Sex Roles, Vol. 39, Nos. 3/4, 1998

Meta-Analyses of Gender Effects on Conversational Interruption: Who, What, When, Where, and How[1]

Kristin J. Anderson and Campbell Leaper[2]
University of California, Santa Cruz

Meta-analyses of 43 published studies comparing adult women's and men's interruptions during conversations were conducted. Combined significance levels and combined effect sizes were analyzed. Across studies, men were significantly more likely than women to use interruptions. This difference, however, was associated with a negligible effect size (d = .15). A more substantial effect size (d = .33) was found when studies looking specifically at intrusive types of interruption were analyzed separately. Other moderator variables were found to be related to gender effects on the use of intrusive interruptions. Most notably, reports of gender differences in intrusive interruptions were more likely and larger in magnitude when either women (versus men) were first authors, participants were observed in naturalistic (versus laboratory) settings, or participants were observed interacting in groups of three or more persons (versus in dyads). These results lend support to a contextual-interactive model of gender that emphasizes the importance of situational moderators on gender-related variations in social behavior.

One of the most widely contested areas of gender and language is whether men interrupt their conversation partners more often than do women (e.g., see Aries, 1996; Crawford, 1995; Tannen, 1983, 1994). Zimmerman and West (Zimmerman & West, 1975; West & Zimmerman, 1983) were among

[1]This research was supported by research grants from the Academic Senate (No. 503035-19900) and the Social Sciences Division (No. 443060-09523) of the University of California, Santa Cruz to the second author. Jennifer Jipson, Jill Denner, and the anonymous reviewer are thanked for their comments on earlier drafts.
[2]To whom correspondence should be addressed at Department of Psychology, University of California, Santa Cruz, CA 95064; e-mail: cam@cats.ucsc.edu

0360-0025/98/0800-022 5$15.00/0

the first researchers to investigate the topic by observing casual conversation between same and mixed-gender pairs. Their work followed the model put forth by Sacks, Schegloff, and Jefferson (1974) that conversations are orderly, whereby one person talks at a time and transitions between speakers occur at the potential end of a unit type (e.g., clause). That is, when a speaker has appeared to reach a possible completion point, a change in speaker can legitimately occur. An interruption occurs when a second speaker begins to speak before a potential transition point occurs (see Zimmerman & West, 1975). Although few interruptions occurred in Zimmerman and West's (1975) recorded conversations, the pattern of interruptions between same- and mixed-gender interactants was different. In same-gender interactions, the distribution of interruptions was fairly equally divided between speakers. In contrast, in mixed-gender interactions men made nearly all of the interruptions of women's speech.

Zimmerman and West (1975) concluded that men's dominance in conversation via interruption mirrors their dominance in contemporary western culture. Interruption is "a device for exercising power and control in conversation" because it involves "violations of speakers' turns at talk" (West & Zimmerman, 1983, p. 103). Inasmuch as men typically enjoy greater status and power than do women in most societies, the inference is that men are more likely than women to assume they are entitled to take the conversational floor. Since West and Zimmerman's early work, many studies have replicated their findings (e.g., Bohn & Stutman, 1983; Brooks, 1982; Case, 1988). However, many other studies either have found no gender differences (e.g., Carli, 1990; Dindia, 1987; Johnson, 1994) or have found that women interrupt more than men (e.g., Kennedy & Camden, 1983; Nohara, 1992).

In a recent narrative review of articles published between 1965 and 1991, James and Clarke (1993) concluded that there is little evidence that men interrupt more than women in either same- or mixed-gender interactions. Aries (1996) drew similar conclusions in her narrative review of the literature. James and Clarke further speculated that women's and men's interruptions may differ in their function (see also Tannen, 1994, for a similar point).

One helpful strategy has been to distinguish between interruptions and overlaps. Tannen (1994) defined an interruption as when a second speaker usurps another speaker's right to continue speaking by taking the conversational floor in the absence of any evidence that the other speaker intended to relinquish the turn. In contrast, an overlap is when a second speaker begins speaking at what could be a transition-relevant place such as the end of a clause. Women and members of cultural communities she describes as "high involvement" often overlap with each other in speech

as a way of demonstrating cooperation and enthusiasm. Tannen proposes that "cooperative overlapping [is] supportive rather than obstructive, evidence not of domination but of participation, not power, but the paradoxically related dimension, solidarity" (p. 62). She argues that by assuming that interruption is a monolithic conversational device "we are forced into a position that claims that high involvement speakers, such as blacks and Jews and, in many circumstances, women, are pushy, aggressive, or inconsiderate or foolishly noisy" (p. 73).

A META-ANALYTIC APPROACH TO THE LITERATURE ON INTERRUPTIONS

In the present review, meta-analyses were conducted in order to address the controversy over women's and men's interruptions in conversations. Meta-analysis is the statistical integration of results of independent studies. It provides a single set of numbers that describe and summarize the results of independent pieces of research. Although narrative literature reviews are useful in summarizing the results of a research domain, meta-analytic reviews are a useful tool because they simultaneously take into account the significance level, the sample size, and the effect size of each individual study in order to produce combined significance levels and effect sizes. Meta-analysis also allows for the statistical analysis of potential moderator variables.

One of the potential moderators of gender effects on the use of interruptions is how interruption is operationally defined in individual studies. The present meta-analyses distinguished between three definitions of interruptions: (1) those that were either undefined or broadly defined in the original study; (2) those that explicitly excluded back channels and minimal listening responses (e.g., "uh-huh"); and (3) those defined as intrusive, and suggest a dominating motivation on the part of the interrupter. One type of interruption often defined as intrusive is the "successful interruption" whereby the interrupting speaker successfully takes over the conversational floor. Previous work has associated successful interruptions with the manifestation of dominance (e.g., Aries, 1996; Kollock, Blumstein, & Schwartz, 1985; Natale, Entin, & Jaffe, 1979; Smith-Lovin & Brody, 1989; see James & Clarke, 1993 for a contrasting view). Successful interruptions, for example, have been rated by people as more domineering than unsuccessful ones (McLaughlin, 1984). Because men have more often been associated with dominance in conversational interruptions, we hypothesized that men would be found to make more intrusive interruptions than women.

Other Possible Moderators of Interruptions

In addition to the operational definition used, several other variables may moderate the likelihood and magnitude of gender differences in interruptions. James and Clarke (1992) concluded their narrative review of interruptions by stating, "Lastly, the ways in which the results of studies may have been affected by such subject and situational variables as age, degree of intimacy, size of group, and type of interactional context remain unclear." (p. 295) Other publication characteristics such as the year of the study or the author's gender may also moderate the likelihood of gender effects (Leaper, Anderson, & Sanders, 1998).

Publication Characteristics. Year of publication and the first author's gender are two publication characteristics that were examined as possible moderator variables. Publication year may act as a moderator variable to the extent that either historical changes in gender equality or changes in how researchers conduct their research have had an impact on the likelihood of finding gender differences. Some prior meta-analyses have found a decrease over time in the number of studies finding gender differences on measures such as mathematics (Hyde, Fennema, & Lamon, 1990) and verbal ability (Hyde & Linn, 1988). Over the years, the performance of women and men has become more similar in these areas — perhaps the result of increased opportunities for women. In their narrative review of interruptions, James and Clarke (1993) report that the gender gap between women and men in initiating interruptions has decreased or possibly reversed over the years between 1965 and 1991. In the present meta-analysis, we included studies that span over a three decade period during which many political and cultural changes challenged traditional gender roles. Therefore, we expected that gender differences in interruptions would decrease over time. However, we also note the potential countervailing influence of methodological advances in observational research that have occurred over the years (e.g., Bakeman & Gottman, 1986; Bakeman & Quera, 1995). For example, Hall (1978) found that gender differences in nonverbal decoding were more common in more recent studies. She proposed that recent improvements in measuring techniques may account for this pattern rather than historical changes in gender roles.

Another publication characteristic that we considered was the author's gender. James and Clarke (1993) speculated that the author's gender may have an influence on whether one gender is more likely to interrupt than the other. However, they did not detect any corresponding patterns in the studies they reviewed. In contrast, meta-analyses on other topics have found a significant relationship between author gender and the magnitude of the gender difference (Eagly & Carli, 1981; Leaper et al., 1998). For instance, Leaper et al. (1998)

examined parents' talk to their children and found a significant relationship between author gender and the magnitude of the effect size with some measures. When author gender did act as a moderator, men authors found gender differences more often than women authors. Thus, the author's own gender may reflect some sort of researcher bias (Beall, 1993). In the present meta-analyses, we explored whether or not author gender moderates the likelihood, the magnitude, or the direction of gender effects on interruption.

Aspects of the Interactional Setting as Possible Moderators of Interruptions

We examined several aspects of the interactive context as potential moderators of interruptions. Recent contextual-interactive models of gender-typing (e.g., Beall, 1993; Deaux & Major, 1987; Leaper et al., 1998) suggest that the incidence and magnitude of gender effects may largely depend on aspects of the particular situation. In contrast, essentialist models of gender argue for the existence of inherent differences between women and men that are responsible for observed variations in behavior. A contextual-interactive model of gender differences in interruption would be supported if aspects of the interactive setting — such as the characteristics of participants, the task, or the setting — were found to moderate the likelihood of gender effects.

Characteristics of the Participants. First, we considered factors associated with the relationship between the interactants such as gender composition, group size, and the familiarity of the interactants. James and Clarke (1993) found that there is a tendency for men to interrupt more often in mixed-gender than in same-gender interactions. They speculate that if the major determinant of interruption is simply having more status or power than one's conversational partners, then gender effects on interruptions should be larger in mixed-gender than same-gender interactions. In contrast, Aries (1996) inferred from her review that there was no pattern of gender difference in interruption related to the gender composition of the group. We sought to clarify this matter in the present meta-analyses.

Group size was another potential moderator variable examined here. We expected that men would be more likely to interrupt in larger groups than in dyads. If interrupting is a demonstration of dominance, the need to display dominance would be greater in a more public situation with many witnesses than in one-to-one interactions in which pressure to act more stereotyped may be lessened. In their narrative review of interruptions, James and Clarke (1993) inferred a slight tendency for men to interrupt more than women in mixed-gender groups than in dyads. We sought to confirm this interpretation with the present meta-analyses.

Another possible moderator variable that we investigated was the familiarity of the interactants. Prior work has found that unacquainted people are more likely than acquainted people to rely on gender-stereotyped expectations to guide their behavior, whereas acquainted persons such as close friends and intimates are more apt to rely on individual characteristics (Drass, 1986; Wood & Karten, 1986). Extending this rationale to interruptions, men may be more likely than women to interrupt most especially in unacquainted interactions because more dominating behavior may be expected of them. Conversely, to the extent that strangers may feel more social pressure to be polite, there might be fewer gender differences in interruption between strangers than between friends or romantic partners. These two views were tested in the present review when we compared interruptions between strangers, friends, and romantic partners.

Characteristics of the Activity Setting. In addition to examining characteristics of the interactants, we also examined the nature of the task and the setting as potential moderators of women's and men's interruptions. First, we compared whether the observation took place in a laboratory or in a naturalistic setting. Although James and Clarke (1993) saw no consistent gender difference in interruptions based on observational setting when they reviewed the literature, an effect could emerge in a meta analysis. We expected that if men were found to make more intrusive interruptions than women, they would be more likely to occur in naturalistic settings. In laboratory settings, politeness norms may be more salient and thereby reduce the likelihood of domineering behaviors such as intrusive interruptions.

Second, we compared studies that examined instrumental, expressive, or unstructured topics in order to determine whether the type of activity moderated interruptions. James and Clarke (1993) suggested that to the extent that a given topic is perceived to be women's or men's presumed area of expertise, either the woman or the man may feel more of an "authority" in that area and, consequently, may feel more justified in making interruptions. Aries (1996) proposed that during unstructured discussions, women frequently made affiliative overlaps in their conversations with each other. Following these views, we hypothesized that women would make more interruptions during expressive topics, while men would make more interruptions during instrumental topics. Based on Aries' interpretation, we expected that women would make more interruptions during unstructured than structured discussions.

Finally, we examined the length of observation as a potential moderator. Prior research has suggested that longer observation times tend to be a more valid measure of social interaction qualities (see Aries, 1996). With longer observations, an observer is more apt to see people's stylistic variations. Therefore, we expected that gender differences in interruptions would be larger as the length of the observation increased.

To summarize, our meta analysis addressed the "Who, What, Where, When, and How?" of gender effects on conversational interruption. First, the most pressing issue in the research literature has been the "Who?" question: Do men and women differ in their likelihood of interruption? However, the answer to this question may depend on the "How?" question. Detecting gender differences in interruption depends largely on *how* the interruption is defined. Additionally, gender differences in interruption may depend on the "What?," "When?," and "Where?" aspects of the interactive context. *What* activities are most likely to be associated with gender differences in interruption? For instance, is there a difference between structured and unstructured tasks? *When* are interruptions likely to occur? In other words, do either the year of the study or the length of observation moderate the likelihood of gender effects? Finally, *where* are gender differences likely to take place? Do gender effects on interruption differ in naturalistic versus research laboratory settings?

METHOD

Literature search

Forty-three published studies examining women's and men's use of interruptions were collected through a variety of sources. Ten studies were counted twice because they had more than one useable analysis resulting in a total of 53 hypothesis tests.[3] Most of the studies were identified through computerized searches of the *Psychological Abstracts.* We also reviewed relevant studies cited in these articles and in James and Clarke's (1993) and Aries (1996) reviews. The dates of publication for the collected studies ranged from 1965 to 1996.

Three selection criteria were used: (1) Only studies that tested for gender effects on interruptions were included. (2) Only studies using quantitative observational measures were included. (3) Only studies published in either research journals or books were included. Although published studies may be more biased than unpublished studies toward reporting significant effects, this was not indicated with our sample of studies (see description of fail-safe test in Results).

[3]Specifically, Carli (1990), Jones et al. (1995), Natale et al. (1979), Roger & Schumacher (1983), and Smeltzer and Watson (1986) separately analyzed two different measures of interruption. Kollock et al. (1985) analyzed both friends and romantic partners. Bilous and Kraus (1988), Nohara (1992), Redeker and Maes (1996) and Simkins-Bullock & Wildman (1991) separately examined interruptions used in same- and mixed-gender pairs. This information is detailed in Table I.

There were several categories of studies that had to be excluded from these meta-analyses: First, studies with only qualitative analyses and no inferential statistics could not be included (Goldberg, 1990; Murata, 1994; Thomas, Roger, & Bull, 1983; Woods, 1989). Second, studies that did not report a sample size were excluded (Beattie, 1977; Murray & Covelli, 1988; Willis & Williams, 1976). Third, studies that included only men (Rim, 1977; Thimm, Rademacher, & Kruse, 1995), only women (Ferguson, 1977), or didn't compare women and men (Drass, 1986; Hawkins, 1991) were excluded. Fourth, studies examining perceptions of others who interrupt were excluded (Chambliss & Feeny, 1992; Hawkins, 1991; Robinson & Reis, 1989). Finally, studies that did not observe face-to-face interactions were excluded (e.g., talking on the telephone; Mott & Petrie, 1995).

Moderator Variables

Several variables that may moderate the magnitude of effects associated with women's and men's interruptions were examined. The characteristics for each moderator variable associated with each study are presented in Table I.

Participant Demographic Characteristics. Studies including samples other than middle-class, European Americans were too few to permit testing for ethnicity or economic status as potential moderator variables. Also, although there was variation in the geographical regions of the different studies, the effects in the present study did not demonstrate any consistent or meaningful patterns across the different meta-analyses. Consequently, these results are not presented.

Interruption Classification. The operational definitions of interruptions in the 53 hypothesis tests varied widely. When considering all studies collapsing across operational definitions, we will use either the term *total interruptions* or *overall interruptions.* Otherwise, interruptions were divided into three categories indicating increasing specificity of the definition: The first category of interruptions were *general interruptions* and consisted of studies in which interruptions were either not specifically defined or the operational definitions included broader criteria such as affiliative overlaps, unsuccessful interruptions, and, in some instances, back channels and minimal responses (e.g., "uh-huh"). Aries (1996) reports that one way to classify interruptions is to make explicit whether the definition has excluded or included back channels and minimal responses. Correspondingly, the second category of interruptions were those in which *back channels were excluded* in the definition of an interruption, but were still broadly defined. For instance, the definitions included in this category may have allowed for affiliative overlaps. The third category included *intrusive interruptions* which

indicated an attempt on one speaker to usurp the other speaker's conversational turn. Some of the studies in this category measured what were called "successful" interruptions whereby one speaker stops talking as a result of another speaker's incursion. The two authors were able to classify interruption categories with high reliability (κ = .90). According to Bakeman and Gottman (1986), *kappa* values above .75 reflect "excellent" levels of agreement.

Other Moderator Variables. The following 8 moderator variables were also examined: (1) The *year of the study* refers to the year the study was published. (2) *Author gender* refers to whether the first author of the study was a woman or a man. (3) *Gender composition* refers to whether the participants were observed in same- or mixed-gender interactions, or both (the latter case includes studies that did not analyze same- and mixed-gender groups separately). (4) *Group size* refers to whether participants were observed either in pairs or in groups of 3 or more. (5) *Familiarity* pertains to whether the interactants were strangers, friends, romantic partners, or another type of familiar relationship. (6) The *observational setting* contrasted whether observations took place in either a research laboratory or a naturalistic setting. (7) The *activity structure* distinguished between situations that were either unstructured, instrumental (e.g., a problem-solving task), expressive (e.g., a self-disclosure task), or otherwise unclassifiable (e.g., including a combination of tasks). (8) Finally, the *length of observation* (in minutes) was taken into account.

RESULTS

Statistical Analyses

We employed Mullen's (1989) meta-analysis software to carry out the statistical analyses. Mullen's program provides the following information for the meta-analysis of effect sizes: diffuse comparisons, combinations, focused comparisons, and blocking by levels of a moderator.

Diffuse Comparison of Significance Levels and Effect Sizes. This procedure tests for the overall variability around the average study outcome. Significant tests for the diffuse comparisons of significance levels or effect sizes indicate that the significance levels of the included studies or the strength of effects were significantly heterogeneous and may be thought of as having been sampled from different populations (Mullen, 1989). Additionally, the diffuse comparison tests compute a *fail-safe* number of unpublished studies with null results that would be needed to counteract any observed effects. This number is useful given the possible bias against publishing nonsignificant results.

Table I. Summary of Studies Testing for Women's and Men's Interruptions[a]

Author	Stat	*d*	*N*	Oper. Def.	Author	Partner	Size	Familiar	Setting	Activity	Length
Beattie (1981)	$p = .5$	0	45	I	M	M	5	M	N	I	45
Bilous & Kraus (1988)[b]	$t = 1.30$	.34	60	B	U	M	2	S	L	I	10
Bilous & Kraus (1988)[b]	$t = 6.18$	−1.62	60	B	U	S	2	S	L	I	10
Bohn & Stutman (1983)	$\chi^2 = 16.02$	2.14	30	G	M	S	2	S	L	I	10
Brooks (1982)	$p < .001$	.37	294	G	W	M	18	M	L	I	2880
Campbell et al. (1992)	$t = 2.83$	.66	104	G	M	M	8	S	L	I	n/a
Carli (1990)[c]	$p = .5$	0	118	I	W	B	2	S	L	I	10
Carli (1990)[c]	$t = 1.48$	.40	118	B	W	B	2	S	L	I	10
Case (1988)	$p < .05$	1.22	10	G	W	M	10	M	L	I	180
Craig & Pitts (1990)	$F = 2.36$	−.89	38	I	M	M	4	M	O	I	n/a
Dabbs & Ruback (1984)	$t = 1.44$	−.68	50	G	M	S	5	S	L	U	20
De Boer (1987)	$\chi^2 = 7.65$	1.91	16	I	U	S	2	F	N	U	60
Dindia (1987)	$p = .5$	0	60	I	W	B	2	S	L	U	30
Eakins & Eakins (1976)	$p = .5$	0	9	G	W	M	9	M	N	I	n/a
Fallon & Guo (1994)	$p = .5$	0	20	G	M	M	2	M	L	I	3
Frances (1979)	$p = .5$	0	88	B	W	B	2	S	L	U	14
Johnson (1994)	$p = .5$	0	141	G	W	B	3	S	L	I	9
Jones et al. (1995)[c]	$p = .5$	0	50	I	W	S	2	S	L	E	9
Jones et al. (1995)[c]	$p = .5$	0	50	G	W	S	2	S	L	E	9
Kennedy & Camden (1981)	$\chi^2 = 10.21$	−1.28	35	B	W	M	3	F	L	I	60
Kollock et al. (1985)[d]	$p < .05$	−.54	40	B	M	S	2	P	N	E	n/a
Kollock et al. (1985)[d]	$p = .5$	0	30	B	M	M	2	F	N	E	n/a
LaFrance & Carmen (1980)	$F = 2.20$	.37	72	I	W	S	2	S	L	M	7
Leet-Pellegrini (1980)	$p = .5$	0	140	B	W	B	2	S	L	I	10
Leffler et al. (1982)	$p = .5$	0	56	G	W	B	2	S	L	I	30
Makri-Tsilipakou (1994)	$p < .0001$	1.07	62	I	W	M	3	M	N	U	585
Marche & Peterson (1993)	$p = .5$	0	30	I	W	B	2	F	L	U	20
Margolin & Wampold (1981)	$F = 3.07$	.58	78	G	W	M	2	P	L	E	20
Martin & Craig (1983)	$p = .5$	0	40	B	W	B	2	S	L	U	4
McLachlan (1991)	$p = .5$	0	44	B	M	S	2	M	L	I	n/a
McMillan et al. (1977)	$t = 6.34$	1.78	98	I	W	B	6	S	L	I	30
Natale et al. (1979)[c]	$p = .03$	.45	72	B	M	B	2	S	L	U	30

Natale et al. (1979)[c]	$p = .5$	0	72	I	M	B	2	S	L	U	30
Nemeth et al. (1976)	$F = .23$	.07	168	B	M	M	6	S	L	I	120
Ng et al. (1995)	$p = .5$	0	24	G	M	B	4	S	L	I	20
Nohara (1992)[d]	$F = 2.54$	−.85	16	I	W	S	2	S	L	I	10
Nohara (1992)[d]	$p = .5$	0	8	I	W	M	2	S	L	I	10
Redeker & Maes (1996)[b]	$p = .5$	0	10	B	W	M	5	M	O	I	n/a
Redeker & Maes (1996)[b]	$Z = 2.0$	1.63	10	B	W	S	5	M	O	I	n/a
Roger & Nesshoever (1987)	$p = .5$	0	56	I	M	M	2	S	L	I	8
Roger & Schumacher (1983)[c]	$p = .5$	0	36	B	M	S	2	S	L	I	8
Roger & Schumacher (1983)[c]	$p = .5$	0	36	I	M	S	2	S	L	I	8
Rogers & Jones (1980)	$t = 1.36$	.47	36	B	M	S	2	S	L	I	15
Shaw & Sadler (1965)	$p < .001$	−1.20	36	G	M	M	2	M	L	I	20
Simkins-Bullock & Wildman (1991)[d]	$p = .5$	0	39	G	W	S	2	S	L	I	15
Simkins-Bullock & Wildman (1991)[d]	$p = .5$	0	39	G	W	M	2	S	L	I	15
Smeltzer & Watson (1986)[c]	$\chi^2 = 2.94$	−.41	72	G	M	M	4	M	L	I	75
Smeltzer & Watson (1986)[c]	$\chi^2 = 3.46$	−.45	72	I	M	M	4	M	L	I	75
Smith (1977)	$p < .05$	.79	20	B	M	S	5	S	L	U	120
Street & Murphy (1987)	$F = 5.15$	−.74	40	G	M	S	2	S	L	U	24
Trimboli & Walker (1984)	$p = .5$	0	36	B	W	B	2	S	L	M	2
Welkowitz et al. (1984)	$p = .5$	0	64	G	W	B	2	S	L	U	20
West & Zimmerman (1983)	$p < .03$	1.48	10	I	W	M	2	S	L	U	12

[a] Stat = Statistic. *d* = Cohen's *d*. *N* = sample size. Oper. Def. = Operational Defintion (G = General, B = Explicitly excludes backchannels, I = Intrusive). Author = First author's gender (W = woman, M = man, U = unclear). Partner = Gender Composition (S = same-gender, M = Mixed-gender, B = both). Size = Group size. Familiar = Familiarity (S = strangers, F = friends, P = dating/partners, M = mixed/other). Setting = Observational setting (L = laboratory, N = naturalistic, O = other). Activity = Activity type (I = instrumental, E = expressive, M = mixed, U = unstructured). Length = length of observation in minutes (n/a = information not available).

[b] Study is included in meta-analysis more than once because it reported results for the same sample in different conditions (see Method section). An adjusted *N* was used in the analyses (see Method section).

[c] Study is included in meta-analysis more than once because it reported results for the same sample using more than one operational definition of interruptions. An adjusted *N* was used in the analyses.

[d] Study is included in meta-analysis more than once. Because it reported results for more than one sample, it is treated as two separate samples.

Combinations of Significance Levels and Effect Sizes. Combinations of significance levels and effect sizes provide information on the typical study outcome across studies. Combinations of significance levels estimate the probability that the *p* values of the sampled studies would be obtained if the null hypothesis were true. This procedure uses the standard normal deviate *Z* (i.e., mean = 0; standard deviation = 1) for significance level. Combinations of effect sizes estimate the overall magnitude of the effect size across the sampled studies. Both unweighted and weighted (by sample size) combinations of significance levels and effect sizes are reported.

Fisher's *z* and Cohen's *d* are two indices of effect size that are reported here. Cohen (1977) characterized effect sizes as "small" when $d = .2$, "medium" when $d = .5$, and "large" when $d = .8$. Thus, an effect size of $d = .2$ and above may be viewed as meaningful, whereas an effect size below $d = .2$ is considered trivial in magnitude.

Focused Comparisons of Significance Levels and Effect Sizes. Focused comparison tests estimate how well a particular moderator explains variability across studies. Focused comparisons of significance levels and effect sizes test for the relationship between the moderator and variability across studies in either statistical probabilities or effect sizes, respectively. Focused comparison tests for categorical moderator variables were carried out using the *Z* statistic. The effects of continuous moderator variables (year of study and length of observation) were tested by using regression analyses with study sample size as a weighted factor. Focused comparison tests are calculated *only for unweighted scores* (Mullen, 1989). There is no accepted method for computing this type of test for weighted scores.

Blocking within Levels of a Moderator. This technique classifies or *blocks* studies by levels of a moderator variable allowing for combinations of significance levels and effect sizes (described above) at each specific level of a moderator. Comparison tests between each level are also computed. Blocking was carried out for weighted as well as unweighted scores. Results using both types of scores are presented in the tables. However, when different effects occurred using unweighted versus weighted scores, the results from the weighted scores will be given priority in the text because they adjust for the sample size in each study.

The results from the analyses are summarized in Table II for overall interruptions (i.e., collapsing across operational definitions) and in Table III for intrusive interruptions. Each table breaks down the number of studies (*k*), each study's sample size (*N*), significance levels and effect sizes (Fisher's *z* and Cohen's *d*) for each of the categorical moderator variables in relation to gender effects on the use of interruptions. Effect sizes with a positive sign indicate that men interrupted more than women. The results testing for the correlations between the continuous moderator variables (year of study and length of observation) are reported in the text below.

OVERALL INTERRUPTIONS

Diffuse comparisons were significant for the combined significance levels, $\chi^2(52) = 175.92$, $p < .001$, and the combined effect sizes, $\chi^2(52) = 232.15$, $p < .001$, indicating a significant amount of variability among the 52 studies (hypothesis tests). The fail-safe number was 31, indicating that it would take that many unpublished studies with null results to reverse any observed effects. Thus, the use of only published studies did not appear to bias the overall direction of findings.

As seen in Table II, the combination of significance levels was significant using either unweighted or weighted scores. Across studies, men were significantly more likely than women to interrupt. However, the combination of effect sizes revealed that the magnitude of the difference was negligible ($d < .2$) using either unweighted or weighted scores.

Operational Definition

Focused Comparison Tests. Focused comparison tests using unweighted scores were carried out to test the effect of operational definition (general vs. back channels excluded vs. intrusive). The results were not significant for either combined significance levels, $Z = .99$, *n.s.,* or combined effect sizes, $Z = .99$, *n.s.*

Blocking. Although the focused comparison tests did not reveal a significant overall effect for operational definition as a moderator, the blocking analyses suggested a different story. As seen in Table II, statistically significant gender differences with meaningful effect sizes appeared when studies looked specifically at intrusive interruptions. In contrast, measures of combined significance levels and combined effect sizes were negligible when studies looked at interruptions that either were generally defined or were limited to excluding only back channels. (However, the combined significance level for general interruptions was significant using weighted but not unweighted scores.)

To reiterate, the intrusive interruption category was the only measure that was associated with a significant combined significance level and a meaningful combined effect size using either unweighted or weighted scores. Consequently, subsequent analyses were carried out to test the effects of the other moderator variables on gender differences in the use of total interruptions (i.e., collapsing across operational definitions) as well as in the use of intrusive interruptions in particular. The effects of the moderator variables on total interruptions are summarized in Table II but are not mentioned any further in the text. The results from the combinations of significance levels and effect sizes for the 17 studies specifically examining intrusive interruptions are presented in Table III and are described below.

Table II. Effects of Moderator Variables on Women's and Men's Overall Interruptions[a]

			Combinations of Significance Levels and Effect Sizes					
			Unweighted			Weighted		
Moderator Variable	*k*	*N*	*Z*	Fisher's *Z*	Cohen's *d*	*Z*	Fisher's *Z*	Cohen's *d*
Overall	53	3058	2.07[c]	.06	.12	3.85[e]	.07	.15
Operational Definition								
General Interruptions	18	1156	1.14_{ab}	$.05_{a}$	.09	3.00[d]	.08	.15
Non-Back Channel Interruption	18	1043	$-.03_{a}$	$.02_{a}$	.04	.09	0	−.01
Intrusive Interruptions	17	859	2.53_{b}	$.12_{a}$	.23	4.05[e]	.16	.33
First Author's Gender								
Women	28	1781	3.34_{a}[e]	$.11_{a}$	.23	4.41[e]	.12	.25
Men	22	1141	$-.26_{b}$	$-.01_{b}$	−.02	.46	.00	00
Gender Composition								
Same-gender	17	645	$.27_{a}$	$.07_{a}$	.14	−.32	.01	.02
Mixed-gender	21	1256	1.15_{a}	$.03_{a}$	.07	3.36[e]	.18	.16
Both	15	1157	2.26_{a}[c]	$.08_{a}$	.16	2.40[d]	.10	.20
Group Size								
Dyad	35	1796	$.67_{a}$	$.04_{a}$	.08	.73	.03	.06
Group (3 or more)	18	1262	2.63_{b}[d]	$.10_{a}$	.20	4.20[e]	.13	.26

Familiarity								
Strangers	34	2107	2.25$_{a}$[c]	.07$_{a}$	.14	2.84[d]	.08	.17
Friends	4	111	−.21$_{a}$	.06$_{a}$	.12	−1.18	−.07	−.14
Romantic Partners	2	118	.04$_{a}$	.01$_{a}$	.02	.77	.10	.20
Other	13	722	.65$_{a}$	.05$_{a}$	.09	2.75[d]	.07	.13
Observational Setting								
Lab	44	2798	1.47$_{a}$[b]	.04$_{a}$	.08	3.18[e]	.15	.30
Naturalistic	6	202	1.98$_{a}$[c]	.18$_{a}$	.37	.01	.01	.03
Other	3	58	.33$_{a}$	.10$_{a}$	.21	−1.22	−.30	−.60

[a] Unweighted scores with different subscripts are significantly different ($p < .05$). (There is not an accepted comparison test for weighted scores.) The correlation between the effect size d and year of study was not significant for total interruptions ($r = -.01$, n.s.). The correlation between the effect size d and length of observation was not significant ($r = .11$, n.s.).

[b] $p < .10$.

[c] $p < .05$.

[d] $p < .01$.

[e] $p < .001$.

INTRUSIVE INTERRUPTIONS

First Author's Gender

Focused Comparison Tests. The focused comparison tests using unweighted scores revealed that first author gender acted as a significant moderator in relation to both combined significance level, $Z = 3.19$, $p < .001$, and effect size, $Z = 3.00$, $p < .01$. Gender differences were more likely in studies with women as first authors.

Blocking. The blocking analyses for author gender are summarized in Table III. The combined significance level was significant in women-authored studies. Women-authored studies were also associated with a moderate combined effect size when weighted scores were used ($d = .54$). In contrast, men-authored studies were associated with a nonsignificant combined significance level and a small combined effect size when weighted scores were used ($d = -.21$). The negative direction of the combined effect size for men-authored studies indicates there was actually a tendency in these reports for women to use intrusive interruptions more than men.

Publication Date

There was a nonsignificant correlation associated with intrusive interruptions and the publication date, $r(17) = -.28$, *n.s.* The small magnitude and negative direction of the correlation suggest a slight tendency for smaller gender differences in more recent studies.

Gender Composition

Focused Comparison Tests. Contrary to expectation, gender composition did not act as a significant moderator. The focused comparison tests were not significant when either combined significance levels or combined effect sizes were analyzed.

Blocking. As seen in Table III, when same- and mixed-gender interactions were analyzed separately, combined significance levels were all nonsignificant. When weighted scores were used, there was a small combined effect size indicating men used more intrusive interruptions than women during same-gender interactions ($d = .24$). The magnitude of difference during mixed-gender interactions was negligible ($d = .11$).

Table III. Effects of Moderator Variables on Women's and Men's Intrusive Interruptions[a]

			Combinations of Significance Levels and Effect Sizes					
			Unweighted			Weighted		
Moderator Variable	*k*	*N*	*Z*	Fisher's *Z*	Cohen's *d*	*Z*	Fisher's *Z*	Cohen's *d*
Overall	17	859	2.55[c]	.12	.23	3.96[d]	.16	.32
First Author's Gender								
Women	10	524	3.47_{a}[d]	$.18_{a}$	.36	5.01[d]	.27	.54
Men	6	319	-1.35_{b}	$-.11_{b}$	−.22	−1.25	−.11	−.21
Gender Composition								
Same-gender	5	190	1.22_{a}	$.12_{a}$	.25	1.36[b]	.12	.24
Mixed-gender	7	291	$.87_{a}$	$.08_{a}$	.16	1.17	.06	.11
Both	5	378	2.42_{a}[c]	$.16_{a}$	.32	3.86[d]	.28	.56
Group Size								
Dyad	12	544	1.33_{a}[b]	$.11_{a}$	.22	1.00	.06	.13
Group (3 or more)	5	315	2.61_{ab}[c]	$.13_{a}$	.27	4.74[d]	.31	.63
Familiarity								
Strangers	11	596	2.19_{a}[b]	$.11_{a}$	.23	3.67[d]	.19	.38
Familiar	6	263	1.30_{a}	$.12_{a}$	.24	1.55[b]	.09	.19
Observational Setting								
Lab	13	698	1.50_{a}[b]	$.08_{a}$	.16	3.17[d]	.15	.31
Naturalistic	3	123	3.74_{b}[d]	$.45_{a}$	.94	3.51[d]	.37	.76
Other	1	38	$.00_{c}$	$.00_{a}$	.00	.00	.00	.00
Activity								
Unstructured	6	250	3.42_{a}[d]	$.34_{a}$	.70	3.59[d]	.36	.73
Instrumental	9	487	$.21_{b}$	$-.03_{b}$	−.06	.63	.03	.05
Expressive	1	50	$.00_{b}$	$.00_{b}$	.00	.00	.00	.00
Mixed/Other	1	72	$.00_{b}$	$.00_{b}$	.00	.00	.00	.00

[a] Unweighted scores with different subscripts are significantly different ($p < .05$). (There is not an accepted comparison test for weighted scores.)
[b] $p < .05$.
[c] $p < .01$.
[d] $p < .001$.

Group Size

Focused Comparison Tests. The focused comparison test for combined significance levels was marginally significant, $Z = 1.47$, $p < .10$. As seen in Table III, gender differences in intrusive interruptions tended to be more likely when studies observed groups (3 or more persons) than dyads. The focused comparison test for combined effect sizes was not significant, $Z = .25$, *n.s*

Blocking. As seen in Table II, the Z for combined significance levels was significant when groups (of 3 or more persons) were analyzed and nonsignificant when dyads were studied. When weighted scores were used for combined effect sizes, a small but meaningful of difference occurred in groups ($d = .31$) and a negligible difference occurred in dyads ($d = .13$).

Familiarity

Due to the limited range of studies examining participants that were not strangers, it was necessary to combine friends, romantic partners, and other types of familiar relationships into a single *familiar* category. This allowed for 11 studies looking at strangers and 6 studies looking at participants who were familiar with one another (see Table I for further breakdown).

Focused Comparison Tests. The resulting focused comparison tests using unweighted scores were nonsignificant for combined significance levels, $Z = .25$, *n.s.,* as well as for combined effect sizes $Z = .04$, *n.s.*

Blocking. As seen in Table III, when studies were blocked into the strangers versus familiar levels, the gender effects appeared especially strong using weighted scores when studies looked at interactions between strangers. The combined significance levels test was significant and the combined effect size was in the small-to-moderate range ($d = .38$). In contrast, when studies looked at interactions between familiar partners, the combined significance levels only approached significance and the combined effect size was much smaller ($d = .19$). Thus, gender effects on intrusive interruptions may be more likely between strangers than familiar persons.

Observational Setting

Focused Comparison Tests. Focused comparison tests using unweighted scores were significant for both combined significance levels, $Z = 2.73$, $p < .01$, and combined effect sizes, $Z = 2.91$, $p < .01$. The likelihood and the magnitude of gender differences in the use intrusive interactions was greater in naturalistic than laboratory settings.

Blocking. As shown in Table III, when weighted scores were used, the combined significance level was statistically significant in both naturalistic and lab settings. However, the combined effect size was substantially larger in studies of naturalistic settings (d = .76) than lab settings (d = .31). Thus, although weighted scores indicate that gender differences tended to occur in either setting, they were larger in magnitude during naturalistic settings.

Activity Structure

The analyses of activity structure as a moderator of gender effects on intrusive interruptions were based on 6 studies of unstructured activities and 9 studies of instrumental activities. Only one study considered an expressive activity and another study looked at a mixed-task activity.

Focused Comparison Tests. The comparison of instrumental and unstructured activities was significant for combined significance level, Z = 2.52, $p < .01$, as well as for combined effect size, Z = 3.18, $p < .001$. As predicted, gender differences in intrusive interruptions were more likely and of greater magnitude in unstructured activities.

Blocking. As seen in Table III, unstructured activities — but not instrumental activities — were associated with a significant combined significance level. Similarly, substantial effect sizes occurred when unstructured activities were analyzed (d = .73) but not when instrumental activities were studied (d = .05).

Length of Observation

There was a nonsignificant correlation between weighted effect sizes and length of observation, $r(17)$ = .24, *n.s.* The positive direction of the correlation suggests a slight tendency for gender differences to be larger with longer observation times.

DISCUSSION

Meta-analyses of 43 published studies were carried out to address the controversial issue of whether women or men are more likely to interrupt their conversational partners. Although some investigations have replicated Zimmerman and West's (1975) often cited finding that men tend to interrupt more often than women, there have also been contradictory results indicating either an absence of gender difference or even that women interrupted more than men (see Table I). Furthermore, two recent narrative reviews (Aries, 1996; James & Clarke, 1993) concluded that there is no consistent evidence that men do indeed interrupt more than women.

When all 43 studies (yielding 53 hypothesis tests) comparing women's and men's use of interruption were combined, the present meta-analysis both contradicted and confirmed the conclusion reached in Aries' (1996) and James and Clarke's (1993) narrative reviews. First, a significant combined significance level indicated that men were more likely than women to initiate interruptions. However, the corresponding combined effect size was negligible (weighted d = .15), indicating that the magnitude of gender difference was *insubstantial* (Cohen, 1977).[4]

Looking beyond the overall analysis of studies, the meta-analysis revealed some factors that may moderate the likelihood and magnitude of gender differences in interruptions. One of these factors was the *operational definition* that is used to measure interruption. As other writers (Aries, 1996; James & Clarke, 1993; Tannen, 1994) have noted, there are multiple ways in which interruptions have been defined. When interpreting interruption as a form of domineering behavior, the type we refer to as intrusive interruptions may be most relevant. Intrusive interruptions function to usurp the speaker's turn at talk with the intent of demonstrating dominance. In contrast, interruptions that include back-channel listening responses or affiliative overlaps may demonstrate enthusiasm, agreement, or rapport. Therefore, any analysis of conversational interruptions should take into account the multiple meanings of interruptions. Both Aries (1996) and James and Clarke (1993) pointed out the inconsistency in researchers' definitions of interruptions. Indeed, some studies we surveyed did not provide a specific definition of interruption. Thus, any tendency for gender differences in conversational interruptions may be more likely to be detected when the more narrowly defined *intrusive* interruption category is used. When interruptions in this category were analyzed separately, a small but substantial effect size emerged (weighted d = .33), indicating that men interrupted more than did women.

Subsequent analyses using specifically intrusive interruptions revealed other factors that may moderate gender effects on interruption.[5] The moderator variables that were investigated included publication characteristics, aspects of the participants, length of observation, and aspects of the interactive setting.

[4]When discussing the analyses of effect sizes in the text, the weighted effect sizes will be cited because these scores adjusted for the sample size of each study.

[5]There were no major findings that occurred in the analyses of overall interruptions (i.e., collapsing across all operational definitions) that did not occur in the analyses of intrusive interruptions. Therefore, only the results associated with the analyses of intrusive interruptions are subsequently discussed.

The *year of publication* and the *first author's gender* were two publication characteristics that we hypothesized might moderate gender effects on the use of interruptions. Year of study did not prove to be a statistically significant moderator. However, consist with our hypothesis, a small negative correlation suggested a slight tendency for gender differences in intrusive interruptions to decrease over time. It might be that both researchers and research participants have become less gender-stereotyped over the three decade period of the studies that were included, although this interpretation warrants further investigation.

The first author's gender was a significant moderator. Significant gender effects and larger effect sizes were more likely when the first author was a woman. Specifically, women authors were more likely than men authors to report that men interrupted more than women. When effect sizes were analyzed, there was even a tendency for men authors to report the opposite finding; that is, men authors tended to report women interrupting more than men. In their narrative review of the interruptions literature, James and Clarke (1993) intimated that author gender might influence whether one gender is more likely to interrupt than the other, but they did not speculate on any particular pattern. Our finding that author gender acted as a significant moderator is consistent with meta-analyses on other topics (e.g., Eagly & Carli, 1981; Leaper et al., 1998). The difference between women and men authors potentially reflects some form of researcher bias: Some women researchers may be biased toward identifying men as more dominant than women; also, some men researchers may be biased against identifying men as more dominant than women.

Turning to specific aspects of the research procedures as possible moderators, one factor that we investigated was the *length of the observation.* Presumably, detecting stylistic differences in people's behavior is more apt to occur when longer observation periods are used. Accordingly, we expected effect sizes would be positively correlated with observation length. There was a nonsignificant positive correlation between interaction time and gender differences in intrusive interactions suggesting a slight tendency for gender differences to increase as the length of interaction increased. The strength of the correlation was likely restricted by the narrow range of observation lengths in the studies sampled. Most studies were limited to a relatively short interaction time (around 10-15 minutes).

There were several aspects pertaining to the interactive setting that were examined as potential moderators. Contrary to expectations, the *gender composition* of the group was not a significant moderator of intrusive interruptions. In their narrative reviews of conversational interruptions, James and Clarke (1993) found a tendency for men to interrupt more in mixed-gender than same-gender interactions. In contrast, Aries (1996) inferred no pattern of gender difference related to gender composition. Our results are consistent with Aries' (1996) conclusion.

Group size was another possible moderating factor that was explored. Consistent with our expectation, significant gender differences in intrusive interruptions occurred in groups of three or more but not in dyads. When weighted effect sizes were analyzed, the magnitude of difference was moderate in groups (d = .63) but was negligible in dyads (d = .13). To the extent that intrusive interruption is a manifestation of dominance, larger and more public group settings may be especially likely to elicit this behavior in men. During childhood and adolescence, boys have been found to be more likely than girls to emphasize group dominance in their peer relationships. In contrast, girls are more likely to emphasize closeness in one-on-one interactions (Leaper, 1994). Thus, interacting in dyads may be a way for men to mitigate their domineering behavior.

Another aspect of the social relationship that may affect whether or not gender differences in interruption are found is the *familiarity between interactants.* One of the limitations of most conversation research is that it is based on observations between strangers (usually recruited through introductory university courses). Relatively few studies have examined interactions between friends or romantic partners (Leaper & Anderson, 1997). In our analyses of intrusive interruptions, 6 of the identified studies looked at participants who knew each other in one way or another, the remaining 11 studies examined interactions between strangers. We hypothesized that unacquainted people would be more likely than acquainted people to rely on gender-stereotyped expectations to guide their behavior. In contrast, acquainted persons such as close friends and intimates have been found more likely to rely on individual characteristics (Drass, 1986; Wood & Karten, 1986). However, the familiarity between the interactants did not prove to be a significant moderator variable in our analyses. Perhaps the absence of any difference between strangers and familiar interactants is related to the short observation periods in most studies. As previously noted, stylistic differences related to people's preferences, personalities, or personal relationships may be more apt to emerge over longer periods of time.

The *observation setting* was yet another aspect of the interactive context we considered. Interactions observed in naturalistic settings were contrasted with those occurring in a research laboratory or office. As hypothesized, gender differences in intrusive interruptions were greater in naturalistic than lab settings. The combined effect sizes associated with naturalistic settings were the largest seen in the study (weighted d = .76). To the extent that intrusive interruptions are generally considered rude conversational practice, perhaps people feel more inhibited interrupting in laboratory than naturalistic se ttings. However, the issue deserves further exploration. Only three of the 17 studies examining intrusive interruptions were in naturalistic settings. Therefore, the finding should be considered with caution.

Finally, the *activity structure* was another observed moderator of gender effects on intrusive interruptions. Specifically, significant gender effects with larger effect sizes were more likely when participants were observed in unstructured activities than during instrumental tasks. A moderate-to-large combined effects size was associated with unstructured activities (weighted $d = .73$). In contrast, there was virtually no difference associated with instrumental activities (weighted $d = .05$). These findings contradict our expectations as well as James and Clarke's (1993) speculation that men would make more interruptions during instrumental activities since men are supposedly more "expert" in those tasks. Instead, open-ended and unstructured situations seemed to be where gender differences occurred, with men interrupting more than women. The observed finding is actually consistent with a recent meta-analysis of gender effects on parents' speech to their children (Leaper et al., 1998). Differences in mothers' and fathers' speech as well as differences in speech directed to daughters versus sons were more likely during unstructured than structured activities. The effect was interpreted in relation to ecological-contextual models of gender. According to this view, many gender effects on social behavior are mediated through the types of activities that are selected. By controlling for the activity, one constrains the types of behaviors that may follow. Thus, whether or not men prefer instrumental activities more than women, both women and men may act similarly when participating in instrumental tasks.

Conclusion

The findings from these meta-analyses are consistent with a contextual-interactive model of gender (e.g., Beall, 1993; Deaux & Major, 1987; Leaper et al., 1998). According to this perspective, gender-related variations in behavior are influenced more by situational factors than by inherent individual differences between women and men. Relevant situational factors include characteristics about the interactions such as the number of persons, their respective genders, and their relationship to one another. Also, the activity structure is another potentially important situational influence. Of these specific factors, we found that group size was a significant moderator of gender effects on interruption. Studies also indicate that gender-related variations in behavior are reduced or disappear when the type of activity is taken into account (see Leaper et al., 1998). If girls and women are apt to select expressive activities, they may act in a more affiliative manner. Conversely, if boys and men are more likely to select task-oriented activities, they may act in a more instrumental way. We found that gender effects were larger when unstructured activities were

observed. It may be that when participants were assigned specific tasks, their behavior adapted to the demand characteristics of the situation and thereby reduced the likelihood of gender differences in interruption. To the extent that gender variations in social behavior can be found to depend on situational factors, we see more evidence for contextual-interactive model of gender as opposed to the essentialist model that emphasizes the existence of inherent, immutable differences between women and men.

Limitations and Directions for Future Research

Despite the contributions of the present analysis, there are limitations worth highlighting. First, measures of interruption in the research literature are often vaguely defined. In their narrative reviews both Aries (1996) and James and Clarke (1993) expressed frustration at the lack of a consistent definition of an interruption across studies. As our analyses suggest, the *type of interruption* is not a trivial matter in the examination of possible gender differences. Some types of overlapping speech seem to demonstrate conversational dominance (the "intrusive" interruption), while other forms indicate affiliative engagement (the "back channel" listening response). These two types of overlap parallel traditional gender-role and status differences in communication style (see e.g., Tannen, 1983, 1994; West & Zimmerman, 1983). In an effort to begin considering how the type of interruption (or overlapping speech) might moderate the likelihood or magnitude of gender differences, we organized studies into three categories of interruptions beginning with the most general definition, which likely included affiliative overlaps and minimal listening responses. In the most specific category, we included studies that used the relatively narrow form of intrusive interruptions. However, we were unable to go beyond these three somewhat unrefined categories of operational definition. For instance, few studies included in the present analyses analyzed affiliative overlaps as a separate category of interruptions. With enough available studies, we would have tested the hypothesis that women use affiliative overlaps more than did men.

Another limitation was our inability to consider possible *sociocultural moderators* of gender effects on the use of interruption. Writers (e.g., Crawford, 1995) have criticized researchers for focusing on mostly on middle-class, Euro-American samples. Given the predominantly homogeneous nature of the samples reflected in the studies used in the meta-analysis, we were unable to consider the possible influences of factors such as cultural background, educational level, or socioeconomic status. Also, *individual psychological factors* such as gender self-concept, gender-role ideology, or personality are worth

investigating. For example, two studies (Roger & Schumacher, 1983; Roger & Nesshoever, 1987) found that successful interruptions were associated with personalities high in dominance more than those with personalities low in dominance. Finally, *relationship qualities* were barely addressed due to the overwhelming number of studies based on interactions between strangers. Besides the type of relationship (e.g., friendship, dating, married, etc.) which we did examine, relationship qualities such as relative dominance or power might moderate the use of intrusive interruptions and other power-assertive speech forms. For instance, Kollock, Blumstein & Schwartz (1985) studied homosexual and heterosexual couples' decision making and found that those partners that had more power over day-to-day decision making made more interruptions than those partners more equal in power. Unfortunately, there were not enough studies that included measures of sociocultural factors, individual-psychological factors, or relationship qualities to include in our meta-analysis. We encourage researchers to explore these factors in future studies on gender and communication style.

REFERENCES[6]

Aries, E. (1996). *Men and women in interaction: Reconsidering the difference.* New York: Oxford University Press.

Bakeman, R., & Quera, V. (1995). *Analyzing interaction: Sequential analysis with SDIS and GSEQ.* New York: Cambridge University.

Bakeman, R., & Gottman, J. M. (1986). *Observing interaction.* Cambridge: Cambridge University Press.

Beall, A. E. (1993). A social constructionist view of gender. In A. E. Beall & R. J. Sternberg (Eds.), *The psychology of gender.* New York: Guilford Press.

Beattie, G. (1977). The dynamics of interruption and the filled pause. *British Journal of Social and Clinical Psychology, 16,* 283-284.

*Beattie, G. W. (1981). Interruption in conversational interaction and its relation to the sex and status of the interactants. *Linguistics, 19,* 5-35.

*Bilous, F. R., & Krauss, R. M. (1988). Dominance and accommodation in the conversational behaviors of same- and mixed-gender dyads. *Language and Communication, 8,* 183-194.

*Bohn, E., & Stutman, R. (1983). Sex role differences in the relational control dimension of dyadic interaction. *Women's Studies in Communication, 6,* 965-104.

*Brooks, V. R. (1982). Sex differences in student dominance behavior in female and male professors' classrooms. *Sex Roles, 8,* 683-690.

Campbell, K. E., Kleim, D. M., & Olson, K. R. (1992). Conversational activity and interruptions among men and women. *The Journal of Social Psychology, 132,* 419-421.

*Carli, L. L. (1990). Gender, language, and influence. *Journal of Personality and Social Psychology, 59,* 941-951.

*Case, S. S. (1988). Cultural differences, not deficiencies: An analysis of managerial women's language. In S. Rose & L. Larwood (Eds.), *Women's careers: Pathways and pitfalls.* New York: Praeger.

[6]Asterisked references are studies used in meta-analyses.

Chambliss, C. A., & Feeny, N. (1992). Effect of sex of subject, sex of interrupter, and topic of conversation on the perceptions of interruptions. *Perceptual and Motor Skills, 75,* 1235-1241.

Cohen, J. (1977). *Statistical power analysis for the behavioral sciences* (rev. ed.). New York: Academic Press.

*Craig, D., & Pitts, M. K. (1990). The dynamics of dominance in tutorial discussion. *Linguistics , 28,* 125-138.

Crawford, M. (1995). *Talking difference: On gender and language.* London: Sage.

*Dabbs, J. M., Jr., & Ruback, R. B. (1984). Vocal patterns in male and female groups. *Personality and Social Psychology Bulletin, 10,* 518-525.

*De Boer, M. (1987). Sex differences in language: Observations of dyadic conversations between members of the same sex. In D. Brouwer & D. de Haan (Eds.), *Women's language, socialization and self-image.* Providence, RI: Foris.

Deaux, K., & Major, B. (1987). Putting gender into context: An interactive model of gender-related behavior. *Psychological Review, 94,* 369-389.

*Dindia, K. (1987). The effects of sex of subject and sex of partner on interruptions. *Human Communication Research, 13,* 345-371.

Drass, K. A. (1986). The effect of gender identity on conversation. *Social Psychology Quarterly, 49,* 294-301.

Eagly, A. H., & Carli, L. L. (1981). Sex of researchers and sex-typed communications as determinants of sex differences in influenceability: A meta-analysis of social influence studies. *Psychological Bulletin, 90,* 1-20.

*Eakins, B., & Eakins, R. G. (1976). Verbal turn-taking and exchanges in faculty dialogue. In B. L. Dubois & I. M. Crouch (Eds.), *The sociology of the languages of American women.* San Antonio, TX: Trinity University.

*Fallon, J., & Guo, D. (1994). The relationship between topic familiarity and conversational dominance. *Psychology, a Journal of Human Behavior, 31,* 53-57.

Ferguson, N. (1977). Simultaneous speech, interruptions and dominance. *British Journal of Clinical Psychology, 16,* 295-302.

*Frances, S. J. (1979). Sex differences in nonverbal behavior. *Sex Roles, 5,* 519-535.

Goldberg, J. A. (1990). Interrupting the discourse on interruptions: An analysis in terms of relationally neutral, power- and rapport-oriented acts. *Journal of Pragmatics, 14,* 883-903.

Hall, J. A. (1978). Gender effects in decoding nonverbal cues. *Psychological Bulletin, 85,* 845-857.

Hawkins, K. (1991). Some consequences of deep interruption in task-oriented communication. *Journal of Language & Social Psychology, 10,* 185-203.

Hyde, J. S., Fennema, E., & Lamon, S. J. (1990). Gender differences in mathematics performance: A meta-analysis. *Psychological Bulletin, 107,* 139-155.

Hyde, J. S., & Linn, M. C. (1988). Gender differences in verbal ability: A meta-analysis. *Psychological Bulletin, 104,* 53-69.

James, D., & Clarke, S. (1992). Interruptions, gender, and power: A critical review of the literature. In K. Hall, M. Bucholtz, & B. Moonwoman (Eds.), *Locating power: Proceedings of the Second Berkeley Women and Language Conference.* Berkeley, CA: Berkeley Women and Language Group.

James, D., & Clarke, S. (19930. Women, men, and interruptions: A critical review. In D. Tannen (Ed.), *Gender and conversational interaction.* New York: Oxford University Press.

*Johnson, C. (1994). Gender, legitimate authority, and leader-subordinate conversations. *American Sociological Review, 59,* 122-135.

*Jones, E. S., & Gallois, C., Callan, V. J., & Barker, M. (1995). Language and power in an academic context: The effects of status, ethnicity, and sex. *Journal of Language and Social Psychology, 14,* 434-461.

*Kennedy, C. W., & Camden, C. (1983). A new look at interruptions. *Western Journal of Speech Communication, 47,* 45-58.

*Kollock, P., Blumstein, P., & Schwartz, P. (1985). Sex and power in interaction: Conversational privileges and duties. *American Sociological Review, 50,* 34-46.

*LaFrance, M., & Carmen, B. (1980). The nonverbal display of psychological androgyny. *Journal of Personality & Social Psychology, 38,* 36-49.

Leaper, C. (1994). Exploring the consequences of gender segregation on social relationships. In C. Leaper (Ed.), *Childhood gender segregation: Causes and consequences* (New Directions for child Development, No. 65). San Francisco: Jossey-Bass.

Leaper, C., & Anderson, K. J. (1997). Gender development and heterosexual romantic relationships during adolescence. In W. Damon (Series Ed.) & S. Shulman & W. A. Collins (Issue Eds.), *Romantic relationships in adolescence: Developmental perspectives* (*New Directions for Child Development,* No. 78). San Francisco: Jossey Bass.

Leaper, C., Anderson, K. J., & Sanders, P. (1998). Moderators of gender effects on parents' talk to their children: A meta-analysis. *Developmental Psychology, 34,* 3-27.

*Leet-Pellegrini, H. M. (1980). Conversational dominance as a function of gender and expertise. In H. Giles, W. P. Robinson, & P. M. Smith (Eds.), *Language: Social psychological perspectives.* New York: Pergamon Press.

*Leffler, A., Gillespie, D., & Conaty, J. C. (1982). The effects of status differentiation on nonverbal behavior. *Social Psychology Quarterly, 45,* 153-161.

*Makri-Tsilipakou, M. (1994). Interruption revisited: Affiliative vs. disaffiliative intervention. *Journal of Pragmatics, 21,* 401-426.

*Marche, T. A., & Peterson, C. (1993). The development and sex-related use of interruption behavior. *Human Communication Research, 19,* 388-408.

*Margolin, G., & Wampold, B. E. (1981). Sequential analysis of conflict and accord in distressed and nondistressed marital partners. *Journal of Consulting & Clinical Psychology, 49,* 554-567.

*Martin, J. N., & Craig, R. T. (1983). Selected linguistic sex differences during initial social interactions of same-sex and mixed-sex student dyads. *The Western Journal of Speech Communication, 47,* 16-28.

*McLachlan, A. (1991). The effects of agreement, disagreement, gender and familiarity on patterns of dyadic interaction. *Journal of Language & Social Psychology, 10,* 199-213.

McLaughlin, M. L. (1984). *Conversation: How talk is organized.* Beverly Hills, CA: Sage.

*McMillan, J. R., Clifton, A. K., McGrath, D., & Gale, W. S. (1977). Women's language: Uncertainty , or interpersonal sensitivity and emotionality? *Sex Roles, 3,* 545-559.

Mott, H., & Petrie, H. (1995). Workplace interactions: Women's linguistic behavior. *Journal of Language and Social Psychology, 14,* 324-336.

Mullen, B. (1989). *Advanced BASIC meta-analysis.* Hillsdale, NJ: Lawrence Erlbaum.

Murata, K. (1994). Intrusive or co-operative? A cross-cultural study of interruption. *Journal of Pragmatics, 21,* 385-400.

Murray, S. O., & Covelli, L. H. (1988). Women and men speaking at the same time. *Journal of Pragmatics, 12,* 103-111.

*Natale, M., Entin, E., & Jaffe, J. (1979). Vocal interruptions in dyadic communication as a function of speech and social anxiety. *Journal of Personality & Social Psychology, 37,* 865-878.

*Nemeth, C., Endicott, J., & Wachtler, J. (1976). From the '50s to the '70s: Women in jury deliberations. *Sociometry, 39,* 293-304.

*Ng, S. H., Brook, M., & Dunne, M. (1995). Interruption and influence in discussion groups. *Journal of Language and Social Psychology, 14,* 369-381.

*Nohara, M. (1992). Sex differences in interruption. An experimental reevaluation. *Journal of Psycholinguistic Research, 21,* 127-146.

*Redeker, G., & Maes, A. (1996). Gender differences in interruptions. In D. I. Slobin, J. Gerhardt, A. Kyratzis, & J. Guo (Eds.), *Social interaction, social context, and language: Essays in honor of Susan Ervin-Tripp.* Mahwah, NJ: Lawrence Erlbaum Associates.

Rim, Y. (1977). Personality variables and interruptions in small discussion. European *Journal of Social Psychology, 7,* 247-251.

Robinson, L. F., & Reis, H. T. (1989). The effects on interruption, gender and status on interpersonal perceptions. *Journal of Nonverbal Behavior, 13,* 141-153.

*Roger, D., Nesshoever, W. (1987). Individual differences in dyadic conversational strategies: A further study. *British Journal of Social Psychology, 26,* 247-255.

*Roger, D. B., & Schumacher, A. (1983). Effects of individual differences on dyadic conversational strategies. *Journal of Personality and Social Psychology, 45,* 700-705.

*Rogers, W. T., & Jones, S. E. (1980). Effects of dominance tendencies on floor holding and interruption behavior in dyadic interaction. *Human Communication Research, 1,* 113-122.

Sacks, H., Schegloff, E. A., & Jefferson, G. (1974). A simplest systematics for the organization of turn-taking for conversation. *Language, 50,* 696-735.

*Shaw, M. E., & Sadler, O. W. (1965). Interaction patterns in heterosexual dyads varying in degree of intimacy. *Journal of Social Psychology, 66,* 345-351.

*Simkins-Bullock, J., & Wildman, B. G. (1991). An investigation into the relationships between gender and language. *Sex Roles, 24,* 149-160.

*Smeltzer, L. R., & Watson, K. W. (1986). Gender differences in verbal communication during negotiations. *Communication Research Reports, 3,* 74-79.

*Smith, H. W. (1977). Small group interaction at various ages: Simultaneous talking and interruptions of others. *Small Group Behavior, 8,* 65-74.

Smith-Lovin , L., & Brody, C. (1989). Interruptions in group discussions: The effects of gender and group composition. *American Sociological Review, 54,* 424-435.

*Street, R. L., Jr., & Murphy, T. L. (1987). Interpersonal orientation and speech behavior. *Communication Monographs, 54,* 42-62.

Tannen, D. (1983). When is an overlap not an interruption? One component of conversational style. In R. J. DePietro, W. Frawley, & A. Wedel (Eds.), *The first Delaware Symposium on Language Studies.* Newark, DE: University of Delaware Press.

Tannen, D. (1994). Interpreting interruption in conversation. In D. Tannen (Ed.), *Gender and discourse.* New York: Oxford.

Thimm, C., Rademacher, U., & Kruse, L. (1995). "Power-related talk": Control in verbal interaction. *Journal of Language and Social Psychology, 14,* 382-407.

Thomas, A. P., Roger, D., & Bull, P. (1983). A sequential analysis of informal dyadic conversation using Markov chains. *British Journal of Social Psychology, 22,* 177-188.

*Trimboli, C., & Walker, M. B. (1984). Switching pauses in cooperative and competitive conversations. *Journal of Experimental Social Psychology, 20,* 297-311.

*Welkowitz, J., Bond, R. N., & Feldstein, S. (1984). Conversational time patterns of Japanese-American adults and children in same and mixed-gender dyads. *Journal of Language and Social Psychology, 3,* 127-138.

*West, C., & Zimmerman, D. (1983). Small insults: A study of interruptions in cross-sec conversations between unacquainted person. In B. Thorne, C. Kramarae, & N. Henley (Eds.), *Language, gender and society.* Rowley, MA: Newbury House.

Willis, F. N., & Williams, S. J. (1976). Simultaneous talking in conversation and sex of speakers. *Perceptual and Motor Skills, 43,* 1067-1070.

Wood, W., & Karten, S. J. (1986). Sex differences in interaction style as a product of perceived sex differences in competence. *Journal of Personality & Social Psychology, 50,* 341-347.

Woods, N. (1989). Talking shop: Sex and status as determinants of floor apportionment in a work setting. In J. Coates & D. Cameron (Eds.), *Women in their speech communities.* New York: Longman.

Zimmerman, D. H., & West, C. (1975). Sex roles, interruptions and silences in conversation. In B. Thorne & N. Henley (Eds.), *Language and sex: Difference and dominance.* Rowley, MA: Newbury House.