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ABSTRACT

Verbal and nonverbal patterns of dominance in dyads formed from a group of 72 college students determined to be sex-type males, sex-type females, or androgynous individuals were investigated in the study described in this paper. The paper first notes problems in recent research on sex differences in communication, presents the research questions guiding the study, and discusses the following topics examined in the study: three aspects of dominance (control, certainty, and superiority/high status behaviors), three aspects of submissiveness (deference, indecision and insecurity, and approval-seeking), and relationships between communication and androgyny. It then describes the procedures, methods of data analysis, and operational definitions of cues used in the study and reports and discusses results related to each of the topics examined. Two general conclusions were drawn from the results: (1) male and female subjects did not conform unilaterally to stereotypic gender-based behaviors with regard to either dominance or submission, and (2) psychological sex and task differences significantly affected patterns of nonverbal behavior on half of the dependent measures. A bibliography, tables of results, and operational definitions of behavioral acts are included. (GW)

VERBAL AND NONVERBAL DETERMINANTS OF DOMINANCE IN SEX-TYPE MALE, SEX-TYPE FEMALE, AND ANDROGYNOUS DYADS

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A recent area of research for communication scholars is male-female communication patterns. As interpersonal communication expands its purview to include relational and family interaction, sex-related communicative behaviors become salient variables for understanding control and affection patterns, communicator style, self-disclosure and conflict management. Initial research in this area examines sex differences in language usage (Lakoff, 1973; Kramer, 1975; Key, 1972), in conversational patterns (Aries, 1977; Baird, 1976; Hirschman, 1973), and in nonverbal behaviors (Henley, 1977; Weitz, 1976; Peterson, 1975).

Much of this research centers on the way language patterns contribute to power and dominance differences between men and women. As Key (1975) summarizes, "In most conversations, males dominate; stopping here and there for the female voice to fill in, ask questions, give assurance and keep the men going. If a woman tries to add a melody of her own, often the man's head turns away or he interrupts and continues his own theme." (p. 35) Although this citation tends to overstate the case, research, in general, concurs with Key in that female language is inferior and male speech is superior (Kramer, 1974).

Critique of Research on Sex Differences in Communication

Before we accept this bleak picture of female communication and before we recommend that women imitate the language patterns of men, we need to re-examine our research paradigms, develop more complex designs, and incorporate theoretical perspectives into our investigations of male-female communication. Perhaps the embryonic stage of research in this area results in false starts, theory-barren investigations and somewhat convenient conceptualizations of research

questions, but at some point, we need to critique our pursuits and reassess our goals for research. This commentary addresses three objections to the research trends on male-female communication. First, much of the research operationally defines sex differences in terms of gender rather than psychological sex. This practice capitalizes on a convenient, dichotomous variable and ignores the contradictions that result by confounding sex-socialization issues with anatomic differences. Psychological sex, as Bem's work (1974) demonstrates, is best represented on a continuum from undifferentiated (low sexual identity) to sex-type (strongly oriented toward one sex--either masculine or feminine) to androgyny (scoring high on both masculine and feminine traits).

A second criticism of the research on sex differences in communication stems from divorcing the behaviors from the context in which they occur. An absence of situational constraints in the design of an investigation perpetuates stereotypic findings which de-emphasize the interactive or process nature of communication. For instance, a number of studies on male-female differences in the amount of interaction, type of talk (expressive versus instrumental), eye contact patterns, and leadership styles (Baird, 1976; Meeker and Weitzel-O'Neill, 1977; Aries, 1977; Strodtbeck and Mann, 1956) are derived from group interactions where variables such as status, role, norms may affect interaction. In effect, cross-sex groups may constitute a unique setting for male-female dialogue in that both sexes become more representative of their social sex-role--especially if the number of women in a group is disproportionate to the number of men (Kanter, 1977).

Aries (1977) supports the contention that groups constitute a unique situation for cross-sex interaction. She found that men were more serious, tense and self-conscious, engaged in less practical joking, and were more talkative of feelings in cross-sex as opposed to same sex groups. In Mabry's

study (1976) on cross-sex leaderless encounter groups, women had an overall higher participation than men; they provided more suggestions, opinions and information than did men; and they directed more responses to other women rather than to men in the group. Mabry attributed these atypical findings to situational constraints such as the ambiguity of the task, the six to four ratio of women to men, and the decentralized role structure in the groups.

Similarly, a failure to incorporate sex of the respondent into the research model may confound findings on male-female communication. Weitz (1976) observed that nonverbal cues in interaction emerged from the respondents' as well as the senders' dispositions. Both same-sex and cross-sex communicators regarded male partners with liberal sex-role attitudes as warmer than those with traditional sex-role attitudes. Moreover, women monitored their nonverbal behaviors to fit the communicator style of their male partners. Women in this study were nonverbally more submissive with more dominant male partners and nonverbally more dominant with submissive male partners.

A third criticism of reserach on male-female communication centers on the theoretical assumptions which implicitly undergird research questions. A researcher's theoretical perspective is often embedded in the research questions he/she poses, in the definition of concepts he/she uses, in the methods and procedures of the study, and in the locus or place where communication occurs. Much of the research on sex differences operates from the psychological perspective (Fisher, 1978) in that it attributes differences in communication to the cognitive and affective make-up of the communicators as determined by their sex-stereotyped roles (See, for example, McMillan, et. al., 1977; Siegler and Siegler, 1976; Baird, 1976). Even some of the more current research which manipulates language to fit sex-oriented patterns, treating sex-based language as an independent rather than dependent measure, follows this traditional stimulus-response, quasi-causal psychological model (Berryman and Cox, 1978).

Although some investigators code verbal and nonverbal acts and determine differences in frequency of cues between males and females (Duncan and Fisk, 1977; Zimmerman and West, 1975; Aries, 1977), few have employed systems theory or information processing models as theoretical frameworks. In fact, researchers typically rely on sex-sterotype patterns as explanations for interpreting their findings; thus, when communication behaviors constitute the locus of research, sex differences in interaction are usually attributed to psychological traits of the individual, i.e., attitudes, role socialization, personality. An exception to this trend is Eman and Meyers' (1978) investigation of sex identity and language use from the symbolic interaction perspective.

Purpose of this Research

This paper is a progress report on a multi-stage investigation to examine the verbal and nonverbal patterns of dominance in sex-type male, sex-type female and androgynous dyads. In its initial design, they study represents a departure from previous research on sex differences in four ways: 1) it proceeds from a contingency model of communication and focuses on behavioral acts and simultaneous cues as indices of an individual's adaptation to task and to partner in the communicative situation; 2) it manipulates task type such that each subject works with the same partner on two different types of tasks; 3) it manipulates both gender-based and psychologically-based sex, and 4) it attempts, theoretically and empirically, to establish a multi-level definition of dominance based on intermediate concepts which encompass particular clusters of verbal and nonverbal cues.

These goals, however, apply to a multi-stage analysis of the data collected for this investigation rather than to the purposes of this particular paper. This progress report focuses on significant differences in nonverbal and verbal acts for psychological sex, gender, dyad, and task.

In this paper we examine cues as discrete behavioral units. The particular research questions which guide this report are:

1. What verbal and nonverbal indices of dominance distinguish sex-type males, sex-type females and androgynous individuals during their interaction on a masculine and on a feminine task?

2. What is the effect of dyad or partner assignment on the types of dominance cues enacted during the two tasks?

3. What is the effect of gender of subject on the types of dominance behaviors used while interacting on the two tasks?

The Dominance-Submissiveness Literature--Patterns in Male and Female Communication

As a communication concept, dominance is a multi-faceted variable. Conceptual definitions of this term range from control, superiority, status, assymetric influence, manipulation of others, leadership behaviors, intimidation, competitiveness (See Maccoby and Jacklin, 1974; Argyle, 1970; Henley, 1977; Knotts and Drost, 1969). Moreover, the tendency to confound dominance as a personality trait with dominant behaviors, and with motives for exhibiting these behaviors further complicates the task of developing a framework for the study of this construct.

In the literature on sex differences in communication, dominance is treated as a dimension of communicator style (Norton and Warnick, 1976), as a critical factor in relationship definition (Millar and Rogers, 1976; Ellis, 1976), as a personality trait which affects floor holding and interruption behavior (Rogers and Jones, 1975), as a personality variable which affects leadership and group satisfaction (Verby, 1975; Rosenfeld and Fowler, 1976; Megargee, 1969; Bartol, 1974), as behaviors which control the interaction process (Markel, Long and Saine, 1976), as opinion leaders and influential sources (Richmond and McCroskey, 1975), and as linquistic patterns, syntactic structures, and nonverbal cues which reflect social status and the exercise of power (Wood, 1966; Henley and Thorne; 1977; Bernard, 1973).

This investigation centers on the communicative behaviors which dominate or control the interaction process. As such, it focuses on three categories which subsume behavioral indices of dominance: 1) controlling behaviors, 2) certainty behaviors, and superiority-high status cues and on three categories of submissiveness: 1) deference responses, 2) indecisiveness and insecurity responses, and 3) approval-seeking behaviors.

Although the six categories encompass a number of verbal and nonverbal cues, the behaviors discussed in this review are those which researchers frequently report as determinants of dominance and as discriminators between male and female dominant behaviors. These six categories provide a conceptual classification system for examining dominant behaviors; that is, they function as intermediate-level concepts which link molecular behaviors to a more abstract construct. The categories, however, are not necessarily discrete.

DOMINANCE

Control Behaviors. Control refers to the communicative behaviors which restrict the type, direction, frequency, and amount of participation of the other person. Length of speaking, frequency of speaking, and number of successful interruptions are three cues which researchers traditionally associate with dominance. In addition, these cues differentiate between masculine and feminine behaviors. Melzer, Morris, Hayes (1972) treat interruptions as acts of dominance. A preponderance of research supports the contention that men speak more often and at greater length than women do (Hilpert, Kramer, and Clark, 1975; Hirschman, 1973; Baird, 1976; Aries, 1977)

In contrast, other investigations report that females employ longer talk turns than do males and that interruptions and frequency of interaction are not significantly linked to sex differences (Markel, et. al., 1976; Rogers and Jones, 1975; and Mabry, 1976).

Certainty Responses. Male communication syles, as some researchers observe, depict an air of certainty and self-confidence. Males use more absolute verbs, more swear words, declarative sentences and exclamatory expressions than do females (Miller and Swift, 1977; Gilley and Summers, 1970); males speak in loud, low-pitched voices which carries more authority than the high-pitched tones of females (Hennessee, 1974); males stare into the eyes of others when they argue for an idea (Exline, 1965; Henley, 1977), and males reinforce their verbal firmness by using pointing, closed fist, and chopping gestures (Peterson, 1975; Henley and Thorne, 1977).

Superiority -- High Status Behaviors. Cues which convey an air of superiority and high status are frequently perceived as dominant behaviors. In particular, control of greater territory and personal space are associated with dominance and high status for both primates and human beings. Similarly, open body positions and widespread gestures consume more territory and connote high status. Just as superiors convey status with their body position, they reinforce this comfort and security by gazing away from the speaker, by feeling free to invade another's territory, and by initiating touch.

Men signal their superiority and status over females by their control of more spacial territory; by their tendency to approach females closer in physical distance than they do males, by their use of expansive gestures and chin stroking as self-adaptors; by a relaxed open body posture; and by their habit of touching females more than females touch males (Mehrabian, 1972; Fisher and Byrne, 1975). Also, men are more likely than women to express superiority through verbal teasing, joking and one upsmanship games (Kramer, 1974; Hirschman, 1973).

SUBMISSIVENESS

Another problem with research on sex differences and dominance is a tendency to treat submissiveness as the antithesis of dominance. Thus, when

women engage in approval seeking, researchers judge this pattern as a submissive behavior because it is a compliant act rather than an attempt to dominate the interaction. We contend that dominant behaviors and submissive responses are not dichotomous acts nor are they bi-polar opposites. Yet, since the literature treats them as opposites, we decided to include submissive verbal and nonverbal cues into the scope of this study.

Deference Behaviors. Women tend to defer interaction by ceasing talk when men interrupt (Henley and Thorne, 1977), by using more questions and more tag questions than men do (Siegler and Siegler, 1976; McMillian, et. al., 1977) by elaborating on the utteranaces of others rather than initiating new ideas (Eakins and Eakins, 1978), and by yielding space when men invade their territory (Evans and Howard, 1973).

Indecisive and Insecure Response. Language patterns of women support the belief that women hesitate, apologize and disparage their own statements more than men do (Henley and Thorne, 1977). Moreover, women convey a linquistic style of indecisiveness through the use of qualifiers, incomplete sentences, hyperboles, and disjointed syntactic links between ideas (Lakoff, 1973; Kramer, 1974). Research also shows that verbal patterns of uncertainty are reinforced by nonverbal indices of insecurity, e.g., eye aversion, increased reliance on such adaptive cues as touching clothing, fidgeting with hands, and stroking hair. These adaptive behaviors differ from the more dominant chin stroking and foot movements used more frequently by men (Eakins and Eakins, Henley, 1977).

Approval Seeking Behaviors. Cues which express positive attitudes, e.g. smiling, eye contact while listening, back channels and head nods are associated with female behavior. Research on sex differences in approval seeking cues generally supports these sex stereotype assumptions (Rosenfeld, 1966). Efran and Broughton (1966) demonstrate that people seek more eye contact from those whom

they want approval. Thus, when women look at the speaker more often and for longer periods than men do, researchers conclude that this behavior is an approval seeking as well as a feedback monitoring gesture (Libby, 1970; Exline, Gray and Schuette, 1965).

Henley and Thorne (1977) refer to the smile as the woman's badge of appeasement. The smile, they contend, is a requirement of a woman's social position and a gesture of submission and inequality. Women tend to smile more frequently than men when they greet an opposite sex person, when they converse with acquaintances, and when they are seeking approval from another person (Silveira, 1972; Rosenfeld, 1966). In like manner, women laugh more frequently and harder than men do and use more gesticulations in approval seeking situations than do their male counterparts. (Rosenfeld, 1966; Coser, 1960)

The evidence on head nods and on back channels, the verbal equivalence of head nods, is less conclusive. Holstein, et.al. (1971) report that males use more positive head nods than females do, but females employ more eye contact. Although both sexes use back channels to stroke the listener, women employ three times as many "mmhmm" comments as men do. Both sexes use "right,""yeah", "yes" to an equal extent (Hirschman, 1973). Such differences in approval seeking strategies may seem trival but Eakin and Eakin (1978) argue that "right" and "yeah" signal that the listener wants to take a speaking turn while "mmhmm" implies continued listening behavior.

Androgyny

Androgyny is a concept Bem employs to describe individuals who exemplify both masculine and feminine attributes. Prior to the development of Bem's Sex Role Inventory, social scientist treated masculinity-feminity as a bi-polar, unidimensional construct. The BSRI, in contrast, allows respondents to score high on one or both scales and low on one or both scales. Bem reports

that approximately 30% of the 665 subjects included in her normative sample scored high on both scales.

In five predictive validity studies on the instrument, Bem reports that androgynous individuals respond appropriately to both masculine and feminine tasks and readily adapt their behaviors to meet the demands of the situation, while sex-type males and females, subjects who score high on one scale but low on the other, are less flexible and more restrictive in responding to diverse situations.

Recent research on the relationships between communication and androgyny demonstrates that androgyny is a mediating variable in attitude change (Montgomery and Burgoon, 1977); that feminine and androgynous subjects are more nonverbally responsive in a role-taking interview (Bem, 1975); that androgynous females report less communication apprehension than sex-type females (Greenblatt, Hasenauer, and Freimuth, 1977); that androgynous individuals demonstrate higher levels of self-esteem, self-acceptance and acceptance of others than do sex-type and undifferentiated individuals (Eman and Morse, 1977); that androgynous and sex-type males exemplify similar approaches in adapting their language to fit the situation while sex-type females and undifferentiated individuals use feminine language patterns across situations (Eman and Meyers, 1978); and that sex-type males engage in controlling verbal behaviors while sex-type females employ submissive communication strategies (Patton, Jasnoski and Skerchock, 1978).

Prediction

From this review of relevant literature, it is predicted that sex-type males will exhibit more verbal and nonverbal control behaviors, certainty responses, and superiority behaviors than will sex-type females. In contrast, sex-type females will employ more deference behaviors, indecisive-insecure responses, and approval-seeking bahaviors than will sex-type males.

Androgynous subjects will vary their verbal and nonverbal cues to fit the task demands and communication style of their partners.

Procedures

Subjects. The initial subject pool consisted of 423 students from upper division communication classes at Purdue University. Students ranged in age from 19 to 35; 239 of them were males and 183 were females; most of them were single, and majored in one of four occupational fields: agriculture, engineering, business, or communication. Seventy-two subjects from this initial pool completed the experimental tasks.

Methods. In stage one of this experiment, 423 subjects completed the Bem BSRI, a demographic survey and the Rhetorical Sensitivity Scale. Questionnaires were rotated systematically to control for order effects in completing the forms. On the demographic survey, subjects answered questions on age, marital status, major, occupational preference, educational level, supervisory experience, number of brothers, number of sisters, type of family, head of household, position in family, mother's occupation, mother's education and father's education.

In the second stage, thirty-six androgynous subjects (18 males and 18 females) and thirty-six sex-type subjects (18 males and 18 females) were randomly assigned to either a same-sex or an opposite sex dyad within their BSRI category. Hence, the design of the study consisted of six dyad conditions with twenty-four subjects per cell. The six conditions were 1) male, sex-type male dyads; 2) female, sex-type female dyads; 3) cross-sex, sex-type dyads; 4) male androgynous dyads; 5) female androgynous dyads; and 6) cross-sex androgynous dyads.

Subjects interacted for twenty minutes with the same partner on two tasks: a masculine conversation task for ten minutes and a feminine one for ten minutes. The tasks represented sex-stereotypic conversational topics. (Henley and Thorne, 1977; Aries, 1977). In the masculine task, subjects planned a

a rescue mission for a military brigade and in the feminine task, subjects discussed a melodramatic, emotionally-ladden problem between Alice and her best friend. In effect, the masculine task was an instrumental problem while the feminine one was linked to expressive rather than strategic outcomes. Half of the dyads within each of the six conditions received the masculine task first while the other half discussed the feminine task first. This procedure attempted to control for possible contamination between first and second order tasks. Subjects were seated at a long table and had limited flexibility in changing spacial arrangements. Interactions were video and audio-recorded.

After subjects completed each task, they filled out the Spielberger, Gorsuch and Lushene (1970) state-based anxiety measure. The twenty-item, self-report scale was designed to measure a person's degree of discomfort at the moment he or she completed an activity.

Data Analysis and Operational Definitions of Cues

Eleven nonverbal and one verbal category were analyzed for this report. The type of cues we selected were illustrative of the conceptual levels of dominance-submission employed in the design of this study. For this paper we concentrated on nonverbal rather than verbal cues and we excluded any cues which we felt would not occur within the spacial and time parameters of a laboratory study.

List one presents operational definitions for each set of nonverbal behaviors and for sub-sets within broad headings of cues. We decided to undertake an in-depth analysis of specific gestures, adaptors and back channels rather than focus on these cues as broad categories. The nonverbal cues examined in this study fit into the conceptual levels of dominance-submission in the following manner:

Dominance

1. Control of interaction--more speaker turns; greater average duration of talk time; more successful interruptions, and greater frequency of "yeah" and "right" back channels;

2. Certainty -- longer average duration of eye gaze while speaking, more pointing and side-hand, chopping gestures; and

3. Superiority -- open body position, more sweeping gestures, more chin stroking self-adaptive behaviors, more backward leaning, and a lower frequency and average duration of eye gaze while listening.

Submissiveness

1. Deference -- more tag questions, more unsuccessful interruptions, and more palms-up gestures;

2. Indecisiveness and Insecure Responses -- more qualifiers, more touching clothing, stroking hair and fidgeting with fingers and hands as adaptive movements, closed body position, and more apology or disparaging remarks;

3. Approval Seeking Behaviors -- more smiling, laughing, head nods, use of "mmhmm" back channels, greater frequency and duration of eye contact while listening, and greater frequency of eye contact while speaking.

Sixteen independent trained coders viewed the first five minutes of videotaped interactions for each task and coded behavioral acts for twelve dyads. The overall context unit of analysis for each task was 300 seconds; each act represented a minimum one second unit of analysis. Each coder focused on only one subject in the dyad and on a maximum of two nonverbal categories; hence after the training sessions, coders scored their assigned nonverbal cues with generally high reliabilities. Table 1 summarizes average percentages for general frequencies and for Scott's pi reliabilities in each of the eight nonverbal categories. The average Scott's pi reliability across the eight clusters was 84.8%. Coders used an event recorder to record frequency and duration of speaking turn, eye gaze while speaking, eye gaze while listening, smiling, and laughing; frequencies for the other cues were recorded on code sheets developed by the experimenters.

Duration and frequency of observations were cast into 26 univariate 2 X 2 X 2 ANOVAs to test for task, gender and psychological sex differences. Each dependent measure was further examined in 2 X 6 ANOVAs to test for differences in cross-sex versus same sex dyads across tasks. Since this was an exploratory analysis with only two dyads per cell, alpha was set at $p < .10$ for all tests. If a significant F was obtained, a Multiple Classification Analysis (MCA) was used to examine differences in cell means in terms of adjusted deviations from the grand mean and the amount of variation in the dependent variable which was accounted for by the additive effects of the independent variable (Andrews, Morgan, Sonquist and Klem, 1973; Winer, 1971).

Results

Psychological Sex. Of the 423 subjects who took the BSRI, only 30 of them fell into the sex-type female category, 90 were sex-type males, 104 were androgynous, 100 were near masculine and near feminine, who fell between t ratios of the two categories, and 99 were undifferentiated in that they scored below the medians for both feminine and masculine attributes. Subjects were categorized first on the basis of median scores for masculinity and femininity and then further differentiated by a t ratio scoring procedure (See Bem, 1974; Watson, 1977). Chi-square tables were employed to determine significant differences between categories of psychological sex and responses on the fourteen demographic items. Only two of the demographic variables were significantly associated with psychological sex. Table 2 summarizes cell frequencies and column totals for a 8 X 5 matrix with a significant interaction between psychological sex and academic major ($X^2 = 51.73$, df = 28, $p < .05$) and Table 3 presents the statistics for a 2 X 5 matrix with a significant interaction between psychological sex and supervisory experience $X^2 = 15.34$, df = 6, $p < .01$).

Though we did not partition the chi-square tables to check for differences between the cells, cell frequencies suggested that androgynous subjects majored in communication and in business while sex-type males selected agriculture and engineering specialties. Furthermore, more androgynous subjects and more sex-type males had supervisory experience than did sex-type females; however these assumptions need further investigation.

Behavioral Acts. A condescription on the frequencies of the thirty discrete behavioral acts was employed to determine if some cues, due to small frequencies, should be eliminated from further analysis. Since four variables, sweeping gestures, side-hand gestures, tag questions, and apology remarks, had frequency counts less than 10, we decided to exclude them from additional analysis. This deletion left 3683 total acts for 26 variables across twelve dyads.

Half of these acts (1803) stemmed from three cues: turn time, eye gaze while listening and eye gaze while speaking. Table 5 summarizes the number of acts for each cue, the average duration of talk time and eye gaze, source of variance, sum of squares, f ratio, and p values for each variable. There were only a few significant interaction effects between task, gender and psychological sex; hence with the exception of two variables, only main effects are reported in the table.

Dominance. Two of the cues initially categorized as dominant behaviors were eliminated from further analysis because of small cell size. Of the remaining eight cues, six demonstrated significant differences on either task, gender, or psychological sex and three demonstrated significant effects on two of these independent variables. Task differences were observed on three variables, gender differences on three variables and psychological sex differences of three variables. The control dimension

of dominance accounted for five of the nine significant differences on the independent variables.

Submissiveness. Significant differences were observed on 11 types of submissive behaviors--six were gender differences, two were task differences, and three were related to psychological sex. An apparent difference between the dominance and the submissive cues was a concentration on gender-based differences. On some cues females and males were consistent in behaviors regardless of psychological sex, while on others psychological sex mediated gender effects.

Specific Findings and Discussion of Results

The overall purpose of this study was to determine if the nonverbal patterns of dominance and submissiveness differ for distinct tasks, for psychological sex, and for gender. One way to pursue this goal is to examine the specific findings of this research in terms of the categories of dominant and submissive behaviors.

Control. Three of the four cues in this category yielded significant differences on at least one independent variable. As was predicted, sex-type male dyads exhibited greater frequency of speaking turn than did sex-type female and androgynous dyads. The difference between sex-type male and sex-type female dyads, however, was minimal (Sex M. = .56, Sex F - .06). The greatest difference among deviation means for the six conditions was between mixed sex-type dyads and androgynous female dyads. (MixSex = 5.56; Andro. F = -3.56) Since males had more overall talk turns than females, it was assumed that sex-type males contributed to this substantial difference in frequency of turn time in mixed-sex groups.

Moreover, subjects took significantly more talk turns on the masculine than on the feminine task. This pattern was reversed for duration of talk time. Androgynous subjects spoke for significantly longer time periods

than did sex-type subjects and androgynous female dyads spoke longer than mixed or androgynous male dyads. Also, subjects spoke significantly longer on the feminine than on the masculine task.

These differences do not fit the traditional predictions that males speak more frequently and for longer utterances than females nor do they lend blanket support to the prediction that sex-type males will control interaction through frequency and duration of talk. Instead, they present evidence for linking sex-role communicative behaviors to dyad partners and to task situation. Sex-type males tend to speak more frequently on masculine topics with sex-type female partners, while androgynous subjects speak for longer time periods on feminine tasks. Although two-way and three-way interaction effects between independent variables were not significant, task main effects contributed to the variability of the dependent measure.

This study found no significant differences for task, gender, or psychological sex on the number of successful interruptions. But there were gender and psychological sex gender interactions in the use of "right" "yeah" back channels. Androgynous male dyads employed more of these one-word back channels than any other dyad (Ando. M = 5.42, Mix Sex = 1.54, Andro F = -1.46, Sex M = -1.58, Sex F = -2.58). Sex-type females and androgynous females were similar in their infrequent usage of these one-word back channels. It was difficult to determine in this analysis if back channel "yeah" responses functioned as signals for turn exchange or if they served as approval gestures. Further analysis on the sequencing and simultaneity of cues was needed to determine if this cue aided in control of the interaction.

Certainty. Both certainty cues included in this study produced significant differences on main effects. For the first cue, androgynous females exhibited longer duration of eye contact while speaking that did the other

participants. This pattern contributed to a slight overall effect for gender and psychological sex. Sex-type females clustered with androgynous and sex-type males in less duration of eye gaze while speaking.

The second cue, use of pointing gestures, revealed task but not sex differences. Subjects tended to point more when discussing the masculine than the feminine task. This finding was not altogether surprising since the masculine task called for plotting strategies and identifying the location of military troops, we would expect more pointing behavior on this type of task.

Superiority. In this category backward leaning and body position showed gender-linked differences. However, neither sex nor task dimension affected the use of chin stroking as a self-adaptive behavior. On the other two cues, males displayed significantly more leaning backward behavior and a greater frequency of open body positions than did females (See Table 3). These effects were independent of psychological sex, dyad and task. Both findings reaffirmed previous research that showed males conveying high status and superiority behaviors through relaxed, open body position, through the tendency to command more personal space, and through a freedom to deviate from attentive, interpersonal liking cues (Merabian, 1972).

Submissiveness

Deference. Neither of the two cues characterized as deference behaviors were significantly different across task, gender, and psex. Perhaps unsuccessful interruptions and palms up gestures were not representative of deference behaviors or that gender and psychological sex categories do not differ on deference behaviors.

Indecisiveness and Insecurity Responses. It was predicted that sex-type females would use more submissive responses than would sex-type male or androgynous subjects. Again, these general predictions proved insufficient in explaining the subtleties of behavior. On the verbal cue included in this analysis, we found task but not sex differences. Subjects employed more qualifiers on the feminine than on the masculine task (F Task = .92, M Task = -.92) This finding contradicted previous research which noted that women used more qualifiers to soften the impact of their message and to establish less absolute tones (Eakins and Eakins, 1978). In this study, subjects employed provisional phrases in adapting to an emotional, moralistic task and did not use this linguistic pattern while conversing on an instrumental task.

For the self-adaptive behaviors, sex-type females relied on stroking hair and finger-hand fidgeting while androgynous females released their anxieties through handling objects and through some fidgeting. Moreover, sex-type females stroked hair and fidgeted more than sex-type males did (Sex F = 1.21, Sex M = -.17). Another unexpected finding was that sex-type males exhibited more touching of clothing as self-adaptors than did the other dyads. This behavior was more frequent for cross-sex than for same-sex dyads.

In addition, androgynous males and females differed significantly from sex-type subjects in their handling of inanimate objects as adaptive behaviors (And. = 3.75, Sex T = -1.63). Sex-type males unlike the other dyad conditions, scored high on touching clothing as an adaptive gesture. In effect, the type of self-adaptive behavior a person used was linked to gender and to psychological sex differences but not necessarily to a pattern of submissiveness.

Approval-Seeking Behaviors. All but one of the seven behaviors subsumed in

this category yielded significant differences on at least one independent variable. The one exception was eye duration while listening. But frequency of eye gaze while speaking discriminated on the gender variable and frequency of eye gaze while listening showed differences between subgroups on the psychological sex variable. Males in general but particularly androgynous males used a greater frequency of eye contact while speaking (And. M = 9.14, Sex M = 1.39, And. F = -4.99, Sex F = -3.24). Eye gaze while listening discriminated between sex-type and androgynous categories but not between dyads.

Androgynous men and women employed a greater frequency of eye gaze while listening than did sex-type subjects (And. = 1.52, Sex T = -1.83). Again, these findings contradicted the results of other research (Exline, 1965; Argyle, 1970 in that females did not use a greater frequency of eye gaze that males did. There were significant gender differences on the use of "mmhmm" back channels. As predicted, females displayed a greater frequency of this back channel cue and within gender differences, androgynous females employed more back channel words than did sex-type females (And. F = 2.06, Sex F = .19) For head nods, we found differences on the task variable. Subjects relied on affirmative head nods more frequently when discussing the feminine as opposed to the masculine task (F Task = .87, M Task = -.88).

The smiling and laughing cues produced more significant interaction effects than any other nonverbal behavior. Both cues yielded significant differences on the psychological sex main effect. Androgynous subjects smiled and laughed less frequently than did sex-type participants (And. smile = -.98, Sex T smile = .98, And. laugh = -.67, Sex T laugh = .67) However, main effect conclusions on laughing behavior were mitigated by a significant 3-way interaction effect between task, gender and p sex (.015). In essence, laugh frequency depended on the task, the psychological sex

of the subject and the dyad composition. Gender-based behavior seemed more apparent in cross-sex dyads for both psychological sex types.

Conclusions

Two general conclusions were drawn from the results of this study: 1) male and female subjects did not conform unilaterally to stereotypic gender-based behaviors on the dominance dimension or the submissive one. Although sex-type males took more talk turns and exhibited relaxed, open body positions, they were not consistent across all cues of dominance. In like manner, sex-type females employed stereotypic adaptive behaviors but did not fit the feminine predictions on approval-seeking behaviors.

Secondly, psychological sex and task differences significantly affected the patterns of nonverbal behavior on thirteen or exactly half of the dependent measures (Psex on 7 variables; Task on 6 variables). These findings indicate that psychological sex-type interacts with situational contingencies to influence communicative behaviors.

However, we should take caution in generalizing from these findings because of the small sample size of the dyads and because of the need to use statsitics with repeated measures to control for the effects of individual invariance across cells. In addition, clustering techniques should be used to determine if cue clusters resemble the conceptual model.

The results of this study support the contention that communicative behaviors are too complex for neat predictions of differences between males and females. This investigation underscores the importance of examining male-female communication with a contingency model.

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DURATION - the extent of time that the act occurs; how long this person performs this act.

OPERATIONAL DEFINITION OF BEHAVIORAL ACTS

1. TURN TIME -- the frequency and duration of time a person spends in a talk turn. The act begins when a person obtains the talk turn and ends when a person relinquishes this turn. Interruptions and talk overs are NOT included in this category. Only the talk time when on person clearly has the floor.

2. EYE GAZE WHILE SPEAKING -- the frequency and time spent looking into the eye/head area of the other person while the subject is speaking. This act begins when the subject who has the talk turn moves from a "non-look" position to a "look" position and terminates when 1) the subject looks away from the eye/head area of his/her partner or 2) when the subject stops talking and starts listening.

3. EYE GAZE WHILE LISTENING -- the frequency and time spent looking into the eye/head area of the other person while the subject is listening. This act begins when the subject who is listening to the partner talk moves his/her eyes from a "non-look" to a "look" position and terminates when 1) the subject looks away from the eye/head area of the partner or 2) when the subject stops listening and begins talking.

4. SMILING FREQUENCY -- the number of times the subject changes mouth movement to an obvious smile. Coders should record only obvious upturned mouth positions and exclude hard-to-distinguish grins. Both smiling while talking and smiling while listening should be included in the analysis, but do NOT including laughing as a smile category. The laugh facial response is coded in another category. This act begins when a subject turns the corners of the mouth upward and ends with the person changing from a smile to another mouth position.

5. HEAD NOD -- the frequency that a subject moves his/her head in a clearly perceptible forward-backward motion while the other person is speaking. This movement would suggest a head nod of affirmation, not a random movement. This act begins when the subject initiates an up and down head movement and ends when this motion stops. Thus, a continuing sequence of several nods is counted as one entry. Heas movements to the side or a turned down head should NOT be coded in this category.

6. LAUGHING -- a vocal chuckle while a person is speaking or listening. This act begins and ends when a person either interrupts his own talk to chuckle or laugh or when a person laughs at the comments of the other individual. This laugh should be a discernable chuckle or giggle.

7. INTERRUPTION -- the number of times a person interrupts the other person who is speaking. This act begins and ends when a person who does not have the floor starts a contribution while the other person is still talking or whenever the two people talk simultaneously. Back channel phrases such as "yeah," "unhum," and "I agree" are NOT coded as interruptions. As interruption must reflect a person's attempt to gain the talk turn. This category should be coded in one of two areas:

   A. Successful Interruption -- an interruption which results in a switch in speaker turn. The person who interrupts obtains the floor.

   B. Unsuccessful Interruption -- an interruption which results in the speaker retaining the talk turn. In effect, the speaker talks over the interruption and continues his/her talk turn.

8. BACK CHANNELS -- the number of one word comments while a person is talking. Back channels are words like "Yes," "Yeah," "Right," "unhumm," "I agree" emitted while the other person is talking. This act begins and ends when the short phrase is emitted. Phrases longer than one or two words are NOT coded in this category.

9. BODY LEANING

   A. Forward Lean -- number of time the subject leans forward about 10 degrees so that the shoulders form a vertical line of this angle with the hips. Subject must hold this position for at least 30 seconds.

   B. Backward Lean -- number of time the subject leans backward about 10 degrees in a slight reclining angle. Subject must hold this position for 30 seconds.

   C. Rocking Movement -- number of times the subject changes his/her angle forward and backward in short cyclical movements. One complete cycle of forward-backward-forward constitutes an act in this category. If subject continues a forward-backward-forward movement, you should record a mark for the number of cycles that the subject exhibits.

10. BODY POSITION

   A. Body Openness -- the extent that the torso and legs of the body are spread out or open. Torso is either leaning back with arms at side (spread out) or the legs of body are spread apart (not crossed at knees). Open leg positions are 1) one leg resting on one knee, 2) legs apart, 3) legs outstretched and crossed at ankles. The body is regarded as open if either the torso or the leg region seem spread out -- not necessarily both. If effect, the body must seem loose and open.

   B. Body Closedness -- the extent to which limbs of the body are close to the torso. Arms crossed in front of chest or locked tightly to body and legs crossed at knees or tucked under chair are examples of closed body positions. The closed body seems tight and restrained.

For this category, we are asking you to make a judgement at the end of the scene as to whether this person was in an open or closed position for the major portion of the interaction. We have asked you to put an X in the row which corresponds to a description of your judgment.

11. SELF-ADAPTORS -- the frequency and duration of movements in which the hands are used to touch or manipulate clothing, hair, foreign objects, accessories, or other parts of the body. This act begins when a subject touches self or objects in one of the six categories and ends when he/she no longer continues this touching. Thus, when a subject moves from touching his hair to stroking his chin, this movement is coded first as hair stroke then as a chin stroke.

If a self-adaptive movement does not fit into any of the touching areas specified in categories 1 - 5, it should be coded in the Other slot. All touching self or touching object movements for each subject should be coded.

A. Stroking chin -- hand movements to chin. Up and down movement of hand on chin or lower side of face constitutes a chin stroking. Any slight movement of hand on chin or side of face fails into this category.

B. Stroking, touching or twisting hair -- any movement of hand to hair or upper head. Scratching scalp counts as a hair touch as well as preening the hair.

C. Touching clothing -- pulling on jacket, rubbing hands against clothing, pulling on shirt or sweater sleeves fails into this category. Any touching, smoothing, twisting or rubbing which incolces hand contact with clothing should be coded in this category.

D. Handling inanimate objects -- hand movements which involve inanimate objects such as twisting a pen; picking up a piece of paper, picking up purse, twisting rings on one's fingers, playing with eyeglasses or jewelry, tapping on the table, etc.

E. Finger and hand touches -- any movement where one hand is touching the fingers or the back, palm, or side of the other hand. For example, tapping fingers together, popping knuckles, rotating one hand inside the other, tapping fingers on the back of the other hand, etc.

F. Other -- Any touching of self or object movements which do not fit into the above categories should be coded in this category.

12. GESTURES -- any arm or hand movements which do not involve touching self or heandling objects. Gestures are usually considered illustrators of ideas or feelings and will be used while the subject is talking. Adaptors can be used while the subject is listening as well as speaking. Code the frequency that a subject uses gestures by placing a mark in one of the following five categories: (Code all gesture movements in one of the five categories. If a movement does not fit into the first four categories, put into the category designated as OTHER.)

A. Pointing -- a hand movement characterized by extending the index finger while keeping the other fingers curled inside the palm. The index finger can be curled or straight, but it must be extended.

B. Sweeping Gesture -- a broad movement of the arm while illustrating an idea. A sweeping gesture must result from lifting the arm up and sweeping it across space. Gestures which come from the elbow are NOT sweeping gestures.

C. Palms up Gestures -- any movement of the hand in a palm up position should be coded into this category. In this gesture, the palm is visible to the camera while the back of the hand faces downward or toward the subject.

D. Side-Hand Gestures -- a hand movement with the back of the hand facing the camera and the palm facing the subject. This gesture is made with the hand turned on its side rather than on its back. Side hand gestures are frequently linked with a chopping or up and down movement of the hand.

E. Other -- any movement of the hands are arms which do not fit into the above categories should be coded Other.

13. VERBAL CUES

A. Tag Questions -- the number of times a subject uses a declarative statement with a question tacked on at the end.

Examples: "The men are near the dwelling, aren't they?"
"Susan is Alice's cousin, isn't she?"
"This is quite a problem, isn't it?"

B. Apology or Disparaging Remarks -- making indirect apologies to the partner or indirect comments which point to the subject's feelings of inadequacy. Examples: "I don't know much about military strategy," "I wish I were better at these type of tasks," "Sorry, I don't have much to say, but I don't feel qualified to comment." "I'm glad we didn't have to work in groups. I feel uncomfortable in groups." "I really ger nervous in these experiments."

C. Qualifiers -- any use of words or phrases which reduce the intensity or force of the subject's ideas or opinions. Words such as sometimes, usually, in most cases, perhaps, possibly, I think, I suppose, tends to, it seems to me, let's see, I guess.

TABLE 1

Reliabilities for Coders

Type of Cue	Number of Coders	Average Percentage of Coder Pairs	Average Scott's Pi
Interruption and Back Channel	6	89.3%	86.9%
Body Leaning and Body Position	4	96.5%	94.7%
Eye Gaze while Speaking and Listening	5	87.6%	74.7%
Head Nods	2	80%	74.3%
Turn Time	4	94.7%	92.5%
Smiling and Laughing	4	89.7%	87.2%
Verbal Cues	2	88.1%	82.1%
Gestures and Adaptors	2	90.6%	87%
		Average Percentage 89.6%	Average Scott's Pi 84.8%

Table 2

Chi-Square Analysis of Androgyny and Academic Major

Academic Major	Categories of Psychological Sex					N
	Sex-Type Female	Sex-Type Male	Androgynous	Middle Scores	Undifferentiated	
Agriculture	2 (2.5)	26 (32.1)	20 (24.7)	14 (17.3)	18 (23.5)	81
Engineering	3 (4.3)	19 (27.5)	13 (18.8)	12 (17.4)	22 (31.9)	69
Education	1 (6.7)	2 (13.3)	3 (20.0)	3 (20.0)	6 (40.0)	15
Business	4 (5.2)	12 (15.6)	22 (28.6)	22 (28.6)	17 (22.1)	77
Medicine	6 (18.8)	7 (21.9)	5 (15.6)	9 (28.1)	5 (15.6)	32
Communication	7 (23.3)	14 (16.1)	28 (32.2)	23 (26.4)	15 (17.2)	87
Consumer Sciences	5 (14.7)	3 (8.8)	9 (26.5)	10 (29.4)	7 (20.6)	34
Undecided, Other	1 (4.3)	7 (20.4)	3 (13.0)	6 (26.0)	7 (30.4)	23
Total	29	90	103	99	97	418

$x^2 = 51.73$
df = 28
$p < .015$

Table 3

Chi-Square Analysis of Androgyny and Supervisory Experience

Supervisory Experience	Categories of Psychological Sex: Sex-Type Female	Sex-Type Male	Androgynous	Middle Scores	Undifferentiated	N
Yes	14 (5.2)	70 (25.8)	65 (24.0)	64 (23.2)	59 (21.8)	271
No	16 (10.7)	20 (13.3)	38 (25.3)	37 (24.7)	39 (26.0)	150
Total	30	90	103	100	99	422

$x^2 = 15.34$
df = 6
P < .01

Table 4

Chi-Square Analysis of Body Position and Gender

Body Position	Gender: Males	Gender: Females	N
Open	23 (74.2)	8 (25.8)	31
Closed	1 (5.9)	16 (94.1)	17
Total	24	24	48

$X^2 = 17.85$
df = 1
$p < .001$

Table 5

THREE-WAY ANOVA

Verbal/NonVerbal Cue By Task, Gender, Psychological Sex

Category and Cue Type	Number of Acts	Source of** Variation	df	Sum of*** Squares	F Ratio	Obtained p value
Control		Main Effects				
1. Frequency of Turn Time	669	Task	1	72.52	3.43	.071
		Gender	1	25.52	1.2	.278
		P Sex	1	204.19	9.67	.003*
2. Duration of Turn Time	M = 8.43	Task	1	47.10	2.71	.108*
		Gender	1	13.49	.78	.384
		P Sex	1	301.85	17.37	.001*
3. Successful Interruptions	63	Task	1	.52	.14	.709
		Gender	1	2.52	.68	.413
		P Sex	1	3.52	.96	.334
4. Back Channel "yeah," "right"	220	Task	1	4.08	.17	.681
		Gender	1	70.08	2.94	.094*
		P Sex	1	36.75	1.51	.222
Certainty						
1. Duration of Eye Gaze While Speaking	M = 2.22	Task	1	1.48	1.28	.265
		Gender	1	5.83	5.06	.031*
		P Sex	1	3.20	2.78	.104*
2. Gestures-Pointing	19	Task	1	1.69	3.00	.091*
		Gender	1	.19	.33	.567
		P Sex	1	.02	.03	.848
Superiority						
1. Adaptors-Chin Stroking	77	Task	1	11.02	2.29	.138
		Gender	1	2.52	.53	.473
		P Sex	1	.52	.11	.744
2. Backward Leaning	68	Task	1	4.08	1.57	.217
		Gender	1	18.75	7.21	.010*
		P Sex	1	.33	.13	.722

Deference						
1. Unsuccessful Interruptions	39	Task	1	5.21	.47	.499
		Gender	1	.19	.17	.685
		P Sex	1	.19	.17	.685
2. Gesture-- Palms Up	62	Task	1	.75	.14	.712
		Gender	1	1.33	.25	.623
		P Sex	1	5.33	.98	.327
Indecisiveness and Insecurity Responses						
1. Qualifiers	260	Task	1	40.33	3.30	.077*
		Gender	1	.75	.06	.806
		Sex	1	14.08	1.15	.290
2. Adaptors-Touching Clothing	43	Task	1	.19	.09	.766
		Gender	1	6.02	2.87	.098*
		Sex	1	2.52	1.20	.279
3. Adaptors-Touching and Stroking Hair	68	Task	1	.33	.14	.714
		Gender	1	12.00	4.90	.033*
		P Sex	1	.75	.31	.583
4. Adaptors-Touching Fingers and Hands	50	Task	1	2.08	.52	.475
		Gender	1	14.08	3.52	.068*
		P Sex	1	.08	.02	.886
Approval-Seeking Behaviors						
1. Smiling	197	Task	1	28.52	2.57	.117
		Gender	1	28.52	2.57	.117
		P Sex	1	46.02	4.15	.048*
		3-way interaction	1	22.69	2.15	.160
2. Laughing	104	Task	1	10.08	2.41	.128
		Gender	1	10.08	2.41	.128
		P Sex	1	21.33	5.11	.029*
		2-way interactions				
		Task by P Sex	1	18.75	4.49	.040*
		Gender by P Sex	1	30.08	7.21	.001*

Category and Cue Type	Number of Acts	Source of** Variation	df	Sum of*** Squares	F Ratio	Obtained p value
		3-way interactions Task, Gender, Psex	1	27.00	6.47	.015*
3. Frequency Eye Gaze While Listening	538	Task	1	.82	.02	.893
		Gender	1	80.58	1.82	.186
		P Sex	1	121.34	2.74	.106*
4. Duration Eye Gaze While Listening	M = 2.96	Task	1	.36	.13	.725
		Gender	1	1.76	.62	.435
		P Sex	1	2.18	.77	.385
5. Frequency Eye Gaze While Speaking	566	Task	1	26.27	.31	.582
		Gender	1	456.30	5.37	.026*
		P Sex	1	30.00	.35	.556
6. Back Channels-"ummhumm"	93	Task	1	.52	.15	.706
		Gender	1	38.52	10.69	.002*
		P Sex	1	.52	.15	.706
7. Head Nods	182	Task	1	36.75	2.97	.092*
		Gender	1	16.33	1.32	.257
		P Sex	1	6.75	.55	.464
Other Cues						
1. Adaptors-Handling Inanimate Objects	162	Task	1	.33	.04	.843
		Gender	1	14.08	1.69	.202
		P Sex	1	48.00	5.74	.021*
2. Gestures-Others	56	Task	1	2.08	.54	.464
		Gender	1	1.33	.35	.557
		P Sex	1	3.00	.79	.380
3. Adaptors-Others	47	Task	1	.52	.09	.760
		Gender	1	1.68	.31	.583
		P Sex	1	7.52	1.37	.249

*Acceptance of p value was set a $p < .10$.

**Only main effects were reported for every dependent variable. Interaction effects were included if they obtained p values below .15.

***Means squared for each main effect were identical with sum of squares, hence these values were excluded from the table.