, Stephen and Harrison also provided support Bem’s (1975) claims regarding the flexible communication style of androgynous individuals. Though androgynous individuals did not significantly separate themselves significantly from the feminine group with regard to interpersonal sensitivity, androgynous individuals were shown to combine the communicative strengths of the feminine style (emotional sensitivity, empathy, and
concern for others) with the communicative strengths of the masculine style (the ability to dominate, lead, and assert oneself).

While Stephen and Harrison (1985) pinpointed several specific communicative behaviors indicative of the masculine, feminine, and androgynous styles, Kim and Aune (1997) examined psychological gender differences in conversational constraints, fundamental concerns influencing the choice of conversational strategies in varied situations. In their study, Kim and Aune focus on three conversational constraints that may affect a communicator’s choice of conversational strategy: concern for clarity, concern for avoiding negative evaluation by others, and concern for not hurting the other’s feelings.

After determining each participant’s psychological gender through using the BSRI, the subjects were put into a communicative “bind.” A bind is a situation in which a person is caught between two or more incompatible aspects of the situation, and furthermore, is required to communicate (Bavelas, 1983). For example, suppose your friend asks how she looks in a dress. In reality, she may look awful in this particular dress, but you have concern for her feelings and do not wish to tell her the truth. Kim and Aune found that biological sex was a predictor of perceptions of importance of clarity, but not avoidance of negative evaluation or concern for the other’s feelings. Specifically, males believe that clarity is important in constructing a message significantly more than females. There were no significant biological sex differences regarding concern for negative evaluation or concern for the other’s feelings. In contrast, psychological gender (in this study, identified as “gender identity”) seemed to be a
significant predictor of communicative style choice. Masculines, when compared to feminines, were significantly more concerned with clarity and significantly less concerned with avoiding both negative evaluation and avoiding hurting the other’s feelings.

It is evident that an individual’s communication style is at least somewhat dependent upon his/her psychological gender. Subsequently, an individual’s psychological gender influences how that person will interact in a group setting. However, given the sociallyaccepted predilection toward thinking of gender as a dichotomous concept (male vs. female), individuals working together are likely to have certain expectations about how other group members should behave based on their perceptions of others as males or females, as explained by Berger’s Expectation States Theory.

Given the complex interrelation of biological sex recognition, psychological gender, power cues, and perceptions of expertise, it is evident that small group leadership emergence is not a simple outcome to predict. Thus, it is also evident that group leadership exists as a multifaceted concept. However, there has been some research conducted to examine emergent leadership in the context of issues particularly relevant to this study independent of one another. Specifically, several scholars have examined emergent leadership as a function of biological sex, psychological gender, and sex-typing of the task being performed. Given that the aim of this study is to isolate psychological gender and biological sex to determine which is the better predictor of emergent leadership, it follows that a discussion of emergent leadership in the context of these two
variables is appropriate.

**Emergent Leadership**

Through research based on EST, we can see how expectations about an individual’s ability to perform a given task are influenced by preexisting stereotypes about the subpopulation of which that individual is a part. Though EST explains an individual’s failure to attribute intelligence or ability to another, it does not explicitly refer to leadership emergence. However, through the work of scholars such as Dovidio (Dovidio et al., 1988), Gourley (1997), and Lockheed (1985), we know that perceptions of ability and intelligence within a group are closely interrelated with power attribution and subsequent leadership recognition. Therefore, intragroup expectations about an individual’s intelligence or performance ability regarding a certain task may influence whether that individual emerges as a leader.

Eagly and Karau (1991) performed a meta-analysis of 75 studies concerning emergent leadership. The chief purpose of Eagly and Karau’s analysis was to estimate the overall magnitude of any sex differences in emergent leadership and to compare it with other known biological sex differences. In doing so, Eagly and Karau touched on issues relevant to this study, particularly those issues concerned with societal gender roles and expectations of group member performance based on biological sex. Eagly and Karau found that generally, males emerged as leaders more frequently than females when groups were asked to identify leaders based on task-specific leadership behaviors. In contrast, females emerged as leaders more frequently than males on measures of social leadership. Eagly and Karau argue that these findings are consistent with the gender-role
perspective that males are more task-oriented and females are more socially-oriented. Further, Eagly and Karau argue that the tendency for males to emerge as small group leaders more than females reflect a propensity for group members to define small group leadership in terms of task-oriented behaviors and contributions. Despite the hardships women traditionally encounter in trying to emerge as leaders in small groups, Eagly and Karau note that there are certain circumstances in which women may be in a better position to obtain leadership. Eagly and Karau found that women have a greater chance to emerge as leaders when the group is performing a socially complex task, in groups larger than dyads, and most importantly, when the group is performing a task requiring skills more commonly possessed by women than men. With regard to sex-typing of the task being performed, Eagly and Karau found that to the extent that the group task was characterized as feminine, the tendency for males to emerge as leaders decreased. Stated simply, males were found to be less likely to emerge as leaders in groups performing a female-typed task than they would be in groups performing a male-typed task.

Despite the convenience that Eagly and Karau’s (1991) meta-analysis offers in generalizing the leadership behaviors of small groups, specific research pertinent to this study was chosen for closer review. For instance, preliminary research concerning the impact of biological sex and level of dominance on leadership emergence was performed by Megargee (1969). Megargee found that when working on a gender-neutral task in a same-sex dyad, those individuals who were considered more dominant than their partners emerged as leaders 69% of the time. In mixed-sex dyads with high dominance men and low dominance women, men emerged as leaders 88% of the time. In contrast, in mixed-
sex dyads with high dominance women and low dominance men, men *still* emerged as leaders 75% of the time. Therefore, Megargee’s research tells us one important fact regarding emergent leadership: displays of dominance matter, but they may not be enough to overcome existing stereotypes about females’ inability to lead a small group.

Since the time of Megargee’s groundbreaking study, researchers have anticipated a shift in societal gender-role expectations and a consequent increase in the frequency of women emerging as leaders in mixed-sex small groups. To determine if there had indeed been a shift in societal gender-role expectations regarding biological sex and leadership capability, Megargee (1969) has been replicated several times. Utilizing a study design nearly identical to Megargee’s, Nyquist and Spence (1986) found very similar results. Carbonell (1984) also utilized a similar experiment design as Megargee, but also included a masculine task for some dyads to perform. With regard to the gender-neutral tasks, Carbonell found similar results. However, in those mixed-sex dyads working on a masculine task, highly dominant women managed to emerge as leaders 30% of the time.

Wentworth and Anderson (1984) included gender-neutral, masculine, and feminine tasks in their study. In dyads containing only low dominance subjects, men emerged as leaders in the masculine and gender-neutral task conditions a large majority of the time. However, in those mixed-sex dyads working on a feminine task, women emerged as leaders most of the time. Wentworth and Anderson attribute this phenomenon to individuals’ stereotypes about task expertise. Simply, within small groups, those that are most competent with regard to the task being performed do not have to be the most participative to emerge as leaders. However, task expertise does not
completely explain the bias against women in gaining leadership positions (O’Leary, 1974; Schein, 1973). Though Wentworth and Anderson found that collectively (including both dominants and submissives), women emerged as leaders more often than men when working on a feminine task, dominant women were more likely to emerge as leaders in mixed-sex dyads than submissive women. Therefore, Wentworth and Anderson concluded that while gender orientation of the group’s task and group members’ perceived expertise are important factors in predicting emergent leadership, an individual’s level of dominance should also be considered.

Additionally, Aries (1976), Eagly and Karau (2002), Ritter and Yoder (2004) and Stogdill (1974) determined that in mixed-sex groups, men will emerge as leaders more often than women, regardless of level of dominance. In contrast, only Schneider and Bartol (1980) among a few others report that women have as equal a chance as men to emerge as leaders in group settings. Through her discussion of internal and external barriers, O’Leary (1974) offers some explanation as to why women have historically encountered such difficulty in emerging as small group leaders.

O’Leary claims that due to commonly accepted stereotypes about women as ineffective leaders, there are hindrances to them achieving leadership status within a group. First, internal barriers refer to reluctance on the part of women to initiate leadership behavior. For example, internal barriers such as lack of confidence in their own abilities or fear of reprimand have often caused women to repress urges to display leadership behavior in small groups, regardless of task expertise. Second, external barriers refer to the resistance of other group members to accept leadership behavior
when initiated by a woman. Usually, failure to accept a woman as a group leader results
from preexisting societal stereotypes. Both internal and external barriers are more
pronounced for women than they are for men (O’Leary, 1974). Over time, the existence
of these barriers has caused many women to accept societal sex-role stereotypes that keep
them out of leadership positions, further hampering their chances of emerging as leaders
in small groups (Wentworth & Anderson, 1984).

Recently, barriers to female leadership emergence are being lowered (Brenner,
Tomkiewicz, & Schein, 1989; Chusmir & Koberg, 1991) and there has been an increase
in support for female leaders (Eagly & Karau, 2002). However, despite the decline of
overt expressions of bias against female leaders, subtle indications of prejudice against
women in leadership positions still remain (Benokraitis, 1997; Dovidio & Gaertner,
1986; Glick & Fiske, 2001; Swim & Cohen, 1997). As a consequence, even as female
leaders become more acceptable to society as a whole, men are still more likely to
emerge as leaders in mixed-sex groups.

As mentioned in the previous section, many areas of interpersonal communication
research have abandoned biological sex as a predictor of behavioral outcomes in favor of
psychological gender. Although a large amount of emergent leadership research attempts
to draw a connection between biological sex and leadership, more recent studies have
deserted biological sex as a predictor. Instead, communication theorists have begun
attempting to understand emergent leadership in the context of psychological gender.

Though Bem (1974) posits that the concepts of masculinity and femininity do not
precisely correlate to males and females, it has been difficult for contemporary society to
differentiate biological sex and psychological gender. As a result, traditionally feminine characteristics are often attributed to females and traditionally masculine characteristics are attributed to males. Because of societal gender stereotypes concerning females and their capacity to lead a group, it seems that possession of feminine characteristics is detrimental to leadership emergence while masculine characteristics appear to be beneficial (Fagenson, 1990). Several studies have shown masculinity to be correlated to leadership emergence. The work of Goktepe and Schneier (1989) discounted much of the previous research done regarding sex differences and their impact on emergent leadership. According to Goktepe and Schneier, regardless of biological sex, masculine subjects were more likely to emerge as leaders in groups working on gender-neutral tasks than feminine, androgynous, or undifferentiated individuals. Yielding similar results, Fagenson (1990) conducted a field study in which she examined the psychological gender orientations of individuals at different levels within an organization. Fagenson found that higher-level organizational workers are generally more masculine than lower-level organizational workers. In other words, those individuals that were entrusted to lead work groups are traditionally more masculine than those that are to be led.

Kent and Moss (1994) conducted a unique study that measured emergent leadership using a three-item scale (most previous determinations of emergent leadership had been either directly observed or measured using only a one-item questionnaire). In gender-neutral tasks, Kent and Moss discovered that masculine and androgynous individuals scored higher on self- and group-perceptions of leader emergence than feminine and undifferentiated individuals. This result implies that although it is true that
masculinity still acts as an important predictor of leadership emergence, the possession of feminine characteristics (as present in androgynous individuals) does not decrease an individual’s chances of emerging as a leader provided that the individual also possesses masculine characteristics. Therefore, if women are able to act androgynously in group settings (practice masculine behaviors without abandoning feminine ones), they may be able to improve their chances of emerging as leaders.

Bem (1974) claimed that femininity is often automatically attributed to females and masculinity is often automatically attributed to males. Consequently, regardless of psychological gender orientation, upon being seen, women will generally be assumed to be feminine and unfit to lead a group discussing a male-typed task. In a similar fashion, males, upon being seen, will generally be assumed to be masculine and unfit to lead a group discussing a female-typed task. Therefore, when identified to one another, individuals immediately make implicit assumptions about other group members’ psychological gender orientations and subsequent capacities to lead group discussion. To circumvent this stereotyping process, group members’ biological sexes must be hidden.

_Distinguishing Biological Sex and Psychological Gender Using Anonymity_

The goal of this study was to distinguish recognition of biological sex from power cues associated with psychological gender as explanation for differences between sexes in leadership emergence. Biological sex and psychological gender are fundamentally confounded in normal face-to-face interaction, but can be untied in circumstances in which biological sex is concealed. It follows from EST that recognition of biological sex determines leadership when biological sex can be identified, while power cues associated
with psychological gender determine leadership when group members are anonymous. Spears and Lea’s (1992, 1994) social identity and de-individuation (SIDE) model is a theory relevant to computer-mediated communication (CMC) that lends to this very idea.

According to the SIDE model, anonymity generates a feeling of group homogeneity (i.e., other group members are probably like me). Further, when a group is operating in an anonymous condition, the anonymity present within the group creates reduced self-awareness and identity within its members (i.e., I don’t know about myself or where I stand without others to act as referents) (Zimbardo, 1969). In contrast, when individuals are identified to one another, individuals are fully aware of the social comparison that distinguishes individual roles and status. Weisband, Schneider, and Connolly (1995) contend that without de-individuating features such as anonymity, status effects overcome, implying that those generally considered to be of lower social status within a group (women, African-Americans) will encounter recurrent barriers to leadership emergence.

Spears and Lea (1992, 1994) also claim that in an identified setting, group members are aware of the social identities of the others in the group. This can lead to categorization on the basis of some status characteristic that may not be immediate, or even recognizable, in an anonymous condition. Therefore, with regard to biological sex, in an identified setting, group members will recognize one another as men and women and make assumptions about each other’s social status or performance ability as simply males or females. In an anonymous setting, group members will not be able to make these assumptions based on recognition of biological sex. Rather, group members will be
left with only verbal power cues to draw conclusions about another group member’s performance ability or status within the group. Therefore, the introduction of anonymity to group communication effectively distinguishes psychological gender (which will be judged based on verbal power cues present in group members’ messages) and biological sex (which will be effectively concealed).

**Hypotheses and Research Questions**

Based on previous research regarding biological sex, psychological gender, power cues, anonymity, and their respective impacts on leadership emergence, three hypotheses were tested.

First, as previous research has consistently shown, sex-typing of emergent leadership was expected to occur when both participants in the dyad were identified as being male or female. Though some research (Shackelford, Wood, & Worchel, 1996; Wagner, Ford, & Ford, 1986; Wood & Karten, 1986) suggests that women may be able to emerge as leaders in groups performing a male-typed task (and vice versa) through explicit demonstrations of expertise, it was unlikely that participants would be able to fully exhibit their proficiency regarding a certain topic in a lean medium such as computer-mediated chat. Therefore, participants were expected to fall back on existing stereotypes regarding an individual’s biological sex and his/her capacity to lead discussion about male or female-centered topics.

These considerations led to the following hypotheses:
H1: There will be a two-way interaction between biological sex (male/female) and sex typing of the task (male-typed task/female-typed task) on partner’s perception of subject’s leadership ability.

H1a: In a male-typed task, males will be rated higher on leadership ability than females.

H1b: In a female-typed task, females will be rated higher on leadership ability than males.

Though biological sex is much more immediate when dyad members are able to reveal personal information about themselves to their partners, we can not assume that it will have no effect in the anonymous condition. Therefore, level of anonymity acts as a contributory condition to the transverse interaction effect observed between biological sex and sex typing of the task (i.e., H1a) on partner’s perception of subject’s leadership ability.

H2: There will be a three-way interaction between condition (anonymous/identified), sex-typing of task (male-typed task/female-typed task), and biological sex (male/female) on partner’s perception of subject’s leadership ability. The interaction effects listed in H1 will be more pronounced in the identified condition than in the anonymous condition.

However, when computer-mediated talk was performed anonymously, then participants were effectively ignorant of their partner’s biological sex. In the absence of
any “immediate” cues (such as recognition of biological sex) that may have acted as stereotypical shortcuts to assist participants in deciding who was most qualified to lead each respective dyad, verbal power cues associated with psychological gender orientation were expected to become the primary source of input from which dyad members could make such a decision. Therefore, in such a situation, psychological gender was expected to become the chief predictor of emergent leadership. These developments implied the following hypotheses:

**H3**: There will be a two way interaction between psychological gender (masculine/feminine) and sex typing of the task (male-typed task/female-typed task) on partner’s perception of subject’s leadership ability.

- **H3a**: In a male-typed task, masculine subjects will be rated higher on leadership ability than feminine or undifferentiated subjects.
- **H3b**: In a female-typed task, feminine subjects will be rated higher on leadership ability than masculine or undifferentiated subjects.

Though past research implies that psychological gender is much more salient when dyad members are unable to recognize their partners as males or females, we cannot assume that power cues associated with psychological gender will have no effect in the identified condition. Therefore, level of anonymity acts as a contributory condition to the transverse interaction effect observed between psychological gender and sex typing of the task (i.e., H3a) on partner’s perception of subject’s leadership ability.
H4: There will be a three-way interaction between condition (anonymous/identified), sex-typing of task (male-typed task/female-typed task), and psychological gender (masculine/feminine) on partner’s perception of subject’s leadership ability. The interaction effects listed in H3 will be more pronounced in the anonymous condition than in the identified condition.

In addition to the proposed hypotheses, one research question was advanced. Existing research has indicated that androgyny increases the general likelihood of an individual emerging as a leader in a small group due to the wide range of communication skills they possess. However, androgyny has rarely, if ever, been directly compared to masculinity or femininity as predictors of leadership emergence in male- and female-typed tasks, respectively. Though one may intuitively assume that an androgynous individual is more likely to emerge as a leader in a male-typed task than a feminine individual (and is more likely to emerge as a leader in a female-typed task than a masculine individual) due to communicative behavior indicative of masculinity (or femininity), it remained unclear if an androgynous individual was more likely to emerge as a leader in a male-typed/female-typed task than a masculine/feminine individual. Due to these ambiguities, the following research question was posed:
RQ1: What role does androgyny play in the association between sex-typing of task and condition (anonymous/identified) on partner’s perception of subject’s leadership ability?
Chapter 2

Method

Overview

This study was conducted in two stages. In the first stage, participants’ psychological gender was measured. In the second stage, participants were assigned to a dyad with a stranger to discuss and make decisions about either a male- or female-typed task. After the discussion regarding the male- or female-typed task, participants were asked about their perceptions of their partner’s leadership. The second stage of the study was conducted via computer mediated communication to allow for manipulation of anonymity. Half of the dyads operated in an anonymous condition while the other half operated in a condition which allowed dyad members to be identified to one another.

Participants

Participants in this study were 220 undergraduate students from a large mid-Atlantic university. Roughly half (56.8%) were male. Students were recruited from an introductory communication course offered at the university. The course from which participants were recruited was chosen because a variety of undergraduate majors are represented in that course. Sampling from a variety of majors decreased the possibility of pairing familiar dyads. In addition, the course that was sampled from has an approximately equal ratio of males to females. Students received ten extra credit points
(equivalent to 3.3 percentage points) added onto their final grade for participation in the study.

Primary reasoning behind the selection of undergraduates as participants in this study was due to the participants’ familiarity with the chat software used. In addition to being readily available for selection, undergraduate students regularly utilize Internet-based communication media, including chat rooms, bulletin boards, and instant messaging programs, to organize and conduct their scholastic and social lives. Therefore, students participating in this study had at least a basic knowledge of the technology to be utilized. This negated the necessity for training of participants in how to use the computer-based technology.

**Sex-Typed Task Selection**

To determine which tasks to assign in the male-typed task condition and female-typed task condition, the researcher conducted a pilot study using participants (n=39; 30 female, 9 male) from the same population as the sample to be used in the actual study (Appendix H). The goal of the pilot was to examine participants’ perceptions of male and female expertise regarding the tasks suggested. The three male-typed tasks examined were planning a football game, changing a flat tire on a car, and building a bookshelf. The three female-typed tasks examined were planning a wedding, choosing an outfit for a party, and decorating a new apartment. Both playing a football game and planning a wedding were chosen to be included in the pilot study because of their previous use in related studies (see Balkwell & Berger, 1996; Ritter & Yoder, 2004). The remaining male- and female-typed tasks were developed by the researcher and a member of the
researcher’s advisory committee. For all participants, choosing an outfit for a party was the most female-related task of the six tasks proposed ($M = 5.26$). However, choosing an outfit for a party was also rated relatively highly as a male-typed task ($M = 3.46$). Most notably, males rated themselves highly ($M = 4.22$) with regard to choosing an outfit for a party, a task intended to be female-typed in nature. Because choosing an outfit for a party was seen as female-typed and male-typed, it was disqualified as a task to be used in this study. In contrast, planning a wedding was rated highly female-typed by males ($M = 5.00$), females ($M = 4.77$), and the collective pilot sample ($M = 4.82$). Additionally, planning a wedding was rated low male-typed by males ($M = 2.22$), females ($M = 2.20$), and the collective pilot sample ($M = 2.21$). Due to the rating of planning a wedding as highly female-typed and low male-typed by all parties, it was chosen to be the female-typed task to be performed in the study. Similarly, planning a football game was rated highly male-typed by males ($M = 5.33$), females ($M = 5.40$), and the collective pilot sample ($M = 5.38$). It was also rated low female-typed by males ($M = 2.67$), females ($M = 2.80$), and the collective pilot sample ($M = 2.77$). Because of these results, the male-typed task to be performed was to discuss how to plan a football game.

**Procedures**

Prior to their participation in this study, all potential participants were told that the study was about how people solve problems using electronic media. Immediately following this description of the project, those who were interested in participating were asked to register for a designated time slot to take part in the experiment. Sign-up sheets were formatted such that participants from one section were designated as “Person 1” and
participants from another section were designated as “Person 2”. Choosing of sections to be paired with one another was done as randomly as possible. Because participants were unaware of which section they were paired with, it was impossible for them to coordinate schedules with acquaintances in such a way as to be paired with them. Constructing dyads in this fashion served to pair individuals such that participants in the same dyad are unlikely to know one another. After pairing was complete, all dyads were assigned to one of four conditions: anonymous/male-typed task (30 males, 24 females), anonymous/female-typed task (40 males, 24 females), identified/male-typed task (26 males, 34 females), or identified/female-typed task (30 males, 28 females). Participants were then notified of where to report via e-mail.

One week before utilizing chat software to solve the problem assigned to them, participants completed a series of pretest measures. First, participants completed a measure of psychological gender orientation (see Appendix C). Second, because individuals who are more familiar with chat room or instant messaging programs may be perceived as more confident and assertive while discussing the male- or female-typed task in a chat room because of their familiarity with electronic communication media, during the pretest, participants responded to two six-point Likert-type scales with endpoints “Completely Disagree” and “Completely Agree” asking how familiar they are with chat rooms and instant messaging programs, respectively. In addition to the Likert-type scales, participants were also asked how many hours per day they spend in chat room discussions as well as how many hours per day they spend instant messaging. These responses were subsequently used as covariates in data analysis.
Additionally, participants answered a series of questions to construct a unique identifier. Specifically, participants were asked the first two letters of their last name, the two digits comprising the date of their birth (ex: March 6 = “06”), and the first two letters of their mothers’ maiden name. Responses were used to devise a unique six-character alphanumeric code for each individual participant. This code was needed for two reasons. First, it was used to track participants throughout the course of the study without using participant’s name or other personal identifiers such as social security number. Second, one major independent variable manipulation involved in this study was anonymity. Without the assignment of some nondescript code, the researcher would have risked having those participants whom he wished to remain anonymous becoming aware of their partners’ identities or revealing their own.

The experimental phase of this study occurred one week after participants completed the measures described above. Participants arrived at a campus computer lab where a research assistant signed them in and assigned them to a particular computer terminal. The unique “V-shaped” layout of the computer lab in which the second phase took place prevented members of the same dyad to see one another while they participated in the experiment. One member of each dyad was stationed on one wing of the “V” while the other member of the dyad was stationed on the other side of the “V”.

Upon being seated at their respective computer terminals, all participants received an information page detailing what was expected of them during the course of the study. As a stipulation of their participation, participants in the identified condition were informed that they may introduce themselves to their partners (see Appendix A1 and A2).
In contrast, participants in the *anonymous* condition were told that they may not, under any circumstances, reveal their biological sexes to one another (see Appendix B1 and B2). Approximately 50% of all participating dyads (50% from the identified condition, 50% from the anonymous condition) were asked to discuss the steps involved in planning a football game (male-typed task), while the other half of all participating dyads (the remaining 50% from the identified condition, the remaining 50% from the anonymous condition) were asked discuss the steps involved in planning a wedding (female-typed task).

Once situated at their respective computer terminals and given their information sheet, participants were instructed to sign into their assigned chat room using their personal, nondescript code name and password provided to them by one of the researchers. The chat software was configured in such a way that each participant was only able to enter their assigned chatroom and that only two individuals could be present in the chatroom. This assured that all conversations were restricted to the two members of each dyad.

Prior to being left to interact with their partner, the researcher gave the following instructions to each participant: “When both you and your partner are in the chatroom, please discuss the topic listed on your information sheet. You will have 15 minutes to address the issue as best as you can.” For those respondents who participated in the *anonymous* condition, the researcher repeated: “Remember, under no circumstances should you give any personal information about yourself to your partner.” All participants were informed that they are allotted 15 minutes to discuss their male- or
female-typed task, and they may terminate their interaction upon completion of the task designated to them. Participants were then left to interact with their partner.

In the event that only one member of the dyad arrived during his/her assigned time, attempts were made to assign either a research assistant or other participant as that person’s partner. If no accommodations could be made, the reporting participant still received his/her extra credit for participating, but was not able to provide data for analysis. Similarly, after reviewing chatroom transcripts, the researcher found that two dyads had compromised anonymity. Therefore, members of those dyads received extra credit, but were likewise unable to provide data for analysis purposes. After conversations were complete, all participants logged out of the chatrooms and completed an online survey assessing their perceptions of variables listed in the aforementioned hypotheses and research question.

In the following section, the measurement scales employed in this study will be discussed.

Measures

Psychological Gender

Since the essence of this study compares masculine individuals with feminine individuals regarding emergent leadership in different contexts, a well-established instrument measuring psychological gender is warranted. An individual’s psychological gender can be measured using a number of different instruments (see Heilbrun, 1976; Spence, Helmreich, & Stapp, 1975), but the most widely used instrument to identify an individual’s psychological gender is Bem’s (1974) Sex Role Inventory (BSRI). The
original form of the BSRI consists of 60 items falling into one of three subscales: masculinity, femininity, and social desirability. The items in the masculine subscale are meant to measure socially desirable masculine characteristics, with the fundamental characteristic of a “focus on getting the job done.” Similarly, the items in the feminine subscale are meant to measure socially desirable feminine characteristics, with the fundamental characteristic of a “focus on affective concern for the welfare of others” (Bem, 1974). The association of masculinity with agency and femininity with concern for others has been reported in past research (Chodorow, 1978; Eagly, 1987; Gilligan, 1987; Lykes, 1985). Those items that are categorized in the “social desirability” subscale are considered gender-neutral.

Since Bem developed its original form, several theorists have criticized the BSRI as being too lengthy and potentially problematic in examining masculinity and femininity. The primary criticism regarding the BSRI’s original form was that it did not precisely measure Bem’s conceptualization of masculinity and femininity- too many items were thought to be unrelated to either. To determine which items listed on the BSRI do, in fact, conceptualize masculinity and femininity, several researchers (Bem, 1981; Bledsoe, 1983; Gaudreau, 1977; Ruch, 1984; Thompson and Melancon, 1986; Whetton and Swindells, 1977) conducted factor analyses to ascertain which items of the original 40 sex-typed adjectives best construct the concepts of masculinity and femininity. Most of them (Bem, 1981; Bledsoe, 1983; Gaudreau, 1977; Thompson and Melancon, 1986) reported one feminine factor with 10 of the original 20 feminine items loading significantly on it. Bem (1981), Bledsoe (1983), and Gaudreau (1977) also
conducted a factor analysis on those items that construct the masculine subscale of the original BSRI. These factor analyses revealed one clean masculine factor with 17 items loaded significantly on it. However, Ruch (1984) and Whitton and Swindells (1977) reported two masculine factors. One factor, described as “instrumental” is constructed with six items while the other factor, described as “autonomous” is constructed with three. All items from both factors reported by Ruch (1984) and Whetton and Swindells (1977) were also included in the masculine factors reported by Bem (1981), Bledsoe (1983), and Gaudreau (1977). The items loaded in the masculine and feminine factors are considered to be indicative of a purer version of the original BSRI and were utilized in this study. Consequently, the updated BSRI consisted of 27 items, with 10 items falling into the feminine subscale and 17 items falling into the masculine subscale. Items constructing the social desirability subscale have no significance in the context of this study and have subsequently been eliminated from the updated version of the BSRI utilized in this study.

Traditionally, those taking the BSRI respond to the items by rating each adjective listed on a scale from 1 (never or almost never true of me) to 7 (always or almost always true of me). The researcher found this format to be somewhat confusing and further adjusted the BSRI such that each item was placed in a sentence (ex. “I am aggressive.”) to be judged by respondents on a seven-point Likert-type scale with endpoints labeled “completely agree” and “completely disagree” (see Appendix C). Each participant’s mean for the masculinity and femininity subscales was computed, after which the sample was divided at the median into high and low categories for each subscale. Participants
whose mean masculinity score was found to be higher than the overall median masculinity score was designated as having high masculinity. Those individuals whose mean masculinity score were found to be lower than the overall median masculinity score was designated as having low masculinity. Likewise, those individuals whose mean femininity score was higher than the overall median femininity score were designated as having high femininity. Those individuals whose mean femininity score were lower than the overall median masculinity score was designated as having low femininity.

Participants who were rated highly on the masculinity subscale and low on the femininity subscale were considered masculine. Participants who were rated highly on the femininity subscale and low on the masculinity subscale were considered feminine. Those that scored above the median on both subscales were deemed androgynous; and those that scored below the median on both subscales were considered undifferentiated.

280 participants completed the revised version of the BSRI. 60 participants that completed the BSRI portion of the pretest did not complete the second stage of the study and were removed from further analyses. Of the remaining 220 participants, 125 were male and 95 were female. 50 participants (37 male, 13 female) were masculine; 49 participants (14 male, 35 female) were feminine; 59 participants (30 male, 29 female) were androgynous; and 62 participants (44 male, 18 female) were undifferentiated.

The BSRI has consistently been shown to be reliable, displaying internal consistency measures between .75 and .90 (Sugihara & Katsurada, in press). Past reports of test-retest reliabilities for the femininity and masculinity subscales of the BSRI were .82 and .94 respectively among females and .89 and .76 respectively among males.
Analysis of participants in this study revealed that Cronbach’s alpha was .91 (.89 among males, .92 among females) for the abridged masculinity subscale and .93 (.92 among males, .92 among females) for the abridged femininity subscale. Considering past reliability analyses of the original BSRI and the calculation of Cronbach’s alpha for the abridged masculinity and femininity subscales utilized here, the revised version of the BSRI was deemed reliable.

Perceptions of Leadership

Customary measurement of emergent leadership has been derived directly from the work of Bass (1981), usually in the form of a question such as “Who do you believe was the leader of the group?” Most research has employed this measure of emergent leadership, however it is limited in that it does not allow for detailed description of both self- and group perceptions of emergent leadership for a given individual (Kent & Moss, 1994). To counter this, Kent and Moss (1994) have developed a six-question index to measure each group member’s perceptions about his/her own leadership behaviors as well as other group members’ leadership behaviors. Not surprisingly, the three items intended to measure participants’ perceptions of their own leadership behaviors were negatively correlated with the three items intended to measure participants’ perceptions of their partners’ leadership behaviors ($\alpha = -.30$). For the purposes of this study, only those questions intended to measure each group member’s perceptions about their partner’s leadership behaviors were utilized. The three-question index is based on research summarized by Bass (1981) suggesting that emergent leaders talk more than others, participate more actively in making substantive contributions to the group, and
make more attempts to influence the group.

To quantify these three measures of leadership, participants responded to seven-point Likert-type scales describing each of these leadership behaviors with endpoints labeled “always” and “never” (see Appendix D). Kent & Moss (1994) report a .62 correlation (p < .01) between the three-item measure of emergent leadership and the widely used conventional measure popularized by Bass, which requires subjects to nominate one group member as leader (1981). A reliability analysis of the three-item partner-reported leadership scale yielded a Cronbach’s alpha of .820. Surprisingly, further analysis of the revised Kent and Moss leadership index revealed that removal of one of the items (“How much did your partner influence group goals and decisions?”) raised the Cronbach’s alpha of the overall index to .824. Therefore, this item was removed from the Kent and Moss leadership index.

Though this method of measuring leadership has not been widely used in communication research, it is beneficial in that groups are unable come to a consensus about leadership within a group, as was the case in Goktepe and Schneier (1989), would not have needed to be removed from statistical analysis. By simply asking one question regarding participants’ perceptions of leadership within the dyad, the researcher would have run the risk of several dyads having to be removed from statistical analysis.

In addition to the two-item index, a second measure of leadership was administered to all participants. Originally conceived by Pavitt, Whitchurch, McClurg, and Petersen (1995) as a study examining individuals’ global impressions of leadership behaviors and attributes, the scale was utilized by Dobosh (2005) to measure individual
impressions of the extent to which their group members demonstrated sixteen attributes or behaviors (Appendix I). Dobosh (2005) found that collectively, the 16 behaviors and attributes are highly reliable as descriptors both of a prototypic good leader ($\alpha = .87$) and of the leadership displayed by other group members ($\alpha = .76$).

As an additional validation, a pilot study ($n = 39$; 30 female, 9 male) was conducted to determine which of these leader attributes and behaviors were perceived by a different sample as indicative of a good leader. Participants in the pilot study were selected from an introductory communication course offered at the same university as previously mentioned. Participants were asked to respond to six-point Likert-type scales intended to measure their perceptions about the 16 behaviors and attributes developed by Pavitt et al. Eight of these Likert-type scales ranged from “Not at all” to “Essential” and measured how important certain characteristics are for the ideal leader to have. The remaining eight Likert scales ranged from “Extremely Unimportant” to “Extremely Important” and measured how vital it is for the ideal leader to exhibit certain behaviors. Analysis of these judgments indicated that all but one were indicative of a good leader. “Forceful” had a mean score of 3.85 while the remaining seven attributes had a collective mean score of 5.10. The glaring difference between “forceful” and the remaining attributes justified its removal from the leadership index.

An exploratory factor analysis performed on the original 15 items and characteristics revealed four items (“My partner managed conflict,” “My partner stated our group’s procedures,” “My partner summarized our discussion,” and “My partner played the devil’s advocate”) that did not load on any factor. After removing these four
items from the index, a second factor analysis was performed, revealing two factors (See Table 1).

<table>
<thead>
<tr>
<th>Pattern Matrix</th>
<th>Maintenance</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>My partner was friendly.</td>
<td>.849</td>
<td>.129</td>
</tr>
<tr>
<td>My partner was supportive.</td>
<td>.837</td>
<td>.035</td>
</tr>
<tr>
<td>My partner was understanding.</td>
<td>.684</td>
<td>-.100</td>
</tr>
<tr>
<td>My partner encouraged harmony in our group.</td>
<td>.661</td>
<td>-.080</td>
</tr>
<tr>
<td>My partner was enthusiastic.</td>
<td>.529</td>
<td>-.281</td>
</tr>
<tr>
<td>My partner was creative.</td>
<td>.438</td>
<td>-.247</td>
</tr>
<tr>
<td>My partner kept discussion organized.</td>
<td>-.128</td>
<td>-.959</td>
</tr>
<tr>
<td>My partner was organized.</td>
<td>.046</td>
<td>-.755</td>
</tr>
<tr>
<td>My partner encouraged me to participate.</td>
<td>.090</td>
<td>-.531</td>
</tr>
<tr>
<td>My partner facilitated discussion.</td>
<td>.210</td>
<td>-.508</td>
</tr>
<tr>
<td>My partner was intelligent.</td>
<td>.418</td>
<td>-.451</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structure Matrix</th>
<th>Maintenance</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>My partner was supportive.</td>
<td>.813</td>
<td>-.541</td>
</tr>
<tr>
<td>My partner was friendly.</td>
<td>.760</td>
<td>-.456</td>
</tr>
<tr>
<td>My partner was understanding.</td>
<td>.752</td>
<td>-.571</td>
</tr>
<tr>
<td>My partner was enthusiastic.</td>
<td>.722</td>
<td>-.645</td>
</tr>
<tr>
<td>My partner encouraged harmony in our group.</td>
<td>.716</td>
<td>-.535</td>
</tr>
<tr>
<td>My partner was creative.</td>
<td>.608</td>
<td>-.549</td>
</tr>
<tr>
<td>My partner kept discussion organized.</td>
<td>.532</td>
<td>-.870</td>
</tr>
<tr>
<td>My partner was organized.</td>
<td>.566</td>
<td>-.787</td>
</tr>
<tr>
<td>My partner was intelligent.</td>
<td>.729</td>
<td>-.739</td>
</tr>
<tr>
<td>My partner facilitated discussion.</td>
<td>.560</td>
<td>-.653</td>
</tr>
<tr>
<td>My partner encouraged me to participate.</td>
<td>.456</td>
<td>-.593</td>
</tr>
</tbody>
</table>

*Eigenvalue for the Maintenance Leadership factor = 5.878; Accounts for 53.44% of variance
**Eigenvalue for the Task Leadership factor = 1.068; Accounts for 9.707% of variance

Because “My partner was intelligent” loaded too heavily on both factors, it was removed from the index. The remaining items constructed factors related to Bales’ (1958) conceptualization of maintenance and task leadership. Task function leadership is concerned with agency, keeping group issues organized, and getting the task at hand completed. Maintenance function leadership is concerned with preserving
socioemotional harmony within a problem-solving group. Bales (1958) theorized that task leadership and maintenance leadership were distinct opposites, such that a task leader will build up tension within the group through orders and directions while a maintenance leader will alleviate the tension through compliments and appeasement. The factor analyses of the original 15 leadership attributes and behaviors revealed a loading of four items on the task function leadership factor ($\alpha = .80$) and a loading of six items on the maintenance function leadership factor ($\alpha = .86$). Items in the task leadership dimension include “My partner was organized” and “My partner facilitated discussion.” Items in the maintenance leadership dimension include “My partner was friendly” and “My partner was supportive.” Due to the factor loadings of Pavitt et al.’s (1995) leadership attributes and behaviors, this leadership index was split into two separate leadership indices: task leadership and maintenance leadership. Participants were asked to respond to seven-point Likert scales with endpoints “Completely Disagree” and “Completely Agree” for each of the items in both the task leadership index and maintenance leadership index. Within the framework of the current study, reliabilities for both the task leadership index and maintenance leadership index were high (.80 and .87, respectively).

Finally, participants were asked to respond two simple, straightforward Likert-type scales regarding their perceptions of leadership within their dyad. One item asked the extent to which each participant believed they led the group. The other item asked the extent to which each participant believed their partner led the group.
Issue Involvement and Time of Discussion as Covariates

Because the current study seeks to investigate emergent leadership resulting from biological sex recognition or power cues associated with psychological gender, and issue involvement speaks to an individual’s perceived proficiency concerning a topic (which may affect perceptions of leadership), issue involvement was included in data analysis as a covariate.

Issue involvement refers to the extent to which the issue under consideration is of personal importance to an individual (Petty & Cacioppo, 1979). Because the male-typed task or female-typed task may have been of particular importance to a given participant, thus making that individual more apt to speak more or be more assertive about that task, a measure was needed to assess each participant’s issue involvement with the task they performed. A measure of issue involvement developed by Zaichkowski (1986) was used to perform this assessment. Each participant responded to the question “How important to you is the task you are about to perform?” via six seven-point semantic differentials (Appendix F). An example of one of the semantic differentials has endpoints labeled “irrelevant” and “relevant.” With a Cronbach’s alpha of .909, this measure of issue involvement was highly reliable.

Similarly, length of the dyads’ conversations ($M = 13.14$ minutes; $SD = 3.57$ minutes) was thought to have possibly affected their attitudes toward leadership within the dyad. Because leadership takes some time to foster, it is possible that a short discussion may be detrimental to dyad leadership developing to its full potential. For example, those participants in dyads that chose to discuss their given topic for 15 minutes
may have been more able to make a detailed decision regarding leadership attribution
than those participants in dyads that chose to speak for 5 minutes. To account for this
inconsistency, length of conversation was also included in data analysis as a covariate.

Manipulation Check

To ensure that the anonymous and identified dyads were significantly different
from one another, two short questions were asked regarding each participant’s
assumptions about their partner’s biological sex (Appendix G). Specifically, participants
were asked if they believe their partner was male or female. In addition, participants
were asked to respond to a seven-point Likert-type scale asking how certain they were
about their belief that their partner was male or female.
Chapter 3

Results

This chapter will report the findings of the present study. First, a brief synopsis of a statistical manipulation check concerning anonymity will be reported. Second, nonindependent data and its impact on the present study will be discussed. Third, because the outcome variables of interest in this study are dyad-oriented, a discussion of multilevel data and its implications is warranted. Finally, the results concerning this study’s specific hypotheses and research question will be addressed.

Manipulation Check

A one-way analysis of variance ($F = 36.70, p < .01$) indicated that those participants in the anonymous condition were significantly less certain of their partner’s biological sex than those participants in the identified condition ($M_{anon} = 4.05; M_{ident} = 5.00$). These results indicate that the manipulation of anonymity was successful.

Nonindependent Data

When using the General Linear Model (GLM) to test hypotheses, researchers assume that all participants’ responses are independent of one another; in other words, not influenced by the responses of their fellow participants. This assumption is often violated when research is conducted on dyads, because one dyad member’s responses to a particular item are often related with their partner’s responses to the same item (Kenny & Cook, 1999). In terms of statistical accuracy, failure to correct for nonindependent data
biases significance tests such that statistically significant results may be found more often than they actually occur (Kenny, 1996). Though the error caused by interdependent data can pose a real problem for researchers conducting statistical analyses on dyadic data, it can be accounted for and circumvented.

Although there were four distinct conditions in the present study to which a dyad could have been assigned (anonymous-male task, anonymous-female task, identified-male task, identified-female task), each pair of individuals shared the same experiences throughout the study, completed the same task, and communicated using the same medium. It is, therefore, reasonable to assume that participants in the present study could have experienced what Kenny (1996) calls “mutual influence,” a situation in which each dyad member’s score effectively causes the other member’s score. Rather than treat the nonindependent data situation as a barrier to statistical analysis, we should consider it as an indication that dyad members were indeed working together to complete the tasks assigned to them. If responses to outcome measures were completely independent of one another, dyad members would have been worthless to one another—neither exerting influence on their partner, nor allowing their partner to exert influence on them. As the essence of leadership is the exertion of influence, we should consider nonindependent data as an indication that attempts at leadership emergence have, at least on a minimal level, taken place.

The present study was conducted in what Kenny (1990) calls a “standard dyadic design.” In a standard dyadic design, both members of each dyad act as participants in the study, resulting in two-sided data. In the past, researchers have generally treated
dyadic data as one-sided by using only half of the entire sample, enabling the use of standard GLM procedures such as regression analyses or analyses of variance. However, by cutting the sample in half, these researchers reduced the power of their statistical procedures while simultaneously taking the complex nature of group interaction for granted and overlooking any dyadic effects that may occur (Kashy & Kenny, 2000; Kenny & Cook, 1999). Communication scholars have developed conceptual dyadic models that are never fully tested because of the researchers’ tendencies to avoid the interdependent data conundrum for the sake of simplicity.

To test for nonindependent data, Kashy and Kenny (2000) advocate the use of an intraclass correlation to determine if there are significant associations between partners’ scores on outcome variables of interest. An intraclass correlation reflects the shared variance among two respondents’ scores on a particular variable. If, through the intraclass correlation, we find dyad members’ responses to a given item to be associated, corrective measures must be taken. In the present study, two of the three measures of leadership perception exhibited strong intraclass correlations, indications that partners’ responses were not independent of one another. The Kent/Moss leadership variable displayed a strong intraclass correlation ($\rho = .301$). This indicates that 30.1% of the variance in one dyad member’s score on the Kent/Moss leadership index was due to their partner’s score on the same index. Additionally, the Pavitt Maintenance leadership variable also displayed a strong intraclass correlation ($\rho = .266$), implying a variance overlap of 26.6% between dyadic partners. The other half of the Pavitt Leadership Index
(Task Leadership) did not exhibit a strong intraclass correlation ($\rho = .046$). Techniques to correct for dependent data are discussed below.

**Multilevel Data**

In addition to nonindependent data, multilevel (or hierarchical) data structure poses another unique challenge to statistical analyses. As an example, in the present study, biological sex and psychological gender operate as individual-level variables, while task and condition in which communication takes place (anonymous vs. identified) operate as dyad-level variables. In the current study, individual participants signify the first level of analysis (Level 1) and are nested within dyads, which are the second level of analysis (Level 2). A defining feature of multilevel data, which occurs in the present study, is that each outcome variable should be measured at both the individual level and the dyadic level. Due to the fact that GLM procedures assume that all relevant variables are at the same level of measurement, Kashy and Kenny (2000) note that the use of standard GLM procedures on multilevel data yields inaccurate results. Attempts to manage the multilevel problem by aggregating data at level 1 and falsely assuming the aggregated data to function as a level 2 variable lead to the loss of valuable information inherent in unaggregated data and diminished statistical power (Hox, 2002). Combined with the fact that the present study utilizes a dyadic design, these considerations warrant the use of a multilevel method of analysis.

By utilizing a multilevel method of data analysis, measurement error at the individual level will be incorporated into a model accounting for a matched-pairs design (Wendorf, 2002). Therefore, the application of a multilevel data analysis procedure can
overcome both the multilevel and nonindependent data issues. Because the design of the current study raises both multilevel and nonindependent data concerns, the SPSS MIXED command (a multilevel data analysis procedure) was utilized to analyze the hypotheses and research question posed in the current study. The results of these analyses are discussed below.

Statistical power for the present study was calculated using the Optimal Design for Longitudinal and Multilevel Research software package (Scientific Software International, 2006). This analysis yielded $\eta^2$ power estimates of .62 for effect sizes of .30, .32 for effect sizes of .20, and .11 for effect sizes of .10.

**Hypotheses and Research Question Results**

**H1 and H2: Biological Sex Effects**

H1 predicted that there would be a two-way interaction effect of biological sex and sex-typing of the task being performed on participants’ perceptions of their partners’ leadership such that males will be perceived as leaders in dyads performing male-typed tasks and females will be perceived as leaders in dyads performing female-typed tasks. Because three measures of partner’s perception of an individual’s leadership were used in this study, data analysis for this and subsequent hypotheses was performed three times, with each measure of leadership acting as the dependent variable once. The present study found no interaction effect of biological sex and sex-typing of task on a partner’s perception of a subject’s leadership. No evidence was found to support H1. See Table 2 and Table 3 for pertinent statistics pertaining to H1.
Table 2

Estimated Marginal Means: Overall- Partner’s Perception of Subject’s Leadership

(Biological Sex x Sex-Typing of Task)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Sex</th>
<th>Task Type</th>
<th>M</th>
<th>Std. Error</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kent/Moss</td>
<td>Male</td>
<td>Male-Typed</td>
<td>3.79</td>
<td>.113</td>
<td>198.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Male-Typed</td>
<td>3.68</td>
<td>.093</td>
<td>198.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Male-Typed</td>
<td>3.63</td>
<td>.109</td>
<td>198.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Female-Typed</td>
<td>3.71</td>
<td>.119</td>
<td>198.00</td>
</tr>
<tr>
<td>Pavitt</td>
<td>Male</td>
<td>Male-Typed</td>
<td>5.34</td>
<td>.135</td>
<td>198.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Male-Typed</td>
<td>5.68</td>
<td>.112</td>
<td>198.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Female-Typed</td>
<td>5.48</td>
<td>.131</td>
<td>198.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Female-Typed</td>
<td>5.83</td>
<td>.144</td>
<td>198.00</td>
</tr>
<tr>
<td>Pavitt Task</td>
<td>Male</td>
<td>Male-Typed</td>
<td>4.96</td>
<td>.149</td>
<td>198.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Male-Typed</td>
<td>5.19</td>
<td>.124</td>
<td>198.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Female-Typed</td>
<td>5.27</td>
<td>.145</td>
<td>198.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Female-Typed</td>
<td>5.31</td>
<td>.159</td>
<td>198.00</td>
</tr>
</tbody>
</table>
Table 3

*Test of Fixed Effects of Biological Sex x Sex-Typing of Task Interaction Effect on Partner’s Perception of Subject’s Leadership*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Numerator df</th>
<th>Denominator df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kent/Moss Index</td>
<td>1</td>
<td>198.00</td>
<td>.763</td>
<td>.384</td>
</tr>
<tr>
<td>Pavitt Maintenance</td>
<td>1</td>
<td>198.00</td>
<td>.008</td>
<td>.929</td>
</tr>
<tr>
<td>Pavitt Task</td>
<td>1</td>
<td>198.00</td>
<td>.394</td>
<td>.531</td>
</tr>
</tbody>
</table>

H2 predicted a three-way interaction effect in which anonymity condition moderated the relationship between the two-way interaction of biological sex and sex-typing of task and partner’s perception of an individual’s leadership ability. Put simply, H2 predicted that the effects listed in H1 would be more pronounced in the identified condition relative to the anonymous condition. The current study found no evidence to support H2. Statistics relevant to H2 are listed in Table 4 and Table 5.

Table 4

*Estimated Marginal Means- Partner’s Perception of Subject’s Leadership (Condition x Biological Sex x Sex-Typing of Task)*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Sex</th>
<th>Task Type</th>
<th>Condition</th>
<th>M</th>
<th>Std. Err.</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kent/Moss</td>
<td>Male</td>
<td>Male-Typed</td>
<td>Anonymous</td>
<td>3.66</td>
<td>.140</td>
<td>198.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Identified</td>
<td>3.91</td>
<td>.176</td>
<td>198.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female-Typed</td>
<td>Anonymous</td>
<td>3.71</td>
<td>.129</td>
<td>198.00</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Male-Typed</td>
<td>Anonymous</td>
<td>Identified</td>
<td>.135</td>
<td>198.00</td>
</tr>
<tr>
<td>----------------</td>
<td>------</td>
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<td>-----------</td>
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</tr>
<tr>
<td>Female</td>
<td>Male-Typed</td>
<td>Identified</td>
<td>3.66</td>
<td>.135</td>
<td>198.00</td>
<td></td>
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<tr>
<td></td>
<td>Male-Typed</td>
<td>Anonymous</td>
<td>3.63</td>
<td>.173</td>
<td>198.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female-Typed</td>
<td>Identified</td>
<td>3.62</td>
<td>.132</td>
<td>198.00</td>
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Table 5

Test of Fixed Effects of Condition x Biological Sex x Sex-Typing of Task Interaction

Effect on Partner’s Perception of Subject’s Leadership

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<thead>
<tr>
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<th>Denominator df</th>
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<th>p</th>
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</thead>
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H3 and H4: Psychological Gender Effects

Analogous to H1, H3 predicted that there would be a two-way interaction effect of psychological gender and sex-typing of the task being performed on participants’ perceptions of their partners’ leadership such that masculine individuals would be rated higher as leaders in dyads performing male-typed tasks relative to feminine and undifferentiated individuals and feminine individuals would be rated higher as leaders in dyads performing female-typed tasks relative to masculine and undifferentiated individuals. The current study found no interaction effect of psychological gender and sex-typing of task on a partner’s perception of a subject’s leadership. H3 was not supported. Relevant statistics are listed in Table 6 and Table 7.
Table 6

*Estimated Marginal Means: Overall-Partner’s Perception of Subject’s Leadership*

*(Psychological Gender x Sex-Typing of Task)*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Psych. Gender</th>
<th>Task Type</th>
<th>M</th>
<th>Std. Err.</th>
<th>df</th>
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Table 7

Test of Fixed Effects of Psychological Gender x Sex-Typing of Task Interaction Effect on Partner’s Perception of Subject’s Leadership

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<th>p</th>
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Analogous to H2, H4 predicted a three-way interaction effect in which anonymity condition moderated the relationship between the two-way interaction of psychological gender and sex-typing of task and partner’s perception of an individual’s leadership ability. Stated simply, H4 predicted that the interaction effects listed in H3 would be more pronounced in the anonymous condition than in the identified condition. Like all
previous hypotheses, no evidence was found to support H4. Relevant statistics are listed in Table 8 and Table 9.

**Table 8**

*Estimated Marginal Means- Partner’s Perception of Subject’s Leadership (Condition x Psychological Gender x Sex-Typing of Task)*

<table>
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</table>

**Table 9**

*Test of Fixed Effects of Condition x Psychological Gender x Sex-Typing of Task Interaction Effect on Partner’s Perception of Subject’s Leadership*
**RQ1: Androgyny**

RQ1 asked what role, if any, androgyny plays in the association between anonymity and the sex-typing of a task with regard to partner’s perception of leadership. Given that the current study provided no evidence to support the notion of an interaction effect between psychological gender, sex-typing of the task, and anonymity condition on partner’s perception of the subject’s leadership ability, there is likewise no evidence to support the claim that androgynous individuals are perceived significantly different than other individuals with regard to leadership ability. See Table 8 and Table 9 listed above for statistics relevant to this finding.

**Covariates**

Recall that several covariates were included in this study to control for effects that may occur as a result of independent variables other than those listed in the hypotheses. First, because Internet chat room and instant messaging familiarity speak to an individual’s ability to communicate proficiently in an electronic environment, they were included in analyses as covariates. Second, recall that issue involvement refers to the extent to which a task is important to a given individual. Since completion of the assigned task may have been more important to some participants relative to others, a measure of issue involvement was also included as a covariate. Third, because a person may appear more confident, gregarious, and dynamic if they are confident that they are knowledgeable about the task to be performed, self-perception of knowledge about that task was included as a covariate. Finally, because leadership develops over time and each dyad talked for a different period of time, length of each dyad’s conversation was
added as a covariate.

Though a small number of main effects were observed for the covariates involved in this study (see Table 10), the inclusion of these covariates in the analyses did not influence the non-significance of the interaction effects listed in the aforementioned hypotheses.

**Table 10**

*Observed Main Effects of Covariates on Outcome Measures*

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<th>Denominator df</th>
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<th>p</th>
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</table>

**Other Results**

Despite the fact that the current data provided no evidence to support any of the aforementioned hypotheses, there are a number of results beyond the hypotheses that warrant mentioning. Most notably, several of the independent variables that were predicted to produce interaction effects when taken together produced significant *main effects* when independent from one another. Statistical analyses concerning the Kent/Moss Index and Pavitt Task Leadership Scale did not produce any significant effects whatsoever. However, analyses concerning the Pavitt Maintenance Leadership Scale yielded two surprising results. First, a main effect ($F = 7.11; p < .01; df = 198$) of anonymity condition on perception of maintenance leadership was observed ($M_{anon} =$
5.41, SD_{anon} = .090; M_{ident} = 5.75, SD_{ident} = .089). This result describes a relationship between condition and leadership perception such that those participants that were identified to one another perceived their partner to be significantly better maintenance leaders than those participants that were anonymous to one another. This may serve as a testament to the SIDE model and will be discussed in greater detail later. Second, a main effect \( (F = 7.324; p < .01; df = 198) \) of sex-typing of the task being performed on maintenance leadership perception was also observed \( (M_{maletask} = 5.41, SD_{maletask} = .092; M_{femalatask} = 5.75, SD_{femalatask} = .087) \). This result presents a curious situation in which those participants performing a female-typed task perceived their partners to be significantly better maintenance leaders than those participants performing a male-typed task. The implications of this finding will likewise be discussed in greater detail in the subsequent chapter.

To summarize, none of the proposed hypotheses were supported. Despite the fact that the current data provided no evidence to support the hypotheses above, several significant effects emerged to support the notion that anonymity and task sex-type affect perceptions of leadership in some way. The next chapter will discuss the practical and scholarly implications of both the non-significant hypothesis tests and the ancillary significant findings. Additionally, limitations of the current study and potential future avenues of research will be presented.
Chapter 4

Discussion

This chapter seeks to review and interpret the current study’s findings and offer suggestions for future scholarly work pertaining to the issues addressed in this study. First, the current study’s contributions to extant literature will be discussed. Next, a summary of the current study’s results and interpretation of those results in the context of existing theory will be presented. Finally, limitations of the current study and potential avenues for future research will be identified.

This study represents an effort to bring clarity to the debate regarding leadership in sex-typed tasks. While one camp of scholars have traditionally considered group members’ recognition of an individual’s biological sex as most important in determining that individual’s chances of emerging as a group leader, another group of scholars have historically believed that an individual’s psychological gender is the determinant factor. The central purpose of the current study was to effectively distinguish biological sex and psychological gender in an attempt to ascertain which was the more viable predictor of emergent leadership in small, task-performing groups. In doing so, this study sought to bring a new perspective to extant leadership literature- one which independently
examines the respective impacts biological sex recognition and psychological gender experience on leadership emergence.

In addition to contributing to existing leadership literature, the methodology employed by the current study raised interesting issues concerning computer-mediated communication and its usefulness as a tool in communication research. This study represents one of the, if not the first attempt to isolate psychological gender and biological sex using a communication method other than standard face-to-face interaction. Because the current study utilized computer-mediated chat software to conduct communication between group members, the results of this study expand on the scholarship dedicated to computer-mediated communication and its utility in communication research.

Within the macro-level contributions the present study makes to extant communication literature, specific findings correspond to the present study’s proposed hypotheses. The following section will discuss and interpret these findings.

Summary of Results and Interpretation

Effects of biological sex on perceptions of partner’s leadership

H1 and H2 dealt with biological sex and its impact on group members’ perceptions of an individual’s leadership ability. Recall that the present study found no evidence to support the claim that recognition of an individual’s biological sex affects other group members’ perceptions of that individual’s leadership. Though the proposed hypotheses concerning biological sex recognition and its relationship to leadership emergence were not supported, we should not take this as an indication that there is
nothing to learn. Rather, the nonsignificance of these hypothesis tests may shed some light on the nature of several issues raised by the design of the present study.

Recall that status beliefs, as defined by Berger et al. (1977), are widely held cultural beliefs that associate higher levels of social significance and general competence with one social category over another. Though there is little doubt that individuals cannot avoid holding status beliefs about groups that are dissimilar to their own, the current study may have overestimated how salient biological sex (the characteristic expected to be the root of status beliefs concerning H1 and H2) was to participating individuals because of the mediated communication channel. Put simply, because individuals participating in both the anonymous and identified conditions were communicating via a computer-mediated channel, the biological sex of their partner may not have been as immediate as it would have been had participants communicated face-to-face. Level of anonymity notwithstanding, if their partner’s biological sex is not immediate to them, then participants may find it more difficult to stereotype on its basis.

While the nonsignificance of H1 implies that salience of biological sex is diminished outside a face-to-face environment, the nonsignificance of H2 reveals that simply knowing another individual’s biological sex is not the same as experiencing it. Relative to those individuals participating in the anonymous condition, those individuals who were fully aware of their partner’s biological sex were no more likely to stereotype their male or female partner as being inherently good at leading male- or female-typed tasks, respectively. Thus, it may be that the immediacy of biological sex is not affected by simply knowing whether one’s partner is male or female. For an individual’s
biological sex to truly have an impact on his/her partner’s perceptions of that individual’s leadership ability, either 1) physical presence, or 2) the use of a communication channel that accentuates biological sex more than computer chat, may be needed.

If it is true that immediacy affects perception, and perception, in turn, affects leadership emergence, then the findings of the current study may refute part of Spears and Lea’s (1992, 1994) SIDE model. Recall that Spears and Lea claimed that an identified setting leads to higher levels of categorization based on some discernable characteristic that may be invisible in an anonymous setting. The results of H1 and H2 suggest that simply discerning a characteristic (in this case, biological sex) will not lead to a different result with regard to perception of leadership ability than when the characteristic is indiscernible. It is not whether biological sex is evident to an individual that dictates their stereotyping, it is the extent to which biological sex is evident that dictates their stereotyping.

In addition to these explanations, there may be other circumstances that contributed to the nonsignificance of H1 and H2. Several researchers (Glick & Fiske, 1999; Jackman, 1994; Ridgeway, Boyle, Kuipers, & Robinson, 1998) have claimed that status beliefs develop in groups that regularly work together. Being that the present study utilized zero-history dyads, the limited time (in some cases, less than five minutes) group members had with one another may have mitigated the process by which individuals develop stereotypical status beliefs. With less time to know who their partner was, group members were unable to develop strong stereotypes about one another.
Additionally, shifts in societal attitudes about “proper” topics of discussion for men and women may have affected participants’ perceptions of their partner’s leadership ability. Much of the research examining biological sex and its relationship with leadership emergence appeared in the late 1970’s into the 1980’s. Since then, general attitudes about men and women and their respective social statuses in contemporary society may have changed drastically. In 2006, it is not unlikely to see a married woman participating actively in a male-dominated industry or a man staying at home to take care of his children. Changes such as these reflect American society’s acceptance of men and women breaking “the traditional gender mold.” If men and women are, in fact, less bound by biological sex stereotypes than they were in the 1970’s and 1980’s, then it follows that relative to 20-30 years ago, participants performing a male-typed task would be more willing to accept a female group leader and participants performing a female-typed task would be more willing to accept a male group leader. The two-way interaction between biological sex and sex-typing of the performed task that may have existed 25 years ago may no longer apply because of changes in attitudes about biological sex roles.

Finally, consider the discussion posed by O’Leary (1974) concerning internal and external barriers to leadership emergence. Recall that internal barriers to leadership refer to those obstacles that women (and men) encounter which make them reluctant to exhibit leadership behavior: for example, fear of reprimand or lack of confidence about subject matter. External barriers to leadership refer to those obstacles that women (and men) encounter as a result of group member resistance. As described above, external barriers to leadership emergence may have been diminished by the lost immediacy of biological
sex resulting from computer-mediated communication. However, this does not explain how participants can potentially overcome internal barriers to leadership behavior when discussing a topic which was incongruous with their biological sex.

A study by Tidwell and Walther (2002) revealed that previously unacquainted individuals that communicated via a computer-mediated channel were more likely to speak directly and exhibit higher levels of confidence relative to individuals that communicated face-to-face. These results speak to a unique consequence of computer-mediated communication—its users are more confident than they would be in a face-to-face setting. In the electronic setting, males may have felt more confident in discussing female-typed tasks and females may have felt more confident in discussing male-typed tasks than they would have been had the dyads been communicating face-to-face. Because confidence causes individuals to communicate more “powerfully” (Pavitt and Curtis, 1994; Harper, 1985), and powerful communicators are generally attributed more influence in small groups than powerless communicators (Erickson, Lind, Johnson, and O’Barr, 1978), the unique format of the present study (computer-mediated communication-based) may have allowed potentially submissive participants to become more confident, and consequently obtain more influence or power within their dyad.

**Effects of psychological gender on perceptions of partner’s leadership**

H3 and H4 dealt with psychological gender and its effect on group members’ perceptions of their partner’s leadership ability. As was the case with H1 and H2, no evidence was found to support the notion of an interaction between psychological gender
and group members’ perceptions of the subject’s leadership ability. Though the present study found no evidence to support H3 or H4, the nonsignificant results of these hypothesis tests can teach us much about the issues surrounding psychological gender and its effect on small group communicative processes.

Recall the work of Stephen and Harrison (1985) suggesting that individuals of a given psychological gender, especially masculines and feminines, feel inclined to sustain their psychological gender by behaving consistently with their set of internalized beliefs about themselves. In short, masculines tend to feel the need to fulfill a masculine stereotype (assertive, agentic, etc.) and feminines tend to feel the need to fulfill a feminine stereotype (sympathetic, concerned, etc.). This consideration is important for two reasons. First, the research conducted by Stephen and Harrison, like much of the rest of the research examining psychological gender, was performed under the assumption that communication would take place in a face-to-face setting. Little to no empirical research has been conducted about the behaviors of individuals of different psychological genders in a non-physical environment. As with biological sex, the computer-mediated environment may have provided a virtual “shield” with which its users hid from their partners by altering the behavior consistent with their “everyday” psychological gender. Essentially, without having to physically interact with their partners, participants may have felt less inclined to adhere to the internalized set of behaviors they had traditionally exhibited to others in their face-to-face interactions.

Similarly, it may be that psychological gender, as conceptualized by Bem (1974), may be dependent on nonverbal behavior more than previously speculated. Several
researchers (Chodorow, 1975; Eagly, 1987; Gilligan, 1982; Kim & Aune, 1997) have examined the communicative differences between the various psychological genders. However, these researchers, among others, have failed to explicitly differentiate verbal and nonverbal behaviors as indicators of an individual’s psychological gender. As a result, communication scholars may have relied too heavily on verbal communication to conceptualize psychological gender. If an individual’s psychological gender is also characterized by his/her nonverbal behavior, then the computer-mediated medium with which communication was facilitated may have filtered out nonverbal cues that would have proven integral in relaying that individual’s psychological gender to his/her partner.

Second, Berger and Calabrese (1975) claim that individuals, when communicating for the first time, have an inherent need to get to know one another as the preliminary step in their interaction. Being that dyad members participating in the current study were previously unacquainted with their partners, all participants, regardless of psychological gender orientation, may have felt an inherent drive to 1) get to know their partner, and 2) as Sunnafrank (1990) speculated, ensure that their relationship with their partner would be a pleasant working experience. Though socioemotional group tasks such as these are typically undertaken by feminines (Chodorow, 1978), participants’ need for certainty and group harmony may have superceded their need to adhere to behaviors indicative of their psychological gender, regardless of what it was. If all participants were chiefly concerned with socioemotional harmony, then emerging as a task leader in a sex-typed task may have proven impossible when working in such a short time frame. In short, if participants were spending their
time trying to reduce uncertainty about their partner, then they may have been unable to behave as assertively as would be expected of a task leader.

Despite this study’s evidence to the contrary, let us assume that there is some relationship between biological sex, psychological gender, and sex-typing of the task on leadership emergence in small groups, as previous research has suggested. Whereas extant literature has scratched the surface as to why this two-way interaction exists, the results of this study provide some insight as to what specific explanations for this interaction are viable. The nonsignificance of H1 and H2 provides evidence against the proposal that simple recognition of another individual’s biological sex causes a two-way interaction between biological sex and sex-typing of the task regarding leadership emergence. Similarly, the nonsignificance of H3 and H4 has revealed an absence of support for the notion that differences in verbal expression associated with psychological gender cause a two-way interaction between psychological gender and sex-typing on leadership emergence. This leaves us with two potential explanations as to why group members stereotype their partners on the basis of psychological gender. First, it may be that the stereotyping process requires more time than was allotted during this study. To test this theory, future replications of this study may benefit from a longer period of time in which to communicate or a long-term longitudinal design. Implications of the short time frame (in relation to issue involvement) with which participants had to communicate will be further discussed among the study’s limitations. Second, and more germane to theory discussed in this study, it may be that leadership attribution in small groups is
determined primarily by the nonverbal behavior (both visual and vocal) of the group’s members.

The emergence of nonverbal behavior as principal determinant of leadership has implications for Berger’s (1977) Expectation States Theory. Recall that Berger claimed that in the absence of any explicit show of expertise, individuals will fall back on preexisting stereotypes about other individuals in order to determine who is most capable of leading the group, given the task to be performed. The results of the current study suggest that to exhibit expertise in a given area, what individuals say is not nearly as important as how they say it. Therefore, for an individual to emerge as a leader in a group performing a male-typed task, simply talking about the how to perform the task will not be sufficient. Rather, that individual will need to perform masculine nonverbal cues: speaking louder, interrupting more, and leaning forward while speaking, for example. Similarly, for an individual to emerge as a leader in a group performing a female-typed task, simple discussion of how to perform the task will not cause other group members to attribute power to that individual. Rather, that individual will need to perform feminine nonverbal cues: rising intonations or speaking softly, for example.

The implications of the current study for Expectation States Theory also resonate with general psychological gender theory. Bem (1974) claimed that an individual’s psychological gender is determined by their internalized behavior set. Masculine individuals are masculine because they “feel” masculine. Feminine individuals are feminine because they “feel” feminine. This conceptualization is operationalized on the BSRI, where respondents are asked to self-report how closely they match given
characteristics. Though Bem’s operationalization of psychological gender is legitimate, this study illustrates a shortcoming of current psychological gender theory- the lack of a nonverbal behavioral component of psychological gender measurement. Current psychological gender literature assumes that masculine individuals (as determined by the BSRI) will behave in a masculine/powerful way and feminine individuals (as determined by the BSRI) will behave in a feminine/powerless way. Although this assumption has been tested regarding verbal behavior (Kim and Aune, 1997), empirical analysis of this assumption has been relatively limited regarding nonverbal behavior. Thus, there is a need for empirical study of nonverbal behaviors associated with the respective psychological genders, as conceptualized by Bem (1974).

Effects of Anonymity and Sex-Typing of the Task on Maintenance Leadership

Though the current study’s hypothesis tests yielded insignificant results, two significant main effects emerged outside the scope of the proposed hypotheses. Main effects of both anonymity condition and sex-typing of task on partner’s perception of subject’s maintenance leadership emerged. Though these effects were not formally hypothesized, they provide valuable theoretical insight into extant communication research.

First, there was a main effect of anonymity condition on maintenance leadership such that identified individuals were rated higher on maintenance leadership than anonymous individuals. That is, those participants whose identities were revealed to their partners were rated higher on Pavitt’s Maintenance Leadership Index than those participants whose identities were hidden. This result has significant theoretical
implications for Berger and Calabrese’s (1975) Uncertainty Reduction Theory (URT) and Spears and Lea’s (1992, 1994) SIDE Model. URT would predict that upon communicating for the first time, participants would attempt to reduce uncertainty by getting to know one another, at least at a minimal level. Given that participants in the anonymous condition were forbidden from learning any personal information about their partners, reducing uncertainty though introductions and personal revelations would have been impossible for these individuals. In contrast, participants in the identified condition were not given any restrictions as to what they could or could not reveal to their partners about their personal identities. This condition made uncertainty reduction through self-disclosure not only feasible, but likely. Because many of the behaviors associated with uncertainty reduction are analogous to the behaviors associated with maintenance leadership, it follows that those participants who were able to participate in uncertainty reduction with their partner (through introductions, self-disclosures, etc.) would be rated higher on maintenance leadership than those participants who were unable to participate in uncertainty reduction.

The main effect of anonymity condition on partner’s perception of the subject’s maintenance leadership also has implications in light of Spears and Lea’s SIDE Model. Based on the SIDE Model, if individuals are anonymous to one another, they experience reduced self-awareness and identity, leading to a feeling of confusion as to where an individual stands with respect to his/her other group members (Zimbardo, 1969). One would think that this sense of confusion about themselves and their partners would lead anonymous group members to seek some measure of solace while working together,
possibly through positive reinforcement of ideas or casual pleasantries, which are indicative of maintenance leadership. However, anonymous participants in the current study seem to have not taken part in this process, and instead chose to deal with the task at hand and nothing else. This may explain why anonymous individuals were not rated highly on maintenance leadership relative to identified individuals.

Second, the present study yielded a curious main effect of sex-typing of the task on maintenance leadership perception such that those participants whose dyads performed a female-typed task were rated higher on Pavitt’s Maintenance Leadership Index than those participants whose dyads performed a male-typed task. Participants performing the female-typed task may have experienced a priming effect as a result of knowing about the inherent feminine stereotypes associated with planning a wedding (the female-typed task). Because participants were given descriptions of the task their dyad was to perform roughly ten minutes before they actually began performing the task, participants may have been primed in such a way as to act and communicate “femininely” while performing the female-typed task, regardless of their psychological gender. “Feminine communication” is characterized by empathy (Chodorow, 1978) and sensitivity to others (Gilligan, 1982; Kim & Aune, 1997; Lykes, 1985). If participants performing the female-typed task were primed to act femininely because of perceptions of the task at hand, their “feminine communication” may have been perceived as effective maintenance leadership by their partners, resulting in higher scores on Pavitt’s Maintenance Leadership Index relative to those participants performing a male-typed task.
Despite these interesting results, there were several limitations to the current study that warrant mentioning. These limitations and directions for future research in this area are discussed in the following section.

**Limitations and Directions for Future Research**

Ironically, the largest task this study sought to undertake was also the source of its greatest limitation. Mentioned at the outset, this study sought to examine the respective impacts of biological sex and psychological gender on leadership emergence. While this study represents perhaps the first legitimate attempt to separate an individual’s biological sex from his/her psychological gender, the method employed to facilitate this attempt caused a major problem. Anonymous computer-mediated communication was theoretically successful in separating an individual’s biological sex from his/her psychological gender. However, nonverbal cues, (e.g., tone of voice, proximity to the listener, levels of eye contact, etc.) which may be crucial in the successful identification of an individual’s psychological gender, were lost. Without hearing a rising intonation at the end of a sentence (which is indicative of a feminine individual), how can the receiver of that message denote a lack of confidence? Without seeing an individual lean forward in an assertive way (which is indicative of a masculine individual), how can the receiver of that message understand the extent to which the speaker is attempting to control the conversation? Without fully experiencing nonverbal communication indicative of different psychological genders, participants may have reacted to masculines, feminines, undifferentiated individuals, and androgynous individuals in generally the same way.
Though difficult, future replications of this study would benefit by employing a different method to hide participants’ biological sex while still allowing for nonverbal cues to be experienced. Given that nonverbal behavior may be more significant in conceptualizing an individual’s psychological gender than previously thought, it would be beneficial to replicate this study in this way to examine participants’ nonverbal behavior as it relates to their psychological gender, and determine the impact of that nonverbal behavior on leadership emergence.

Future research in this area would also benefit from closer examination of power cues in a computer-mediated environment. Though the current study examines power cues and their relation to psychological gender, it is limited in that most behaviors that have been posited as conceptualizing masculinity and femininity have previously been studied in physical environments. There has been little to no research examining the equivalents to these gender cues in an online setting. Leaning forward during conversation is a masculine behavior, but what is its equivalent in an online setting? Looking away when someone stares you in the eye is a feminine behavior, but how would one communicate that in a chat room? By addressing questions such as these, communication scholars pursue two related avenues of research: 1) examination of electronic equivalents to physical cues and 2) conceptualization of an online version of an individual’s psychological gender.

Similar to close examination of power cues in an online setting, further examination of the SIDE Model and its applications to different types of online task-performing groups is warranted. Though the current study uses the SIDE Model as
theoretical backing for the claims laid out in the proposed hypotheses, some communication researchers question the application of the SIDE Model to online dyads. Walther and Parks (2002) believe that SIDE theory’s claim that all online interaction does not extend beyond the social/group level to the interpersonal/dyadic level makes application of the SIDE Model to dyads problematic. Though Walther and Parks do not go so far as to say that SIDE theory is absolutely inapplicable to dyads, it is clear that there is room for future research examining the principles of the SIDE Model in dyads. Specifically, communication researchers examining SIDE theory may benefit from studying the role of interpersonal cues (as opposed to social cues) and their place within the model.

In addition to the limitations regarding power cues, there was some indication that participants in the current study may not have been personally invested in successful completion of the tasks they were given. Inspection of the data regarding issue involvement revealed the average involvement score for the entire index was very close to neutrality ($M = 4.42; SD = .29$), meaning that participants were not very concerned about completing the tasks they were assigned. Participants’ general lack of concern with successful completion of the tasks may have caused some dyads to terminate their conversations early. Of the 126 dyads that participated in online conversations, 82 (65.1%) had conversations of less than the recommended 15 minutes. In such a short time frame, dyads may have been unable to fully develop roles as task and maintenance leaders that would otherwise emerge in groups operating for a longer period of time. Further, the assumed emergence of two distinct dimensions of the Pavitt Leadership
Scale may have been unjustified in this case. Future replications of this study will benefit from increasing participants’ involvement in the task being performed through some tangible incentive. For example, to incite greater personal involvement among participants, and in turn causing longer conversations, the researcher may wish to offer a monetary reward to the dyad that offers the best quality suggestions. By offering a tangible incentive for successful participation, researchers may be able to avoid participant apathy and subsequent faulty analyses.

Another way to increase participants’ involvement and avoid empirical errors would be to select tasks of greater personal importance to the sample. While the two tasks chosen in the current study were determined to be respectively female-typed and male-typed, the current study’s criteria for determining which tasks to use were not ideal. First, participants may have simply not cared about the subject matter they were talking about. Planning a football game and planning a wedding, while strongly female-typed and male-typed, may not have been of immediate importance to participants. By selecting different tasks that are of more immediate importance to respondents, future replications can increase issue involvement among participants, and subsequently avoid the problems mentioned above. Second, because of the limited number of individuals available to participate in the pilot study, the sample size used to determine attitudes about male-typed and female-typed tasks was extremely low (n = 39). If possible, future examinations of male-typed and female-typed tasks should utilize larger sample sizes to gain a greater understanding of issues important to the population being drawn from.
Similar to a faulty task selection process, a lack of true anonymity in the anonymous condition may have contributed to the nonsignificance of the proposed hypotheses. EST tells us that group members will rely on preexisting stereotypes about others to make decisions about who to attribute power to within the group. Though the current study applies EST in the context of biological sex, its application can extend to any discernable characteristic inherent in others. Further, in the groups that were operating in an anonymous environment, individuals may have made assumptions about their partners based on previous online conversations they may have had. Therefore, anonymous participants may have been making assumptions about their partners’ biological sexes based on cues other than those that were hypothesized to become salient in the anonymous condition. For example, a participant may have had online conversations in the past in which a female counterpart regularly used the online phrase “LOL” (laughing out loud). This participant may be predisposed to believe that females use the phrase “LOL” more than males. Therefore, this participant would likely assume that his/her partner is female based on this cue. Surprisingly, a large portion (68 of 108-63.0%) of those participants operating in the anonymous condition were able to correctly determine their partner’s biological sex based on cues they picked up during the course of their conversations.

Though the current study did not consider cues such as these as contributory stimuli for participants to make assumptions, they may have significantly affected participants’ perceptions of their partners’ biological sexes. This lends to the idea that *true* anonymity may not have been attained during this study. If, despite the lack of
information they had regarding their partner, participants were continuously making
assumptions about their partners’ identities, then the current study did not reach the level
of anonymity that would have provided more concrete results.

In addition, ecological validity may be debatable due to the use of a convenience
sample. The present study used a sample of 220 undergraduate students from a large
Mid-Atlantic university. Though the use of undergraduates in research involving
computer-mediated communication is a well-established practice (O’Sullivan, 2000;
Ramirez & Burgoon, 2004), it would be foolish to assume that all potential samples
would behave in the same fashion as the one utilized here. Relatively young, educated
participants may be less prone to sex stereotypes and behave differently regarding
perceptions of leadership than older, less educated participants. Therefore, replications of
this study may benefit from utilizing different samples— especially samples comprised of
participants with different geographic locations, education levels, ages, and
socioeconomic statuses than the sample employed here.

Finally, beyond its limitations and potential as a starting block for future research,
this study stands as a testament to the usefulness of computer-mediated communication
as a valuable methodological tool. Most communication research involving CMC has
been concerned with differences between communicative behaviors in online versus face-
to-face environments. Though this area of communication research is a burgeoning one,
and is worthy of serious attention, this study’s use of CMC does not intend to highlight
CMC as an area of study. Rather, this study serves as an example to illustrate how CMC
can be utilized to shield participants from features that may be encountered in a face-to-
face interaction. Though participants will always make implicit assumptions about those they are communicating with, future research that seeks to isolate participants from certain attributes that would be impossible to avoid in a face-to-face interaction should at least consider the use of computer-mediation to facilitate communication.

In sum, communication researchers should continue to examine biological sex and psychological gender as predictors of leadership. Though extant research has implied that it is difficult to cross the biological sex/psychological gender barrier in a small group performing a sex-typed task, stereotypes involving sex and gender are dissipating rapidly. It would behoove communication scholars to study small group leadership trends in the coming years, especially as general societal attitudes about biological sex and psychological gender continue to shift. As the findings of the current study indicate, previous assumptions regarding biological sex, psychological gender, and their value in determining which is the “right type” person to lead a group may be drastically different than they were in the past.
References


Appendix A1 and A2

Instruction Sheets (Identified Condition)

Your ID# ___________________  Your Partner’s ID# ___________________

Chat Room # _____

Thank you for taking the time to participate in this study.

When both you and your partner are present in the chat room, you are to discuss the steps involved in participating in a football game.

You should discuss preparation for the game, materials or equipment you may need, and any unique difficulties that may arise during the course of the preparation or during the game itself. There are no wrong or right answers.

You have 15 minutes to discuss this issue, and you may terminate the conversation upon the completion of your discussion. **Once you are finished with your discussion, please click the little blue door icon just below the chat room window- this is the log out button.**

After you log out of the chat server, you will be prompted to a short survey.

Your ID# ___________________  Your Partner’s ID# ___________________

Chat Room # _____

Thank you for taking the time to participate in this study.

When both you and your partner are present in the chat room, you are to discuss the steps involved in planning a wedding.

You should discuss preparation for the wedding, materials or equipment you may need, and any unique difficulties that may arise during the course of the preparation or during the wedding itself. There are no wrong or right answers.

You have 15 minutes to discuss this issue, and you may terminate the conversation upon completion of your discussion. **Once you are finished with your discussion, please click the little blue door icon just below the chat room window- this is the log out button.**

After you log out of the chat server, you will be prompted to a short survey.
Appendix B1 and B2

Instruction Sheets (Anonymous Condition)

Your ID# ___________________ Your Partner’s ID# _________________

Chat Room # _____

Thank you for taking the time to participate in this study.

At NO time during the course of your conversation should you give your partner ANY personal information about yourself (e.g., Name, Age, Sex, Grade, Hometown, Hobbies, etc.). DO NOT ask any personal information about your partner (e.g., Name, Age, Sex, Grade, etc.).

In addition, DO NOT speak about/ask your partner about any previous experience you/your partner may have with football. Speak only about the task you are presently being asked to perform.

When both you and your partner are present in the chat room, you are to discuss the steps involved in participating in a football game.

You should discuss preparation for the game, materials or equipment you may need, and any unique difficulties that may arise during the course of the preparation or during the game itself. There are no wrong or right answers.

You have up to 15 minutes to discuss this issue, and you may terminate the conversation upon completion of your discussion. **Once you are finished with your discussion, please click the little blue door icon just below the chat room window- this is the log out button.**

After you log out of the chat server, you will be prompted to a short survey.
Thank you for taking the time to participate in this study.

At NO time during the course of your conversation should you give your partner ANY personal information about yourself (e.g., Name, Age, Sex, Grade, Hometown, Hobbies, etc.). DO NOT ask any personal information about your partner (e.g., Name, Age, Sex, Grade, etc.).

In addition, DO NOT speak about/ask your partner about any previous experience you/your partner may have with weddings. Speak only about the task you are presently being asked to perform.

When both you and your partner are present in the chat room, you are to discuss the steps involved in planning a wedding.

You should discuss preparation for the wedding, materials or equipment you may need, and any unique difficulties that may arise during the course of the preparation or during the wedding itself. There are no wrong or right answers.

You have up to 15 minutes to discuss this issue, and you may terminate the conversation upon completion of your discussion. Once you are finished with your discussion, please click the little blue door icon just below the chat room window- this is the log out button.

After you log out of the chat server, you will be prompted to a short survey.
Appendix C

Bem’s Sex Role Inventory (Factor Analyzed)

Please respond by clicking the box corresponding to how much you agree or disagree with each statement.

1) I act as a leader.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Mostly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Agree</th>
<th>Mostly Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

2) I am affectionate.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Mostly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Agree</th>
<th>Mostly Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

3) I am aggressive.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Mostly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Agree</th>
<th>Mostly Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

4) I am ambitious.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Mostly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Agree</th>
<th>Mostly Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

5) I am assertive.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Mostly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Agree</th>
<th>Mostly Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>
6) I am compassionate.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Mostly Disagree</th>
<th>Somewhat Disagree</th>
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7) I am competitive.

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8) I defend my beliefs.

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9) I am dominant.

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10) I am eager to soothe hurt feelings.

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11) I am forceful.

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12) I am gentle.

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13) I am independent.

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14) I am individualistic.

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<th>Strongly Agree</th>
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15) I have leadership ability.

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16) I love children.

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17) I make decisions easily.

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18) I am self-reliant.

<table>
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19) I am self-sufficient.

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20) I am sensitive to other’s needs.

<table>
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21) I have a strong personality.

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<td>22) I am sympathetic.</td>
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<tr>
<td>23) I am tender.</td>
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<tr>
<td>24) I am an understanding person.</td>
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<tr>
<td>25) I am warm.</td>
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<tr>
<td>26) I am willing to take a stand.</td>
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<tr>
<td>27) I am willing to take risks.</td>
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Appendix D
Kent/Moss Leadership Scale

1) During the course of your discussion with your partner, how much did **you** assume a leadership role:

Not at all    Very Little    Little    Much    Very Much    Completely

2) During the course of your discussion with your partner, how much did **you** lead the conversation:

Not at all    Very Little    Little    Much    Very Much    Completely

3) During the course of your discussion with your partner, how much did **you** influence group goals and decisions:

Not at all    Very Little    Little    Much    Very Much    Completely

4) During the course of your discussion with your partner, how much did **your partner** assume a leadership role:

Not at all    Very Little    Little    Much    Very Much    Completely

5) During the course of your discussion with your partner, how much did **your partner** lead the conversation:

Not at all    Very Little    Little    Much    Very Much    Completely

6) During the course of your discussion with your partner, how much did **your partner** influence group goals and decisions:

Not at all    Very Little    Little    Much    Very Much    Completely
7) **My partner** was the leader of our discussion.

<table>
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<tr>
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<th>Strongly Disagree</th>
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8) **I** was the leader of our discussion.

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<th>Strongly Agree</th>
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Appendix E

Internet and Chat Room Familiarity

1) I am familiar with internet chat rooms.

<table>
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2) I am familiar with instant messaging programs.

<table>
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<tr>
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</table>

3) On any given day, I participate in *chat room discussions* for...

_________ hours

4) On any given day, I participate in *instant messaging* for...

_________ hours
Appendix F

Issue Involvement

These items are designed to measure your sense of the overall importance of completing the task you were just assigned. Listed below are six items, each consisting of a pair of adjective-opposites. Please read each pair and circle the number that best describes your response to the following question: **How important to you was completing the task you were assigned?** (a “4” represents neutrality when comparing the two extremes of each pairing)

- unimportant 1 2 3 4 5 6 7 important
- no concern 1 2 3 4 5 6 7 much concern
- irrelevant 1 2 3 4 5 6 7 relevant
- means nothing 1 2 3 4 5 6 7 means a lot
- doesn’t matter 1 2 3 4 5 6 7 matters
- insignificant 1 2 3 4 5 6 7 significant

How knowledgeable do you consider yourself to be regarding football/weddings?

Not at all knowledgeable  1 2 3 4 5 6 7 Very knowledgeable
Appendix G

Anonymity Manipulation Check

I believe my partner was _______.
a) male  
b) female  
c) don’t know

How sure are you of your partner’s biological sex?

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<thead>
<tr>
<th>Completely Unsure</th>
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### Appendix H

#### Sex-Typed Task Selection

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<th>Males</th>
<th>Females</th>
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<td>Average female- apartment</td>
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<td>4.77</td>
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<td>Average female- outfit</td>
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<td>Average female- football</td>
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<td>Average male- wedding</td>
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<td>Average male- apartment</td>
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### Appendix I

**Pilot Study Examining Leader Attitudes/Behaviors**

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