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# GENDER, PERCEIVED COMPETENCE, AND POWER DISPLAYS

## Examining Verbal Interruptions in a Group Context

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*This study examined sources of influence on power displays in mixed-gender work groups. The participants for this study included 216 university students who were randomly assigned to 36 mixed-gender groups for the purpose of case discussions. Measures of individual verbal interruption behavior were used as indicators of power displays among group members. The findings support the assertion that the proportional representation of men and women in a group will influence patterns of interruption behavior, with both men and women exhibiting higher levels of interruption behavior in male-dominated groups. In addition, the results indicate that perceived member competence based on congruence or incongruence with the gender orientation of the group's task has a greater impact on power displays among women compared to men. The use of such power displays was also shown to be negatively correlated with leadership rankings in the group for both men and women.*

**Keywords:** verbal interruptions; power displays; group; gender; proportional representation

Numerous studies of gender dynamics in work teams have considered the relative distribution of power and influence among men and women, and the behavioral consequences of such distributions (e.g., Dovidio, Brown, Heltman, Ellyson, & Keating, 1988; Grob, Meyers, & Schuh, 1997; Reskin, McBrier, & Kmec, 1999; Ridgeway & Smith-Lovin, 1999).

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Conversational activity is a useful domain for examining power and status effects in organizational contexts, even though little attention has been given to how individuals display relative power at the face-to-face level (Morand, 2000). The study of conversation between men and women in organizations is particularly important because of the potential for conversation to create and sustain gender inequality in the workplace (Martin, 1992; Smith-Lovin & Robinson, 1991).

Viewpoints expressed through speech can either reinforce or challenge practices that grant privilege to men and disadvantage women at work (Chase & Bell, 1990; West & Zimmerman, 1987). Given the association of language use with status differences (Carli, 1990), there is little doubt that an examination of language or verbal behavior can reveal important information about the relative distribution of power among men and women in work contexts. Consequently, a number of researchers have assessed the role of verbal behaviors (e.g., frequency of speech initiations and total amount of speech) as indicative of gender differences in power displays between men and women (e.g., Dovidio, Brown, et al., 1988; Grob et al., 1997).

Although much research has attempted to uncover gender differences in conversational power displays, the findings have been somewhat contradictory (Anderson & Leaper, 1998; James & Clarke, 1993; Marche & Peterson, 1993). This may be due to a lack of consideration of the context within which gender differences in conversational behavior can arise. The effects of proportional representation and status differences on interruption behavior are quite complex and require greater research attention (Smith-Lovin & Brody, 1989). Unfortunately, the research has not made a systematic effort to distinguish between the effects of gender, proportional representation, and perceived competence differences. Previous research findings indicating that men engage in more interruptive behavior than women (e.g., Zimmerman & West, 1975; Case, 1988; Craig & Pitts, 1990) may not be purely a function of gender but rather a combination of gender, proportional representation, and perceived competence in a given situation.

The hypotheses tested in this article reflect sociological, structural, and psychological-based approaches to understanding gender differences in power displays. Specifically, our article draws upon the gender role socialization approach (Eagly, 1987; Maccoby & Jacklin, 1974), a structural approach to gender differences (Kanter, 1977a, 1977b, 1980), as well as the social psychology-based perspective embedded in expectation states theory (Berger, Rosenholtz, & Zelditch, 1980). Elements taken from each of these models permit us to assess the impact of gender, group gender composition, and the gender orientation of the task on influencing conversational power displays in a group context. Our study, reported below, attempts to discern the impact of these factors on interruption behavior.

### **THEORETICAL BACKGROUND AND RESEARCH HYPOTHESES**

Attempts to explain the sources for gender differences in behavior are numerous and include theories based on biological, psychological, sociological, and structural perspectives. The biological frameworks (e.g., Hutt, 1972; Wilson, 1975) consider genetic and physical sources for gender differences, whereas the psychological or cognitive approaches (e.g., Bandura, 1982; Bem, 1974; Kohlberg, 1966; Mischel, 1966) focus on the early acquisition of gender-related behavior. The sociological perspective (e.g., Eagly, 1987) examines broader societal influences. And finally, the structural perspective (Kanter, 1980) focuses on the notion of proportional representation itself as a source of influence on gender differences in behavior.

Although all the above perspectives have offered critical insight into the dynamics of mixed-gender work groups, often these approaches have been discussed in isolation with few attempts to integrate any of their elements. Below, we draw on sociological and psychological-based perspectives as well as Kanter's (1980) structural perspective to understand sources of influence on power displays in mixed-gender groups.

**SOCIALIZED GENDER ROLES AND CONVERSATIONAL STYLE**

Sociological-based models, including social role theory (Eagly, 1987), assert that elements of the social structure, including the allocation of women and men into different social roles, encourage consistent patterns of behavioral differences between men and women. According to social role theory, gender differences in social behavior are the result of individuals behaving consistently with their social roles (Eagly, 1987). Socialized traits are posited to influence behavior in groups (Strodbeck & Mann, 1956). That is, shared expectations regarding what is considered appropriate behavior can apply to individuals simply on the basis of their socially identified gender. The research regarding gender stereotypes has provided support for the pervasiveness of these expectations (Broverman et al., 1972; Eagly & Stefan, 1984). This is reflected in findings regarding gender differences in conversational styles.

Differences in conversational styles between men and women have been viewed as a reflection of distinct cultural norms of communication or linguistic subcultures that evolve from youth until adulthood (Maccoby, 1990; Maltz & Borker, 1982; Tannen, 1990; Nicotera & Rancer, 1994). These styles have been linked to underlying differences in the aims of the speakers. For example, because women's conversational goals include gaining trust and establishing an affiliation with their conversational partners (e.g., Troemel-Ploetz, 1991), women tend to be more responsive listeners and more considerate speakers (e.g., Roger, 1989). In contrast, it has been suggested that men are more likely to use conversation as a means to establish status or to gain or disseminate information (Aries & Johnson, 1983; Tannen, 1990). This has been used to explain observed conversational patterns among men, including relative domination of mixed-gender conversations in public situations (e.g., Holmes, 1995), less expressed interest in the contributions of the conversational partner (e.g., Dovidio, Brown, et al., 1988), and lower levels of polite forms of speech (e.g., Holmes, 1995).

The gender role socialization approach (Eagly, 1987; Maccoby & Jacklin, 1974) suggests that men and women learn different

norms for interaction from their experiences in same-gender peer groups. These expectations for behavior are carried into same-gender contexts that ultimately affect behavior (Carli, 1989, 1990; Hannah & Murachver, 1999). Consistent with this view, the research has indicated that when men and women work in gender-segregated contexts, they are more likely to engage in behavior stereotypical for that gender, compared with behavior in non-gender-segregated contexts (Aries, 1996; Carli, 1989).

A number of studies have indicated that in same-gender rather than in mixed-gender pairs, women tend to exhibit more positive social or communal behaviors, and men exhibit more task or agentic behaviors (e.g., Carli, 1989; Moskowitz, 1993). For example, Johnson, Clay-Warner, and Funk (1996) found that in same-gender groups, women showed higher rates of agreement compared with men, and men showed higher rates of counterarguments. What are the implications of these differences for conversational patterns and power displays in mixed-gender contexts?

There is ample research evidence to suggest that verbal interruptions can be viewed as a mechanism of power and dominance in conversation (Anderson & Leaper, 1998; Aries, 1996) because they constitute a violation of the current speaker's right to speak (Grob & Allen, 1996; Roger & Schumacher, 1983; Sacks, Schegloff, & Jefferson, 1974), and because they can be used to control the subject of conversation (Kollock, Blumstein, & Schwartz, 1985; Smith-Lovin & Brody, 1989). In line with this view, verbal interruptions as a form of power display will be perceived as congruent with male socialized gender roles (Eagly, 1987) and consequently will likely arise more frequently among members in male-dominated as opposed to female-dominated or balanced-gender work groups. That is, given that such power displays are consistent with stereotypical masculine behaviors, male-dominated groups will exhibit higher levels of interruption behavior. On the other hand, consistent with the research cited above, female-dominated groups will be less inclined to exhibit high levels of interruption behavior. These assertions can be summarized in the following hypothesis.

*Hypothesis 1:* Men in numerical majority positions (in male-dominated groups) will engage in higher levels of interruption behavior compared with women in numerical majority positions (in female-dominated groups).

#### PROPORTIONAL REPRESENTATION AND POWER DISPLAYS

The research cited above suggests that work groups that are numerically dominated by one gender are more likely to reinforce behavior traditionally associated with that gender. On the other hand, those individuals in numerical minority positions will be less reliant on their *traditional*, socialized gender roles and will be more likely to adopt the roles or behaviors of their numerically dominant counterparts. This is consistent with the assertions of Kanter's (1977a, 1977b, 1980) model of proportional representation, which suggests that the numerical representation of men and women can directly influence behavior in group settings.

Kanter's (1977a, 1977b, 1980) model, through its emphasis on the issue of proportional representation, offers a structural approach to the examination of the effects of gender composition on intragroup behavior. This approach suggests that it is the numerical representation of men and women that can directly influence behavior in mixed-gender settings, rather than the gender or socialized-gender roles of the individuals themselves. Kanter (1977a, b) asserted that when a social category (gender or ethnic category) has solo status in a group, several critical consequences arise. These consequences can be evident in "tilted" groups (where between 15% and 35% of the group are members of a minority social category) but are most pronounced in "skewed" groups (i.e., when a social category constitutes 15% or less of a group). According to Kanter, a group member who exists in the numerical minority (based on a social category) is in a position of representing their ascribed category in the group, regardless of any deliberate choice to do so, and tends to feel isolated from the numerical majority (Kanter, 1977a). Consequently, the behavior of the numerical minority is typically equated with an inhibited, passive quality (Kanter, 1977b).

Kanter (1977a, b) asserted that when a group member exists in the numerical minority (based on gender or ethnicity), they will tend to feel isolated from the numerical majority (Kanter, 1977a) and therefore may engage in activities that serve to reduce feelings of isolation and powerlessness. Consequently, the numerical minority may adopt the behavioral styles of the majority to better fit in (Eagly & Johnson, 1990). Consistent with this assertion, there is evidence that women in mixed-gender groups tend to exhibit greater levels of stereotypically masculine-associated behavior (acting more assertively, becoming more task oriented, etc.) compared with women in gender-segregated work groups who exhibit greater levels of stereotypically feminine-associated behavior (communal or socioemotional) (e.g., Maccoby, 1990). With regard to conversational styles, women tend to masculinize their conversation in the presence of men (e.g., Fitzpatrick, Mulac, & Dindia, 1995; Coates, 1986). Other researchers have, similarly, found that both men and women decrease their gender-preferential style in conversational behavior in mixed-gender dyads (e.g., Mulac, Wiemann, Widenmann, & Gibson, 1988).

The research outlined above suggests that when either men or women are in the numerical minority in a group, they will adapt their conversational style to match that of the numerical majority. Based on this notion, we predict that men in the numerical minority (in female-dominated groups) will exhibit lower levels of interruption behavior compared with men in the numerical majority (in male-dominated groups). Similarly, numerical minority women (in male-dominated groups) will be more likely to adopt the masculine norm and display greater levels of interruption behavior compared with women in the numerical majority (in female-dominated groups). All of these assertions are summarized as follows:

*Hypothesis 2:* Men in numerical minority positions (in female-dominated groups) will engage in lower levels of interruption behavior compared with men in numerical majority positions (in male-dominated groups).

*Hypothesis 3:* Women in numerical minority positions (in male-dominated groups) will engage in higher levels of interruption behavior compared with women in numerical majority positions (in female-dominated groups).



According to expectation states or status-characteristics theory (Berger et al., 1980) group members judge their relative skills and abilities in attaining group goals. This judgment results in a group hierarchy, in which relative status or expertise is assigned based on perceptions regarding the level of competence or expertise that each group member brings to the performance of the group's task. External status characteristics, such as race, age, and gender can be used by group members to form initial expectations about the relative competencies of individuals working on a group task. In the absence of information to the contrary, groups will assume that members who are higher on the relevant status characteristic will be more competent on the task than will those of lower status. These expectations can act as self-fulfilling prophecies (Rosenthal & Jacobson, 1968) that can, in turn, generalize and affect behavior and perceptions across a variety of social contexts (Berger et al., 1980; Eagly, 1983; Meeker & Weitzel-O'Neill, 1977). In other words, as the research described below indicates, certain cues can affect perceptions of expertise or competence among group members, and these perceptions can influence the actual behavior and feelings of the target individual. One such documented source of status characteristics stems from the nature of the group's task itself.

How might the nature of the group's task trigger judgments regarding the relative competence or expertise accorded to individuals? Bradley (1980) suggested that in addition to external characteristics, demonstrated knowledge or competence in the immediate context will provide another source of status in a group situation, and can act as a strong determinant of a group member's interaction in the group. That is, information regarding task competence can influence perceived status in the group and consequently affect intragroup behavior (Bradley, 1980). With regard to mixed-gender groups, imputed competence or expertise can arise as a consequence of gender-biased tasks and specifically of perceptions of congruence or incongruence with the gender orientation of the group's task.

Numerous scholars have suggested that through experience, individuals come to share beliefs about the extent to which tasks are

linked to gender (e.g., Piliavin & Martin, 1978; Wood & Karten, 1986). Masculine- and feminine-typed jobs are not necessarily equally distributed at work largely because professional, managerial, and many technical jobs have been dominated for long periods of time by men and thus continue to be perceived as masculine despite recent increases in the entry of women (Vancouver & Ilgen, 1989). When a group member's gender is incongruent with the perceived gender orientation of the group's task, that group member will be less likely to engage in power displays. Incongruent gender-biased tasks can trigger perceptions of being "out of one's territory" and consequently can reduce the tendency to display power or influence (e.g., Dovidio, Brown, et al., 1988; Karakowsky & McBey, 2001).

Although both men and women are affected by congruence or incongruence with the perceived gender orientation of the task, previous research suggests that men are more resistant to changes in task-based cues and will be less affected by incongruence with the task's gender orientation (Lenney, 1977; Vancouver & Ilgen, 1989). In addition, men tend to adhere more strongly to traditional gender role beliefs (e.g., Spence & Hahn, 1997; Twenge, 1997) and experience greater cultural pressure to conform to such beliefs (Bem, 1993; Herek, 1986) compared with women. For women, diffuse status cues and socialized gender roles create a greater burden and consequently are more likely to be negatively affected by incongruence with the gender orientation of the task (Berger et al., 1980). For example, a number of studies have found that women's self-confidence tends to vary as a function of perceived gender orientation of the task, whereas men's self-confidence remains relatively stable across tasks (e.g., Carr, Thomas, & Mednick, 1985).

In line with the assertions outlined above, we predict that the decrease in interruption behavior among individuals, as they move from male-dominated to female-dominated groups, will be greatest among women performing gender-incongruent tasks (the male-stereotyped tasks). In other words, in addition to the inhibiting influence of female-dominated groups on power displays, gender-incongruent tasks will act as a further impediment. And, according

to the research cited above, this effect will be greater for women than for men. This assertion is summarized as follows:

*Hypothesis 4:* Women will experience a greater decrement in interruption behavior compared with men when both targets shift to performing gender-incongruent tasks in female-dominated groups.

An obvious question that arises from our examination above is, What are the consequences of interruption behavior for group members? Whereas the literature has viewed interruption behavior as a reflection of power or status, it is also important to consider whether such power displays ultimately enhance a member's status in the group. Consequently, an additional aim of this study was to examine whether interruption behavior has any impact on perceived status in a group. Does such behavior reinforce status perceptions? One way to address this question is to consider whether group members who engage in higher rates of interruption behavior are more likely to be viewed as exerting greater influence or leadership in the group.

Goktepe and Schneier (1989) defined emergent leaders as members who lack formal authority over other members but nonetheless exert significant influence over other members. That is, a group member will emerge as a leader in the group only if they are perceived as such. Consequently, at least one important relationship that needs to be explored is the relationship between interruption behavior and perceptions of influence or emergent leadership in the group.

Given that interruptions are a violation of turn-taking norms, this behavior has been linked to dominance, power, and status (Smith-Lovin & Brody, 1989). However, there is evidence that dominance behavior is, in fact, an ineffective means of gaining influence in task groups (e.g., Driskell, Olmstead, & Salas, 1993; Ridgeway, 1987; Ridgeway & Diekema, 1989). Ridgeway (1987) found that dominance cues actually generated negative reactions from other group members. Ridgeway and Berger (1986) suggested that dominance cues do not imply task competence but are typically perceived as individually motivated attempts to gain power. Consequently, the individual who displays dominance

behavior is more likely to be seen as motivated by self-interest rather than by a group orientation (Driskell et al., 1993).

Given the perception of negative interruptions as disruptive displays of dominance, there is reason to predict that such behavior will impede a member's ability to be viewed as influential or leaderlike. There is no consistent evidence in the literature that suggests that this type of dominance behavior will generate differences in perceptions of leadership between men and women. Although a number of studies have found that women who displayed assertive leadership behavior in task groups were judged more negatively than were their male counterparts (e.g., Butler & Geis, 1990; Eagly, Makhijani, & Klonsky 1992), these findings are at best mixed, with more recent studies finding no differences in perceptions of men and women in leadership roles (e.g., Lucas & Lovaglia, 1998). Therefore, our predictions regarding the consequences of interruption behavior for emergent leadership rankings do not differ for men and women. Specifically, we predict that the relationship between emergent leadership rankings and interruption behavior will be negative for both men and women.

*Hypothesis 5:* Interruption behavior is negatively correlated with perceived leadership behavior for both men and women in a work group context.

## METHOD

### SAMPLE

Two hundred sixteen university students from undergraduate business programs in two large North American universities (108 men, 108 women) were randomly assigned to 36 groups with 6 participants per group. A total usable sample of 197 (103 men and 94 women) of the 216 participants were included in the analyses. Participation in this study was part of a course assignment that required students to engage in videotaped group discussions of several business cases. The students were informed that there would be

voluntary questionnaires to complete as part of a study in examining group decision making; however, they were unaware of the specific hypotheses of this study.

#### DESIGN

The hypotheses were tested via a laboratory study. The independent variables of interest were gender of the participant; the gender orientation of the task, or task gender (male-stereotyped task, female-stereotyped task); and the participant's proportional representation in the group according to their gender (referred to as numerical status). This latter factor was determined by the subject's random assignment to one of three types of mixed-gender work groups: male dominated (five men, one woman), female dominated (five women, one man), and balanced (three men and three women) groups.

#### TASK

This study required the use of two group discussion tasks that could trigger significantly different perceptions regarding the relative expertise or status of men and women. As mentioned above, previous research has successfully employed gendered tasks, via stereotypical content, as a means to generate differences in perceived expertise between men and women in mixed-gender contexts (e.g., Carr et al., 1985; Vancouver & Ilgen, 1989; Lippa & Beauvais, 1983).

Our study employed two different managerial-related tasks used by Karakowsky and Siegel (1999), which were confirmed by the authors to be male stereotyped and female stereotyped in a pretest. The male-stereotyped task was based on a negotiation scenario described in Lewicki, Litterer, Saunders, and Milton (1993) and involved a business-related negotiation. The issues presented in that case, including a "hard-nosed" business negotiation involving cars, contained stereotypically male-oriented themes (Lewicki et al., 1993; Karakowsky, 1996). The female-stereotyped task was based on a negotiation scenario created by Karakowsky and Siegel

(1999) and involved the negotiation of job responsibilities with implications of sexual harassment surrounding the situation. This case included themes more closely perceived as female oriented—including a relationship-oriented negotiation (Lewicki et al., 1993; Karakowsky, 1996) as well as the issue of sexual harassment—in terms of greater familiarity with the victim's experiences (Reskin & Padavic, 1994).

Karakowsky and Siegel (1999) confirmed that the male-stereotyped task triggered higher levels of perceived expertise for men compared with women. On the other hand, the female-stereotyped task triggered higher levels of perceived expertise for women compared with men. Consequently, these cases, by definition, serve as manipulations of perceived competence or expertise. It should also be noted that the authors found no significant differences between the two cases with regard to perceptions of difficulty or level of interest among men and women. Given the use of the same subject pool, we believe these tasks serve as effective manipulations of perceived competence among the participants of the mixed gender groups in our present study.

#### PROCEDURE

Within a time period of 30 minutes, all groups were instructed to reach a consensus regarding the development of a negotiation strategy for the protagonists in two assigned cases as discussed below. The research assistant distributed the first case, allowed the group several minutes to read it, and then activated the video-recording equipment. The assistant then left the room for the duration of the group discussion. After the allotted time, the assistant returned, shut off the camcorder, and distributed the first set of questionnaires. The research assistant followed identical procedures for the second group discussion task, after which time the participants' involvement in the study ended. To control for possible confounding effects, the order of the two types of tasks was counterbalanced, as was the use of a male or female research assistant in facilitating the data collection.

#### DEPENDENT VARIABLE MEASURES

*Interruption behavior.* Numerous researchers have acknowledged three fundamentally different types of interruptions: supportive or rapport oriented (i.e., agreements, positive requests for information), neutral (i.e., elaborations on the topic of the interrupted speaker without evaluative content, requests for clarification), and intrusive or negative (i.e., introducing topic changes, raising objections) (Goldberg, 1990; Smith-Lovin & Brody, 1989). This study focuses on intrusive interruptions because they have been viewed as the clearest indicator of power displays (Anderson & Leaper, 1998; Goldberg, 1990). This type of interruption best reflects a form of dominance, particularly given its intent to usurp the speaker's turn at discussion.

With regard to measurement, the videotaped group discussions were observed by three male and three female judges (graduate psychology students). Both men and women were used as judges to control for possible gender differences in observations, given previous suggestions that male and female observers can differentially rate interruption behavior (Crown & Cummins, 1998). The judges received a training session on the observation and scoring of group member interruptions, using the definition of interruptions described above. Specifically, all judge observers were trained to observe and account for interruptions that could be classified as intrusive or negative interruptions (as opposed to supportive or neutral interruptions). This included successful attempts to prevent another speaker from completing a conversational turn and could include such characteristics as expressing disagreement with the speaker, raising an objection to the speaker's idea, or introducing a complete change in topic (completely disregarding the initial speaker's utterance) (Anderson & Leaper, 1998; Smith-Lovin & Brody, 1989).

Judges were assigned to view 24 videotaped group discussions. All 72 group discussions were randomly assigned; the random assignment was restricted in the sense that each judge did not view the same group engaged in more than 1 discussion. Consequently, once one group's discussion had been allocated to a judge, the sec-

ond videotaped discussion performed by that group was randomly assigned to one of the remaining two judges. This was done to avoid biasing the judges' evaluation; that is, viewing one group discussion might generate expectations among judges regarding the types of interruption behavior to be observed in the second group discussion.

*Expert judge ratings of leadership.* The videotaped group discussions were observed by six expert judges (three men, three women) to assess member leadership. These judges were selected independently of the judges used to score interruption behavior. The judges were human resource professionals who received training in the observation and scoring of group member behavior using the instruments developed for this study. Judge pairs were assigned to view 24 videotaped group discussions. Each discussion was viewed by a male-female judge pair. All 72 group discussions were randomly assigned; the random assignment was restricted in the sense that each judge pair did not view the same group engaged in more than one discussion. Consequently, once one group's discussion had been allocated to a judge pair, the second videotaped discussion performed by that group was randomly assigned to one of the remaining two judge pairs. This was done to avoid biasing the judges' evaluation, as was explained above in the measurement of interruption behavior.

After viewing the videotaped group discussion, the judges ranked each subject in the group on 6-point scales for leadership exhibited during the group discussion. Rankings ranged from 1 (*lowest*) to 6 (*highest*). This was based on methods used in previous research that are simple yet have proven to be straightforward and reliable measures of emergent leadership (Bass, 1981). The measures of leadership from each judge pair as forming a two-item scale for the combined judges' measure of leadership. The reliability reported in Table 1 is a measure of interjudge agreement on this measure.

*Member ratings of leadership.* Following each group discussion, group members ranked each other with regard to the level of



**TABLE 1: Reliabilities and Confidence Intervals for Leadership Measures**

<i>Task</i>	<i>Scale</i>	<i>Reliability</i>	<i>95% Confidence Interval</i>
MT	Judge measure of leadership	.817 <sup>a</sup>	0.767 to 0.857
FT	Judge measure of leadership	.820 <sup>a</sup>	0.771 to 0.860
MT	Group measure of leadership	.754 <sup>b</sup>	0.734 to 0.772
FT	Group measure of leadership	.765 <sup>b</sup>	0.746 to 0.783

NOTE: MT = male-stereotyped task; FT = female-stereotyped task.

a. Intraclass correlation based on the one-way model.

b. Averaged intraclass correlation based on the one-way model, using the inversion of Fisher's  $z_1$  transform.

leadership that group members exhibited in the group discussion, using a 6-point scale identical to that used by the judges. Rankings for this measure ranged from 1 (*lowest*) to 6 (*highest*). We considered the rankings of leadership from each group member as forming a six-item scale for a combined group member measure of leadership. The reliability reported in Table 1 is an average measure of intragroup agreement on this measure.

#### INDIVIDUAL DIFFERENCE MEASURES

Two variables, masculinity-femininity and self-efficacy in communication, were entered as covariates in the analyses of interruption behavior, given their potential influence on the dependent variable. Masculinity-femininity was included because prior work suggests that gender role characteristics can account for differences in such behaviors as initiation and dominance in work groups (e.g., Siebert & Gruenfeld, 1992). This variable was assessed using subjects' standardized scores on the Bem Sex-Role Inventory (Bem, 1974). Self-efficacy in communication, as assessed by Li's (1993) questionnaire (adapted from Klauss and Bass, 1982), was included as a covariate because prior evidence suggests that this variable can enhance assertive behavior in groups (e.g., Li, 1993). Participants completed both instruments subsequent to the discussion of the group's second task.

### OTHER COVARIATES

We attempted to control for a number of other factors that could potentially confound the results, and consequently we measured the following additional items: prior familiarity with other group members, age, relational demography, and differences in the two student samples used. With regard to prior familiarity with other group members, subjects were required to indicate on a questionnaire the number of group members they had known prior to joining the group. The relational demography measure assessed the relative representation of each group member's ethnicity. This measure was obtained by applying the formula for relational demography scores (Tsui, Egan, & O'Reilly, 1992) and was based on whether the subject had lived in North America for at least 10 years. Finally, because participants were students from two different universities (156 participants forming 26 groups from one university, 60 participants forming 10 groups from another), it was necessary to ensure that the two subsets did not differ in any way that could confound the results of the study.

### RESULTS

The hypotheses of this study were analyzed using a mixed ANCOVA and were included as part of a larger study. First, a  $2 \times 2$  within-subjects factorial design involved the factors task gender (male stereotyped or female stereotyped) and judge gender (male or female). This was crossed with a  $2 \times 2$  between-subjects factorial design involving order (the order in which the group discussed the two gender-oriented cases) and assistant gender (male or female), which was intended to control for potential confounding effects. This design was crossed with a  $2 \times 3$  between-subjects factorial design involving gender of the participant (male or female) and numerical status (proportional representation in the group based on gender—numerical minority, balanced, or majority status). The covariates assessed in this study were intended to control for possible confounds and included the relational demography score of the

participant, the participant's age in years, whether the participant had previous familiarity with other group members, the participant's self-efficacy in communication, and the participant's masculinity and femininity scores. Table 2 reports a summary of the descriptive statistics of all variables in this study.

For the purpose of data analyses, interruption behavior was measured by correcting the number of interruptions made by a participant for the time the participant spoke (Kollock, Blumstein, & Schwartz, 1985). Consistent with methods previously employed (e.g., Smith-Lovin & Brody, 1989), the correction was obtained by using the logarithm ratio of the number of interruptions made by the participant to the total time for which the participant spoke. Total talking time (recorded in minutes and seconds) was obtained for every participant in each of the 72 group discussions by independent research assistants. In the male-stereotyped task, talking times ranged from 0.00 seconds to 16 minutes, 23 seconds ( $M = 4$  minutes, 28 seconds;  $SD = 3$  minutes, 24 seconds). In the female-stereotyped task, talking times ranged from 5 seconds to 19 minutes, 50 seconds ( $M = 4$  minutes, 30 seconds;  $SD = 4$  minutes, 4 seconds). Levels of interrater reliability in both the male-stereotyped and female-stereotyped tasks were adequate, as reflected in the intraclass correlations (McGraw & Wong, 1996) between male and female judges on our measure of interruptions (male-stereotyped task:  $r_1 = .83$ , female-stereotyped task:  $r_1 = .81$ ).

One essential aim of our analyses was to examine the effects of a member's gender and the member's proportional representation on interruption behavior. Hypothesis 1 predicted that proportional representation would have different consequences for men versus women. This assertion was tested by examining the two-way interaction of gender and numerical status. There was a significant interaction effect between these two factors,  $F(2, 174) = 4.66$ ,  $p < .05$ ,  $\eta^2 = 0.05$ . As indicated in Table 3, the results support the assertion of Hypothesis 1: Men in the numerical majority position differed significantly from women in majority positions with regard to the level of interruptions exhibited,  $t(174) = 2.43$ ,  $p < .05$ ,  $d = 0.35$ . Specifically, numerical majority men interrupted significantly

**TABLE 2: Summary of Descriptive Statistics for Observed Sample ( $N = 197$ )**

<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>
1 Interruption behavior, MT (female judge)	1.44	0.87											
2 Interruption behavior, MT (male judge)	1.11	0.88	0.91**										
3 Interruption behavior, FT (female judge)	1.43	0.85	0.11	0.09									
4 Interruption behavior, FT (male judge)	1.01	0.87	0.13	0.11*	0.91**								
5 Location	0.28	0.45	-0.04	-0.03	-0.04	-0.13							
6 Relational demography	0.43	0.51	0.01	0.03	0.06	-0.07	0.52**						
7 Age	23.90	7.22	-0.11	-0.11	-0.04	-0.08	-0.07	-0.02					
8 One friend in the group	0.09	0.28	0.07	0.07	0.02	0.01	-0.01	-0.03	-0.14*				
9 Two friends in the group	0.06	0.24	-0.13	-0.12	-0.01	-0.06	-0.03	0.05	-0.11	-0.08			
10 Self-efficacy in communication	42.87	9.06	0.86	-0.07	-0.28**	-0.21**	-0.09	-0.05	-0.11	-0.01	0.14*		
11 Bem Masc. Score <sup>a</sup>	50.52	11.20	0.87	-0.21**	-0.17*	-0.15*	-0.13	-0.09	0.07	-0.01	0.07	0.54**	
12 Bem Fem. Score <sup>a</sup>	48.53	10.39	0.77	0.12	0.07	0.09	-0.24**	-0.11	-0.02	0.10	0.15*	-0.04	-0.11

NOTE: MT = male-stereotyped task; FT = female-stereotyped task.

a. Score on the Bem Sex-Role Inventory (Bem, 1974).

\* $p < .05$ . \*\* $p < .01$ .

**TABLE 3: Summary of Interaction of Gender and Proportional Representation (Numerical Status) on Interruption Behavior**

	<i>Interruption Behavior</i>		T	d
	M	SE		
Numerical minority <sup>a</sup>			1.69	0.24
Male	0.95	0.18		
Female	1.39	0.18		
Numerically balanced			0.81	0.12
Male	1.11	0.11		
Female	1.23	0.11		
Numerical majority			2.43*	0.35
Male	1.39	0.08		
Female	1.11	0.08		

NOTE: Marginal means evaluated at the averages of the covariates. Men  $n = 103$ ; women  $n = 94$ .

a. Denotes status of subject's gender in the group.

\* $p < .05$ .

more ( $M = 1.39$ ,  $SE = 0.08$ ) compared with women ( $M = 1.11$ ,  $SE = 0.08$ ).

Further examination of the significant Gender  $\times$  Numerical Status interaction can be made with respect to the predictions of Hypotheses 2 and 3, which consider a within-gender comparison between members who are represented in different proportional representations—majority, balanced, or minority positions. These hypotheses assert, again, that the effects of proportional representation (numerical status) on power displays will differ between men and women. Hypothesis 2 asserted that men in numerical majority positions would exhibit higher levels of interruption behavior compared with their same-gender counterparts in numerically balanced and minority positions. This assertion is partially supported by the pattern of means evident in Table 3. As indicated by the direction of the changes in the reported means, interruption behavior increases among men as one moves from numerical minority positions, to balanced positions, to numerical majority positions. However, post hoc comparisons failed to yield significant differences among these means.

Hypothesis 3 predicted that women in numerical majority positions would exhibit lower levels of interruption behavior compared

**TABLE 4: Summary of Interaction of Gender, Gender Orientation of Task, and Proportional Representation (Numerical Status) on Interruption Behavior**

	<i>Female-Stereotyped Task</i>		<i>Male-Stereotyped Task</i>	
	M	SE	M	SE
Numerical minority				
Male	1.13	0.18	0.76	0.19
Female	1.56	0.18	1.21	0.19
Numerically balanced				
Male	1.33	0.11	0.87	0.11
Female	1.38	0.12	1.09	0.12
Numerical majority				
Male	1.56	0.08	1.22	0.08
Female	1.31	0.09	0.89	0.09

NOTE: Marginal means evaluated at the averages of the covariates.

with their same-gender counterparts in numerically balanced and minority positions. This assertion also received partial support via the pattern of means reported in Table 3. Although post hoc comparisons failed to detect significant differences, the direction of the changes in the means suggests that interruption behavior decreases among women as one moves from numerical minority positions, to balanced positions, to numerical majority positions.

Finally, we can consider the influence of Gender  $\times$  Task Gender  $\times$  Numerical Status or proportional representation. This three-way interaction is the focus of Hypothesis 4. After controlling for possible confounds, there is a significant three-way interaction between gender orientation of the task, gender of the participant, and numerical status in the group,  $F(2, 174) = 5.29, p < .01, \eta^2 = 0.06$ .

Essentially, Hypothesis 4 asserted that decrements in interruption behavior that arise due to proportional representation (i.e., moving from male-dominated to female-dominated groups) and incongruence with the gender orientation of the task would be greater for women compared with men. The pattern of results shown in Table 4, together with post hoc results, confirms this assertion. Specifically, the decrement in interruption behavior among women as they move from performing gender-congruent tasks in male-dominated groups ( $M = 1.56, SE = 0.18$ ) to gender-

**TABLE 5: Summary of Correlations Between Leadership Measures and Interruption Behavior**

<i>Source of Leadership Scores</i>	<i>Source of Interruption Behavior Scores</i>			
	<i>Male-Stereotyped Task</i>		<i>Female-Stereotyped Task</i>	
	<i>Female Judge</i>	<i>Male Judge</i>	<i>Female Judge</i>	<i>Male Judge</i>
For males ( $n = 108$ )				
Peers	-.4**	-.39**	-.46**	-.41**
Male judge	-.32**	-.31**	-.46**	-.39**
Female judge	-.41**	-.31**	-.44**	-.34**
For females ( $n = 104$ )				
Peers	-.36**	-.35**	-.25**	-.21**
Male judge	-.29**	-.30**	-.31**	-.25**
Female judge	-.39**	-.39**	-.24**	-.16**

\* $p < .05$ . \*\* $p < .01$ .

incongruent tasks in female-dominated groups ( $M = 0.89$ ,  $SE = 0.09$ ) is significantly greater compared with men as they move from performing gender-congruent tasks in male-dominated groups ( $M = 1.22$ ,  $SE = 0.08$ ) to gender-incongruent tasks in female-dominated groups ( $M = 1.13$ ,  $SE = 0.18$ ;  $F[1, 174] = 27.98$ ,  $p < .01$ ,  $\eta^2 = 0.14$ ). This significant difference indicates that whereas both men and women experience a decrease in power displays as they move from male-dominated to female-dominated groups, incongruence with the gender orientation of the task produces a greater decrease for women than it does for men.

Finally, our correlational analyses of the relationship between interruption behavior and emergent leadership ratings were conducted separately for men and women, as reported in Table 5. The findings support the assertion of Hypothesis 5, which predicted that the relationship would be negative for both men and women, regardless of the gender orientation of the task and numerical status in the group. In addition, both peer-based and judge-based measures of leadership were negatively correlated with interruption behavior. This implies that the more a group member participates in group conversation via intrusive interruptions, the less likely the member will be viewed as exhibiting leaderlike qualities in the group's activities.

## DISCUSSION

Hypotheses 1 through 3 addressed the importance of gender roles and proportional representation in influencing power displays in team conversation. Consistent with the assertion of Hypothesis 1, our results indicated that men in male-dominated groups exhibited higher levels of power displays, in the form of verbal interruptions, compared with women in female-dominated groups. Hypotheses 2 and 3 considered a within-gender comparison between group members who are represented in different numerical proportions—numerical majority, balanced, or minority positions. The findings offer partial support for the assertion (Hypothesis 2) that men in numerical majority positions will exhibit higher levels of interruption behavior compared with their same-gender counterparts in numerically balanced and minority positions.

The results also offer partial support for the assertion that interruption behavior decreases as women move from numerical minority positions to numerical majority positions (Hypothesis 3). However, as stated above, the analyses failed to detect significant differences between these means. This failure might be a consequence of the laboratory context of this study. In their meta-analysis, Anderson and Leaper (1998) observed that studies examining interruption behavior have been almost exclusively conducted in laboratory settings, and the effect sizes of most of these studies were relatively small (Cohen's  $d < .2$ ) compared with studies conducted in a naturalistic setting (weighted  $d = .76$ ). The authors suggested that individuals in laboratory settings (as opposed to naturalistic settings) might feel more inhibited to engage in intrusive interruptions given that intrusive interruptions are considered rude conversational practice.

In addition to proportional representation, our study underscores the importance of perceived competence or expertise in mixed-gender contexts. In this study, expertise or competence cues were generated based on congruence or incongruence of the member's gender with the gender orientation of the group's task. Although incongruence with the gender orientation of the task



affected both men and women, men experienced a smaller decrease in interruption behavior on the gender-incongruent task. Consistent with the assertion of Hypothesis 4, compared with men, women were much more adversely affected by being perceived as “out of their domain”—they engaged in less powerful verbal behavior in such situations.

Finally, our study attempted to explore the consequences of power displays among group members. Our findings offered support for the assertion of Hypothesis 5, which predicted a negative relationship between interruption behavior and emergent leadership ratings. Among both men and women, our results suggested that interrupters are less likely to be viewed as emergent leaders in the group. This implies that the more a group member participates in group conversation via intrusive interruptions, the less likely the member will be viewed as exhibiting leaderlike qualities in the group’s activities. Although interrupters may have gained dominance in the group discussion, this dominance was not viewed as leaderlike by colleagues nor by independent observers. This finding may seem somewhat paradoxical—interruptions are allegedly a form of power display, yet their ultimate effect is to reduce the member’s leadership ranking in the group.

The results do not necessarily indicate that interruption behavior will consistently undermine power or status in a group. However, the findings do suggest that such power displays may be incongruent with perceptions of effective leadership under certain circumstances. In this study, leadership rankings were based on perceptions of emergent leadership demonstrated within group tasks that were largely open ended rather than directed. These tasks could be viewed as requiring consensus building and collaboration—qualities that are in conflict with power displays such as interruptive behaviors. On the other hand, for tasks that require more directive leadership behaviors, such power displays may be perceived as congruent with effective leadership. Clearly, additional research is required to more fully explore the relationship of interruption behavior, perceived leadership, and the nature of the group’s task.

### THEORETICAL AND PRACTICAL IMPLICATIONS

There is research evidence to suggest that demographically diverse teams need to achieve an integration of that diversity to function effectively (e.g., Maznevski, 1994; Kumar, Subramanian, & Nonis, 1991; Mitchell, 1986). It is particularly important to understand the sources of power displays in diverse teams, given that such displays can disrupt the effective integration of team members and thereby impede team functioning (Fiorelli, 1988). Drawing on the view of interruption behavior as a mechanism of power and dominance, this study emphasized that perceptual factors (i.e., perceived competence), sociological factors (i.e., socialized roles), and structural factors (i.e., proportional representation) can play a significant role in stimulating gender differences in power displays in a group context. Our findings suggest that power displays among men and women are not purely the result of differences in gender-role socialization but can be influenced by perceptions of expertise (based on the gender orientation of the task), as well as by the relative representation of men and women in the group.

In this study, expertise or competence cues were generated based on congruence or incongruence of the members' gender with the gender orientation of the group's task. This draws attention to the role of gender in generating perceptions of expertise in work group settings and underscores the persistence of sex-role stereotypes. Whereas our study employed a sample of university students, the research has similarly offered evidence of the persistence of sex-role stereotyping in the workplace; the tendency to assign characteristics based on a gender can apply to tasks or occupations that are more closely associated with one gender than the other (Schein, 1975). The persistence of sex-role stereotypes, well documented throughout the 1970s and 1980s, continues to persist in more recent research findings, in ways that have profound implications for members of work teams as well as for organizations.

Brenner, Tomkiewicz, and Schein (1989) found that whereas female middle managers no longer sex typed the managerial job, men continued to link successful managerial characteristics with

typical male characteristics. Moreover, Frank (1988) found that men perceived women managers as being less knowledgeable and possessing poorer managerial skills than male managers. Other research has similarly suggested the existence of a male perception of female inferiority regarding managerial ability (e.g., Dubno, 1985). Unfortunately, this perception appears somewhat resistant to change. For example, Norris and Wylie (1995) found that male college students characterized managerial work in distinctly masculine terms. In addition, the findings of our study imply that the maintenance of sex-role stereotypes offers a potentially powerful source of imputed expertise in the work-group context. Consequently, there is every indication that our results, though generated in a laboratory setting, present very real issues for group facilitators and practitioners.

In the workplace, the implications of the gendered nature of tasks are important, given the distribution of what has been viewed as traditionally male- and female-associated work. Masculine- and feminine-typed jobs are not necessarily equally distributed at work, largely because professional, managerial, and many technical jobs have been dominated for long periods of time by men and therefore continue to be perceived as masculine, despite recent trends to open these jobs to women (Vancouver & Ilgen, 1989). In addition, in self-managing work teams that operate without formal role-status distinctions among group members, perceptions of relative competence or expertise based on gender can encourage status differences in groups. These facts underscore the need to more fully examine perceptions regarding the gendered nature of tasks or jobs. This is in line with Heilman's (1983) notion that expectations regarding an employee's success at a job can be determined by the fit between the individual's attributes and perception of the job's requirements. The results of this study suggest that for organizations that aim to increase accessibility to women and improve equality of treatment toward men and women, it is critical to understand the influence of both group gender composition and perceptions of relative competence or expertise that can be triggered by different types of tasks assigned to work groups.

#### LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Although this study has important implications for understanding sources of influence on gender-based power displays, it contains a number of limitations as well as questions raised that merit future research attention. First, the experimental design employed in this study could not avoid the problem of lack of independence among subjects. Specifically, the behavior of a target subject clearly can be influenced by the behavior of their group members. Consequently, the level of involvement of a group member in the group's discussion, for example, is partly a function of the other members' lack of involvement in the group discussion. This violates the assumption of independence implicit in the statistical analyses (Raudenbush, 1997).

The groups within our laboratory setting functioned on a temporary, short-term basis. Consistent with Harrison, Price, and Bell's (1998) notion, it may be argued that the impact of gender, as a form of surface-level diversity, might eventually be eliminated once group members are more familiar with each other. Consequently, the use of a university student sample and the short-term duration of the work groups under examination restrict the degree to which we can generalize our findings. Nonetheless, we feel our findings add value to a consideration of the role of gender in power displays in work groups.

This study underscores the need to uncover work-group cues that lead to gender-based differences in power displays. Doing so will help effectively integrate men and women into work teams. Numerous researchers have found that the recognition of expertise in a work group is important for effective decision making (e.g., Libby, Trotman, & Zimmer, 1987; Littlepage, Whisler, Schmidt, & Frost, 1991). Consequently, it is critical to identify those factors that can influence perceptions of member expertise. This study indicates that without consciously managing team diversity, team members run the risk of permitting biases to enter group processes and allow such biases to drive power display differentials in the group. In our study, perceived competence and conversational power displays were influenced by a set of factors that

may not necessarily be associated with actual knowledge or expertise possessed by the group members.

Future research should more fully assess the purpose of verbal interruptions. Although this study assumes that verbal interruptions are a form of power display, they may not always be reflective of the level of power held in a group. For example, whereas the extant literature supports the view of men using interruptions as a form of power display, it is less clear that women use interruptions for this purpose. Women who increase their interruptive behavior in male contexts may simply be following the crowd in order to be heard. It may not reflect a perception of any substantive increase in felt power in that context. This issue needs to be addressed in future studies.

The research also needs to more fully explore the relationship between power displays and perceptions of leadership in the group. Is it possible that a great leader is someone who does not wield obvious power? In this study, the negative relationship between power displays and leadership begs the questions, Under what conditions might leaders undermine their power? Do obvious power displays reduce a leader's perceived leadership ability? Addressing these questions requires a full examination of the connection between power, leadership, and the factors that moderate this relationship. It is also important to note that this study did not employ a rigid definition of leadership among the participants. Participants were asked to rank leadership behavior based on their implicit definitions of what constitutes leader behavior. Consequently, we need to more fully understand on what definition of leadership these group members were basing their perceptions. Perhaps members were judging the facilitative ability of their peers to push the group discussion forward, and interruptive behavior may have been viewed as incongruent with that expectation.

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