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ABSTRACT

A study investigated the vocal intensity of interviewers and the gender of interviewees to test a speech accommodation theory of behavioral reactions to speech style, while simultaneously determining whether previous research is corroborated in the context of the employment interview. Multiple discriminant analysis of 34 interviews (13 males and 21 females in an undergraduate interviewing class) revealed some support for a number of sex-role expectations regarding differences in vocal pauses, body adapters, body lean, seating distance, response latencies, gestures, turn-yielding head nods, and vocal intensity. No support was found for the hypothesis based on speech accommodation theory. (Contains 26 references.) (Author/RS)

The Impact of Vocal Intensity and Gender on the Nonverbal Communication of Employment Interviewees

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Abstract

In this experimental study, the vocal intensity of an interviewer and the gender of interviewees were investigated for the purpose of testing a speech accomodation theory of behavioral reactions to speech style, while simultaneously determining whether previous research on gender differences in nonverbal communication are corroborated in the context of the employment interview. Multiple discriminant analysis of 34 interviews (13 males and 21 females) revealed some support for a number of sex-role expectations regarding differ ences in: vocal pauses, body adaptors, body lean, seating distance, response latencies, gestures, turn-yielding head nods, and vocal intensity. No support was found for the hypothesis based on speech accomodation theory.

Key Concepts: Nonverbal communication, Employment interview, vocal intensity, gender, speech accomodation theory

The Impact of Vocal Intensity and Gender on the Nonverbal Communication of Employment Interviewees

One of the most important dyadic contexts in which people express themselves is the employment interview. A great deal of empirical research in recent years has substantiated the crucial impact of various nonverbal behaviorson the outcome of this interview (e.g., McGovern, & Tinsley, 1978; Gifford, Ng, & Wilkinson, 1985). By and large, the data on initial impressions, for example, document the significance of eye contact, facial expression, vocal animation, posture, and an array of other behaviors indicative of immediacy, assertiveness, and enthusiasm, as determinants of interviewer judgments and hiring decisions (Leathers, 1986).

The purpose of this study was to examine, simultaneously, the behavioral effects of an interviewer's vocal intensity (speech volume) and an interviewee's gender, on the nonverbal communication of interviewees. Our theoretical approach stems from a number of expectations associated with speech accomodation theory and sex-role theory respectively. Despite the absence of theory and research on responses to vocal intensity, the "loudness" of someone's speech certainly constitutes one of the more salient nonverbal speech behaviors.

Most of the theorizing in the nonverbal literature has focused on responses to various signs of intimacy (e.g., eye contact, distance, touch, body orientation, topic shifts, etc.). Vocal intensity, on the other hand, although suggestive of interactional involvement, seems most clearly to represent a sign of relational power or status in a given interaction (Andersen & Bowman, 1990). Our interest in gender reflects the possibility that nonverbal reactions to the vocal intensity of an interviewer may depend upon whether the interviewee is male or female.

Review of the Literature

Nonverbal Reactions to Vocal Intensity

The employment interview offers researchers an excellent context in which to study the role of nonverbal communication in the process of mutual influence. Because employment interviewers are responsible for evaluating, as objectively as possible, the oral performance of job applicants, they need to be especially cognizant of how their behavior may influence the behavior they evaluate; otherwise, observed differences in applicant performance may be due more to differences in interviewer behavior than to differences in applicant motivation, enthusiasm, or level of confidence.

Since Argyle and Dean (1965) sought to explain, in their equilibrium model, how interactants respond to increased levels of nonverbal affiliative behavior, a research tradition has evolved to the point where Patterson (1984) was able to compile a bibliography of more than 500 articles during the period 1965-1982 dealing with this topic. Despite this wealth of information about nonverbal "immediacy" behaviors, defined by Mehrabian (1969) as "the extent to which communication behaviors enhance closeness to and nonverbal intervention with another" (p. 203), identifying the nonverbal behaviors which belong to this domain is problematic (most often the list includes distance, body orientation, touch, lean, and gaze--reflecting an approach-avoidance metaphor). An alternative nonverbal domain, referred to as "involvement" behaviors (Patterson, 1983; Capella, 1983), is considerably more inclusive. In addition to the various immediacy behaviors, signs of involvement include: gestures, head nods, facial expressiveness, speech duration, interruptions, speech rate, vocal pitch and intensity.

Numerous theories and models have been proposed to explain how people react to increases and decreases in the nonverbal intimacy or involvement behaviors of others (Hale, & Burgoon, 1984; Andersen, & Andersen, 1984). Unfortunately, these efforts do not generate propositions that can adequately account for an individual's behavioral reactions to the nonverbal signs of status or power exhibited by another, particularly when recipients interpret such displays as motivated by a desire to exert social influence or highlight status differentials. While there is some agreement on the behaviors belonging to this domain (Andersen, 1989; Remland, 1984; Richmond, McCroskey, & Payne, 1987), whether some predictable response pattern exists has yet to be determined.

Generally, the literature on nonverbal expressions of status or power suggests that relational dominance, as it would be communicated in the context of an interview, would include: physical relaxation (e.g., backward lean), inattention (e.g., gaze aversion, indirect body orientation), spatial invasion (e.g., touch, close distances, vocal intensity), and temporal control (e.g., floor holding, interruptions). Since vocal intensity is aasociated more with power, status, or dominance than with the involvement or immediacy domain of nonverbal communication, our investigation is an attempt to explore how individuals might react to differential levels of vocal intensity and whether such reactions are mediated by gender. Speech accomodation theory (SAT) appears to hold some promise as a means of addressing this question.

Briefly, SAT argues that individuals may strategically adjust their speech styles in accordance with the speech styles of an interactional partner in order to ellicit a desired response (Street & Giles, 1982). These "noncontent" speech behaviors include: vocalization durations, speech rate, vocal pitch, intensity, and pronunciation. Three response patterns have been documented. *Convergence*, a shift toward the partner's speech style, is generally predicted when the individual desires approval from his or her partner; maintenance, not changing one's style, is expected when accompanied by a desire to preserve one's identify or to sustain some degree of distance; *divergence*, shifting away from the speech style of another, is predicted as an expression of avoidance or distancing (although other influences, such as the desire to facilitate an adjustment toward more "appropriate" behavior, are also considered). Recent reviews of this theory show some success in explaining reactions to shifts in speech rate, utterance duration, response latency, pause duration, and interaction length (Burgoon, Buller, & Woodall, 1989).

According to SAT, convergence is likely under certain conditions. Without specifying all of the numerous propositions contained in the reformulation of this theory (Giles et al., 1987), convergence toward the speech style and nonverbal patterns one believes are characteristic of a message recipient is thought to be most likely when the speaker, in part, desires: social approval, communication efficiency, or a self-, couple-, or group-presentation shared by the recipient, and when the behavior isn't in some way socially unacceptable. In contrast, divergence or maintenance of one's speech style is expected when a speaker desires: a distinctive self-image, personal dissociation from the recipient, an encounter in which intergroup or relational identities (marked by valued speech styles) are highlighted, or movement toward more socially acceptable patterns of behavior.

With respect to vocal intensity, specifically, Welkowitz et al., (1972) reported increased similarity in levels of intensity between interactants engaged in conversations when they expected their partner to have a personality similar to their own. Moreover, Natale (1975) found clear evidence of a speaker's convergence toward the vocal intensity of another, both in response to manipulations of a confederate's level of intensity (3 different conditions) and, additionally, as a function of the speaker's score on the Marlow-Crowne Social Desirability Scale; this latter result indicating that a measure of conformity or need for approval is predictive of one's inclination to converge, as would be expected according to SAT.

In the proposed context of an employment interview, the roles of interviewer and interviewee necessarily create differences in status between the interactants which may complicate SAT expectations regarding convergence. The notion of speech complementarity (Giles, 1977, 1980), for instance, maintains that a divergence or maintenance strategy may be used to reinforce a power discrepancy between interactants when such a discrepancy produces a more "comfortable" interaction. That is, a low-status interviewee may not choose to speak louder in response to the increased volume of a high status interviewer (convergence) because of the power implications involved (e.g., the confrontational nature of such a move). On the other hand, a complementary move (or nonmove in the case of maintenance) may be inconsistent with the low status person's desire to accomodate a preferred speech style or to gain the approval of the higher status person. Of course, these different possibilities are complicated even further by the sex-role expectations of the parties involved.

In the next section, we begin by reviewing the likely influence of gender on nonverbal communication in the employment interview. Given SAT's apparent limitations in explaining the potential effect of vocal intensity on the full range of nonverbal behaviors available to an interviewee (with the exception of vocal intensity), we rely heavily on this body of research to generate questions and hypotheses.

Nonverbal Reactions to Vocal Intensity as a Function of Gender

Although it is widely acknowledged that gender plays a significant role in determining the repertoire of nonverbal behaviors available to an individual in most communication contexts (Burgoon, Buller, & Woodall, 1989), the employment interview, as one such context, has received relatively little attention. Given the dramatic increase in recent years in the number of women entering the work force, relative to men, the employment interview is likely to be a significant arena in which both men and women use their respective communication skills to compete for jobs. If we apply the extant research on gender differences in nonverbal communication to the interviewing context, we should expect to observe differences in how males and females "sell themselves" to the interviewer. Specifically, the expressive styles of females have been characterized as more immediate than males, whereas the expressive styles of males are generally regarded as more dominant than females (Henley, & LaFrance, 1984).

Much of the recent research on sex differences in nonverbal communication report variations that appear to be a function of sex-role expectations. Females are expected to be affiliative, supportive, expressive, and submissive, whereas males are taught to be competitive, active, controlling, and nonexpressive (LaFrance, & Mayo, 1979). The behavioral manifestations of these sex-roles are quite numerous. In this section we briefly review some of the findings that suggest sex differences most pertinent to the interviewing context.

The data on gestures generally fail to suggest differences, although some studies have found a higher incidence of illustrators among women than among men (Ickes & Barnes, 1977). In terms of sex-role expectations, one could expect either sex, under certain circumstances, to gesture more frequently. Females might gesture more than males because they are thought to be more expressive; males, on the other hand, might gesture more because they are more proactive and dominant. Since these expectations lead to comparable amounts of gesturing for both sexes, it is not surprising that studies often find no differences (Kennedy, & Camden, 1983). The literature on adaptors is quite limited. Kennedy and Camden (1983) found no differences overall but did observe that women used more self-adaptors (self-touching behaviors) than men, while men tended to use more object-adaptors (touching objects).

Other kinesic behaviors, such as eye contact and facial expression, have received much more attention. One of the most consistfindings is that female dyads engage in more eye contact than male dyads (Burgoon, Buller, & Woodall, 1989) and gaze more at their interaction partner than do males (Richmond, McCroskey, & Payne, 1987). These results are compatible with many of the sex-role expectations regarding the more affiliative, and supportive communication styles of women compared to men. The research on facial expression tends to portray women as more disclosive than men; that they communicate a wider range of emotions via facial expressions (Eakins, & Eakins, 1978; LaFrance, & Mayo, 1979; Henley, & LaFrance, 1984). Finally, in terms of posture, some evidence indicates that females adopt more immediate (e.g., direct body orientation; forward lean) and less relaxed postures than males (Burgoon, Buller, & Woodall, 1989).

A number of investigations have discovered differences in the vocal communication of males and females. Burgoon et al.(1989) report that women, compared to men, speak in a higher pitched voice, with more tonal variety, vocal intensity, and for longer periods of time. In addition, differences in number of interruptions are reported, with men interrupting women more than women interrupt men. Siegman (1987) also reports research that shows women using pronunciation patterns more in line with standard speech than men and that women's speech is often more fluent than men's, containing fewer hesitations and pauses. This latter finding, according to Siegman, suggests differences in speech rate as well.

Questions And Hypotheses

With respect to the repertoire of nonverbal behaviors available to interviewees, SAT does not appear to justify any predictions concerning the effects of an interviewer's vocal intensity; the exception, of course, is the vocal intensity of the interviewee. For exploratory purposes we raise the question:

> Q1: Will the vocal intensity of an interviewer (soft or loud) affect the nonverbal communication of interviewees in the context of an employment interview?

Although it is not clear, in the context of an employment interview, if interviewees will converge toward the vocal intensity of an interviewer, prior research has shown such convergence in other social situations. In addition, the SAT expectation regarding a speaker's desire for approval seems to be operative in a simulated employment interviewing context (a graded course assignment in this study) where the interviewee seeks to impress a high status interviewer (a professor in this study). Thus, we hypothesized that:

> H1: As a consequence of convergence, persons will adjust the vocal intensity of their speech; the speech volume of interviewees in the "loud" condition will be louder than the speech volume of the interviewees in the "soft" condition.

Of course, another possibility is that this effect may not hold for female interviewees in the loud condition or male interviewees in the soft condition because such shifts in vocal volume may be regarded as inappropriate according to traditional sex-role expectations (e.g., women should speak in a soft voice; males should speak in a loud voice). Thus, an alternative hypothesis would predict an interaction effect; convergence only among male interviewees in the loud condition and female interviewees in the soft condition. In fact, a case could be made for divergence among females in the loud condition if they are interviewed by another female. This would represent an underlying motivation either to facilitate the process of social categorization (Street & Giles, 1982) by accentuating differences based on perceptions of group membership (traditional vs. feminist), or simply to remind another of the norms governing the situation.

Based on the gender differences noted above, we should expect to observe, in the employment interviewing context, substantial differences between males and females in the nonverbal behaviors used in their persuasive presentations. Consistent with traditional sex-role expectations, women should adopt a more expressive, affiliative, and submissive style of communication than men. With respect to specific nonverbal behaviors, we hypothesized the following:

> H2: The kinesic behaviors of females and males will reflect traditional sex-role expectations such that females, compared to males, will adopt more immediate postures, be more facially expressive, engage in more eye contact, and use more turn-yielding head nods.

> H3: The vocalic behavior of females and males will reflect traditional sex-role expectations such that females, compared to males, will hold the floor for shorter durations, use fewer filled vocal pauses, and speak with greater vocal variety and less intensity.

Other salient nonverbal behaviors will be examined but, due to the absence of theory and research, we raise the following question:

> Q2: Will males and females, in the context of an employment interview, differ with respect to gestures, adaptors, foot/leg movement, response latencies, and postural shifts?

Method

Subjects and Design

Thirty-four subjects (13 males and 21 females) from an undergraduate interviewing course participated in the study as part of a graded interview assignment. The subjects represented the entire enrollment of the course.

The design of this study was a 2 x 2 factorial, with two levels of vocal intensity (loud and soft) and two levels of gender of the interviewee (male vs. female). Male and female subjects were randomly assigned to levels of the vocal intensity variable, yielding 7 males in the soft condition, 6 males in the loud condition, 10 females in the soft condition, and 11 females in the loud condition.

The vocal intensity variable was manipulated by training the female interviewer to significantly alter vocal volume. In the soft condition she was instructed to speak in a much softer than normal volume and in the loud condition she was instructed to speak in a much louder than normal volume. Volume conditions were maintained throughout the entirety of each interview. The same interviewer conducted all interviews. A panel of five communication faculty members and students were asked to review the videotapes of the loud and soft vocal intensity conditions to assess face validity of the variable manipulation. All judges responded that the manipulation was successful in altering vocal intensity. Additionally, results from the decibel level measurement of vocal volume for the confederate were analyzed with a t-test revealing a significant difference ($t=21.53$, $df=32$, $p < .0001$) between the loud ($M = 72.57$, $SD = .54$) and soft ($M = 62.27$, $SD = 1.49$) conditions.

Procedures

All subjects were informed that they were to take part in a brief simulated employment interview and that the interviews would be videotaped for the purposes of research and of review for grades. The interviews lasted between 10 and 18 minutes. Videotaping was done in a small (8' x 8') room. Subjects were met at the door of the room by the interviewer and were asked to enter. In the room two chairs were placed at opposite ends of the room. One chair, next to the videocamera, was occupied by the interviewer. The second chair, a rolling and swiveling chair, was placed against the wall opposite from the interviewer and the interviewee was able to position the chair as desired. Thus, the interviewee was able to determine the distance from the interviewer and the orientation toward the interviewer.

After the interviewees had positioned their chairs and seated themselves, the interviewer began with a standard introduction: "During the next few minutes I'd like to ask you about your educational background, work experience, personality, and career goals. Alright?" The interviewer then proceeded to ask a set of questions that were intended to realistically portray content in an employment interview. The questions asked of each interviewee, with some minor modifications were as follows:

Why did you decide to attend this university?
Why did you major in --------?
Tell me a little about your major area of study.
I noticed that you were involved in .....(extracurricular activity). Tell me about that.
How do you feel your education has prepared you for this position?
What did you do while you were working at --------?
What job duties did you like the most?
What job duties did you like the least?
How would you describe your personality?
What is your greatest weakness?
What is it about this position that interests you?
Why would you like to work for our organization?
What are your long range career goals?
We have a number of qualified applicants for this position. Why should we hire you?
Do you have any questions?

Following the interviewee's questions, the interviewer announced that this concluded the interview and escorted the interviewee from the room. After the interview the subjects were debriefed about the nature of the experiment.

Measurement

Each interviewee's videotaped interaction was coded for the following nonverbal cues: floor holding, vocal pauses, facial adaptors, body adaptors, postural shifts, turn-yielding head nods, amount of time gesturing, amount of time moving feet or legs, response latency, vocal intensity, vocal variety, facial expressiveness, body lean, and distance. Each of these measures is discussed in more detail below.

Floor holding was defined as the total number of seconds the interviewee talked during the interview. Floor holding measurement was begun with the interviewee's response to the interviewer's first question and ended with the last question that the interviewee addressed to the interviewer. The greeting and leave-taking interactions were not included in floor-holding measurement or in any other nonverbal coding.

Vocal pauses were measured as the total number of filled pauses occurring throughout the interviewee's speaking turns. Vocal pauses included "uhs", "ahs", etc., but did not include actual words such as "well", "like", "okay".

Facial adaptors were measured as the total number of times that the interviewee touched his or her face during the interviewee's speaking turns. Facial adaptors did not include touching the hair or head. Touch had to be clearly on the face to be coded in this category.

Body adaptors were measured as the total number of times an interviewee touched his or her body throughout the interviewee's speaking turns. Body adaptors included rearranging clothing, playing with hair, and any other adaptive movement that was not hand to hand. Hand to hand touches were not coded as body adaptors because of their activity associated with gesturing.

Postural shifts were measured as the total number of times the interviewee changed posture during the interviewee's speaking turns. Changes in posture included shifting forward and backward, shifting in the chair from side to side, and swiveling in the chair from side to side. The chair used for the interviewees was a swivel chair, allowing a great deal of movement. When an interviewee swiveled more than 5 degrees in one direction and then back, that movement was coded as one postural shift.

Turn-yielding head nods were measured as the total number of times an interviewee ended a speaking turn with a series of rapid head nods. If nods were occurring as an indication of affirmation or emphasis of an affirmative statement (e.g., "I really liked that job") they were not coded in this category.

Gestures were defined as the proportion of time during the interviewee's speaking turns that the interviewee was gesturing with the hands or arms. The proportion of time rather than total number of seconds gesturing was used to control for differences in floor holding by interviewees. Very small hand movements that did not involve a lifting or shift of the hand from lap or chair arm were not included in this category. Type of gestures were not coded for this analysis.

Foot and leg movement was measured as the proportion of time during the interviewee's speaking turns that the interviewee was moving his/her feet or legs. This included swinging feet, crossing legs and uncrossing legs, and rotating feet. Any foot or leg movement involved in a postural shift was not included in this category.

Response latency was measured as the average amount of time that elapsed between the end of the interviewer's questions and the beginning of the interviewee's response. Coders were instructed to time the number of seconds between question and response, to add the total number of seconds for all turn-exchanges, and to divide by the total number of questions asked in the interview. In some interviews the number of questions increased due to the use of probes by the interviewer. As a result, calculation of the response latency necessitated counting the total number of interviewer questions for each interview.

Vocal intensity was defined as the amount of vocal volume used by the interviewee throughout the entire interview. Vocal intensity was measured using a dbSPL sound meter set at the slow-response reading mode. The slow response mode was selected in order to obtain a more averaged peak amplitude and to avoid peak amplitude measures resulting from atypical plosives or other inflection amplitudes. The sound meter was set at a baseline 70 decibels, a baseline determined to be within plus or minus 10 decibels of all vocal intensity readings in all interviews. The sound meter was placed approximately 18 inches from the monitor during all measures. The vocal volume control on the monitor was kept constant. Vocal intensity decibel measures were taken for each speaking turn for each speaker. Mean peak amplitude measures for each speaker were then calculated.

Vocal variety was defined as the amount of vocal variation or dynamism used by the interviewee throughout the interview. This was a global rating assigned after the entire interview had been observed. The rating measure for vocal variety was a five point scale (1=very monotone, 2=monotone, 3=average, 4=dynamic, and 5=very dynamic).

Facial expressiveness was defined as the extent to which interviewees demonstrated facial affect (either positive or negative) throughout the interview. It was measured using a global rating at the end of the interview on a five point scale (1=very unexpressive, 2= unexpressive, 3=average, 4=expressive, and 5=very expressive).

Body lean was measured as a global rating of the extent to which the interviewee leaned forward, backward, or stayed erect during the interview. A three point scale was used for this measure (1= backward lean, 2 = erect, 3= forward lean).

Distance was defined as the distance between the torso of the interviewee and the torso of the interviewer. Distance was estimated in term of number of feet of distance. Thus, distance could range (within the confines of the taping room) from 1 to 7 feet. Distance was also assigned as a global rating at the completion of the interview.

Coding And Reliability

Two coders were selected for the coding process; both were communication researchers experienced in nonverbal coding. Coder training took approximately one week on the objective measures (floor holding, vocal pauses, facial adaptors body adaptors, postural shifts, turn-yielding head nods, gestures, foot and leg movements, response latency, and vocal intensity). Coders discussed the measurement criteria for each objective category, reviewed tapes of several interviews, and discussed codes for those tapes. Since the objective measures did not involve a significant degree of judgement, the decision was made to allow coders to begin coding the data for objective measures while training on the subjective measures continued.

Both coders independently coded all objective nonverbal measures for twenty-three interviews. Pearson correlation coefficients were calculated to assess interrater reliability. The resulting reliability coefficients revealed a high degree of agreement between coders (floor holding, $r = .99$; vocal pauses, $r = .96$; facial adaptors, $r = .98$; body adaptors, $r = .86$; postural shifts, $r = .93$, turn-yielding head nods, $r = .90$; gestures, $r = .99$; foot and leg movement, $r = .99$; response latency, $r = .85$, and vocal intensity, $r = .94$).

Subjective measures (vocal variety, facial expressiveness, body lean and distance) involved further training. Coders met for approximately four hours to review tapes of interviews, discuss coding decisions, and perform reliability checks. The reliability check was performed on 10 randomly selected interviews. The results of the Pearson correlations revealed a satisfactory ($r > .75$) interrater reliability (vocal intensity, $r = .90$; vocal variety, $r = .78$; facial expressiveness, $r = .76$; body lean, $r = .90$; and distance, $r = .94$).

Following the establishment of reliability, coders independently coded the interviews. Coding took approximately three weeks.

Results

To determine the interrelation among dependent measures, Pearson correlations were performed. The results indicated that most of the dependent measures were significantly ($p < .05$, $df = 33$) correlated with several other dependent measures and that no dependent measure was unrelated to any of the others. Specifically, the results of the correlations indicate significant positive correlations between floor holding and vocal pauses (.64), floor holding and facial adaptors (.39), floor holding and body adaptors (.33), floor holding and gestures (.24), floor holding and vocal intensity (.56), floor holding and vocal variety (.33), vocal pauses and facial adaptors (.49), vocal pauses and vocal variety (.27), facial adaptors and body adaptors (.41), turn-yielding head nods and vocal variety (.24), turn-yielding head nods and facial expressiveness (.27), vocal intensity and vocal variety (.44), vocal intensity and vocal pauses (.34), vocal variety and facial expressiveness (.57), and facial expressiveness and body lean (.24). The results indicated significant negative correlations between response latency and postural shifts (-.24), response latency and vocal variety (-.33), response latency and facial expressiveness (-.37), postural shifts and vocal variety (-.28), foot and leg movements and vocal variety (-.35) and facial expressiveness and distance (-.24). The amount of interrelation among the dependent measures indicated the appropriate use of multivariate analyses.

Two multiple discriminant analyses were performed on the data. The first used the vocal intensity variable (soft vs. loud) as the groups variable. The second discriminant analysis used the gender of the interviewee (male vs. female) as the groups variable. Multivariate analyses of variance were not selected for data analysis due to the very large number of dependent variables.

Multiple discriminant analysis assesses the ability of a combination of dependent variables to predict a categorical groups variable and then tests the predictive power of the discriminant function by using that function to classify cases into groups, then assessing the percentage of correct classification. In both the discriminant analyses performed on this data, the stepwise entry method was selected using the Wilk's lambda criterion in order to maximize group separation without sacrificing within-group cohesiveness. In both cases, the groups variable had two levels, thus restricting the number of possible significant discriminant functions to 1 (the total number of discriminant functions possible is equal to the number of levels of the groups variable minus one, or the number of dependent variables minus the number of levels of the groups variable, whichever is smaller). When a significant discriminant function was obtained, univariate analyses using the Wilk's U-statistic and F-to-remove ratios were used to identify significant contributions of the discriminating variables.

The results of the discriminant analysis on vocal intensity did not yield a significant discriminant function (eigenvalue = .11, canonical correlation = .32, Wilk's lambda = .89, chi square = 3.32, df = 3, p = .34). The group centroids were soft, .32, and loud, -.32) Because there was no significant discriminant function, univariate and classification analyses were notconducted.

To more directly assess any potential effect for the vocal intensity variable, a 2-way ANOVA (gender and vocal intensity) was conducted on the vocal intensity dependent measure. The results indicated no significant main effect for vocal intensity ($F(1,30) = .25$, $p > .05$), no significant main effect for gender ($F(1,30) = 1.44$, $p > .05$), and no significant interaction effect for vocal intensity by gender ($F(1,30) = .01$, $p > .05$). Using Kraemer and Thiemann's (1987) estimates, statistical power for the main effect tests were .20, .50, and .99 for small, moderate, and large effects respectively. Power estimates for the interaction between gender and vocal intensity were .10, .40 and .80.

The results of the discriminant analysis on gender of the interviewee yielded one significant discriminant function (eigenvalue = 2.59, canonical corr = .85, Wilk's lambda = .27, chi squared = 35.12, $p < .0001$). This function explained 100% of the variance. Univariate analyses revealed that nine dependent variables were entered into the model to discriminate between groups of the gender variable: turn-yielding head nods [Wilk's = .78, $p < .005$, F to remove = 8.88, SDF = -.68], vocal pauses [Wilk's = .66, $p < .001$, F to remove = 5.39, SDF = .56], body lean [Wilk's = .55, $p < .0001$, F to remove = 11.40, SDF = -.79], foot and leg movements [Wilk's = .40, $p < .0001$, F to remove = 8.11, SDF = -.67], response latency [Wilk's = .36, $p < .0001$, F to remove = 5.09, SDF = .55], body adaptors [Wilk's = .33, $p < .0001$, F to remove = 2.09, SDF = .36] distance [Wilk's = .30, $p < .0001$, F to remove = 2.12, SDF = .37], vocal intensity [Wilk's = .29, $p < .0001$, F to remove = 1.31, SDF = .31], and gestures [Wilk's = .28, p < .0001, F to remove = 1.00, SDF = .26]. The standard discriminant function coefficients [SDF] indicate the relative importance of the variable to the functions. The group centroids resulting from this function are: males, 1.98, and females, -1.23.

Analysis of the group means on each dependent variable reveal that females (M = 5.85, SD = 5.35) used more turn-yielding head nods than males (M = 1.07, SD = 2.56); that females had more direct body lean (M = 1.90, SD = .88) than males (M = 1.15, SD = .55); and that females used more foot and leg movement (M = 19.90, SD = 23.52) than males (M = 7.38, SD = 8.33). However, males used more vocal pauses (M = 43.92, SD = 25.89) than females (M = 24.42, SD = 21.54); males had greater response latency (M = 1.31, SD = .33) than females (M = 1.13, SD = .22); males used more body adaptors (M = 4.07, SD = 5.79) than females (M = 2.04, SD = 3.05), males maintained greater distance (M = 5.84, SD = .98) than females (M = 5.61, SD = 1.16), males had greater vocal intensity (M = 70.26, SD = 1.63) than females (M = 69.43, SD = 1.99), and that males gestured more frequently (M = 20.07, SD = 18.02) than females (M = 13.47, SD = 15.24).

The results of the classification analysis revealed that the discriminant function accurately grouped or identified 97% of the total number of cases. Specifically, the function was able to correctly classify 100% of the males and 95.2% of the females.

Discussion

Speech accomodation theory was tested in our first hypothesis. The essential components of this theory were suitable for predicting differential responses to vocal intensity. In particular, the basic proposition regarding convergence, an outcome wherein the speech style of a rewarding interaction partner is enacted, was appropriate in this interviewing simulation. According to the theory, interviewees assigned to the "loud" interviewer should have spoken with greater intensity than interviewees assigned to the "soft" interviewer. This hypothesis was not supported by the data. Nevertheless, given the relative absence of research on the vocal intensity variable and the important implications of speech accomodation theory, we recommend additional study, including the use of within-subjects designs and larger samples, to more adequately investigate shifts in vocal intensity in the employment interviewing context.

Our first question was included for exploratory purposes in order to examine how individuals may respond nonverbally to variations in vocal intensity. Are individuals in the context of an employment interview, for example, more likely to respond in kind? Or, are they more likely to assume a complementary relationship characterized by the dominant and submissive behaviors expected ofpersons in the roles of interviewer and interviewee respectively? Given the nonsignificant effect of vocal intensity on the nonverbal behaviors examined in this study, no theorizing is possible at this time.

The second hypothesis tested in this study was derived from theories regarding sex-role socialization and subsequent research on gender differences in nonverbal communication. Specifically, in the context of an employment interview, we predicted that females, compared to males, would: adopt more immediate postures, be more facially expressive, engage in more eye contact, and use more turn-yielding head nods. Strong support was obtained for two of the four nonverbal differences. Unfortunately, the omission from data analysis of the eye contact variable did not allow it to be tested. As expected, however, females tended to adopt more immediate postures, as observed in the body lean and distance measures. Our results indicated a greater tendency for females to lean forward in their seats while answering the interviewer's questions and to place their chairs closer to the interviewer at the beginning of the interview. These findings support the view, at least in female-female dyads as compared to male-female dyads, that the expressive style of women is more immediate than it is for men.

Another finding of some interest concerns the differences observed in turn-yielding head nods. While head nods ordinarily serve to reinforce the speech of one's conversational partner, in this particular context, they were examined as a turn-yielding signal; an expression that seemed to stress the end of a speaking turn. Thus, they were coded at the end of an interviewee's answer to a question. As expected, females more than males employed this behavior, presumably, as a way of soliciting positive feedback from the interviewer or, more simply, as a means of yielding the floor. This is quite consistent with sex-role theory indicating that women tend to be more interested in promoting supportive interaction climates and more concerned with social approval from others than are men.

Contrary to expectations, (a review of the literature by Henley & LaFrance, 1984, documents well over 15 studies in support of sex differences) no differerences were found between the facial expressions of females as compared to males. We anticipated that, as a feminine-appropriate display, women interviewees would smile more than men, or that a wider range of emotions would be expressed owing to the sex-role stereotype of "emotional" women. Such was not the case. At least in the context of an employment interview, females are not more facially expressive than are males.

The third hypothesis predicted gender differences in vocalic behavior; in particular, that females would hold the floor for shorter durations, use fewer filled vocal pauses, speak with greater vocal variation, and speak more softly than their mail counterparts. Consistent with our hypothesis, female interviewees had fewer filled vocal pauses (e.g., "ums" and "ahs"). This finding, along with the significant results obtained for response latencies (which was not included in the hypothesis), appears in combination to suggest greater fluent speech for females relative to males. This has recently been suggested by Siegman (1987) as an expectation related to gender. Failure to corroborate some previous research regarding turn duration, vocal variety, and vocal intensity (although vocal intensity did contribute to the set of variables found to discriminate subjects on the basis of gender, it failed to reach significance when included in a two-way ANOVA) may imply the lack of differences in the employment interview. Of course, with respect to duration (floor holding), which was no doubt perceived as a "grade-related" performance criterion, the results are not surprising.

Interestingly, a number of nonverbal differences emerged that were not hypothesized. Female interviewees employed fewer body adaptors and engaged in more leg and foot movements than did male interviewees. In this unique context, the greater leg and foot movement among females can be explained, in part, as the result of differences in seating preferences. While most women crossed their legs (allowing considerable movement), many of the men placed both feet on the floor (restricting movement). But, based on sex-role expectations, the difference can also be explained as appropriate ways of managing tension. Whereas males tend to be more "openly" relaxed in demeanor (expressed in various body adaptors), females may find less overt ways of coping behaviorally with their discomfort (leg and foot adaptors). There was also some indication that males gestured more than females did. This is somewhat consistent with the notion that gestural activity, as a sign of power, is more typical of males than females in speaking situations.

Despite our nonsignificant findings, we recommend continued investigation of vocal intensity effects in the employment interview. Given the fact that interviewer judgments are positively influenced by the speech volume of job applicants (e.g., Hollandsworth, Kazelskis, Stevens, & Dressel, 1979), evidence of speech accomodation patterns would present a compelling argument in favor of training interviewers to standardize, as much as possible, the delivery they use when questioning intervewees.

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