**Shyness and Physical Attractiveness in Mixed-Sex Dyads**

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Male and female strangers' shyness and physical attractiveness strongly affected their own and their partners' behavior during initial, unstructured interactions. First, dyad-level measures of behavioral involvement and perceived interaction quality were independently predicted by the men's shyness and the women's physical attractiveness. Second, shy men exerted avoidant control over mutual gazing by denying their female partners (but not themselves) opportunities to initiate and terminate mutual gazes. Third, as physical attractiveness of the men increased, conversations included fewer references to 3rd-party individuals, with the women appearing to be primarily responsible for setting the "exclusive" tone of these conversations. Fourth, as physical attractiveness of the women increased, the men reported an increasing percentage of metaperspective thoughts and feelings that reflected the symbolic adoption of their female partners' perspective.

First impressions matter. In some instances (e.g., during job interviews and blind dates), the images created during initial encounters govern one's access to significant social and material rewards as well as to subsequent interactions. Even when continued encounters are ensured (e.g., when first meeting a new neighbor or co-worker), these same images color one's subsequent perceptions of the other person's friendliness, desirability, and competence. The enduring impact of first impressions seems exaggerated relative to the limited amount of information available in any single encounter.

Certain personal characteristics influence initial impressions more than others. Characteristics that are readily observable should have the greatest initial impact. For example, race and gender are conspicuous features that have been shown to exert considerable influence on interpersonal behavior and perceptions (e.g., Ickes, 1984; Ickes & Barnes, 1977; Ickes, Schermer, & Steeno, 1979). In this study, we examined the impact of two other dispositional variables that are salient early in an interaction: physical attractiveness and shyness.

Both of these characteristics are readily discerned. Evidence of their observability was reported by Funder and Dobroth (1987). In this study, judges rated 100 Q-sort items on nine dimensions related to the subjective ease with which a trait can be judged. These nine dimensions were then summed to produce a composite index of easy visibility. Among the most observable items on this index were one that referred directly to physical attractiveness and several others that were related to the trait dimension of outgoing versus shy (i.e., talkativeness, social poise and presence, relaxed, and assertive behavior). In a subsequent study, Funder and Colvin (1988) also found moderate correlations among independent raters for several of these same items—physical attractiveness, talkativeness, social poise, and so on—when strangers were rated after only a short period of interaction. Thus, individual raters judged both physical attractiveness and shyness to be readily observable, and pairs of independent observers concurred when rating specific strangers on these two dispositional variables.

There have been several studies of the influences of shyness and physical attractiveness on interpersonal behavior and perceptions. After briefly reviewing the findings of these studies, we describe the goals of the current investigation, in which we explored the individual- and dyad-level influences of both of these variables.

**Physical Attractiveness**

There is considerable evidence for the social advantages of being physically attractive (e.g., Aron, 1988; Berscheid, 1985; Berscheid, Dion, Walster, & Walster, 1971; Hatfield & Sprecher, 1986; Huston, 1974; Walster, Aronson, Abrams, & Rottman, 1966). Complementing an expanding body of evidence for the stereotype that "what is beautiful is good" (e.g., Bassili, 1981; Berscheid & Walster, 1974; Dion, 1981; Dion, Berscheid, & Walster, 1972; Miller, 1970) are studies demonstrating that (a)
the mere belief that another person is attractive can have a powerful influence on social behavior (Goldman & Lewis, 1977; Snyder, Tanke, & Berscheid, 1977), (b) there is a distinct advantage in being associated with a physically attractive person (Sigall & Landy, 1973), and (c) interactions with beautiful individuals are almost always aesthetically pleasant (Dion et al., 1972). Moreover, the social advantages of physical attractiveness appear to be widespread, affecting not only dating and romantic relationships (e.g., Walster et al., 1966) but occupational status (e.g., Cann, Siegfried, & Pearce, 1981) and the outcome of courtroom proceedings as well (e.g., Thornton & Ryckman, 1983).

Within the last decade, Reis and his colleagues have emphasized the need to study the manner in which physical attractiveness influences naturally occurring social interactions. Of particular relevance for the present study, Reis, Nezlek, and Wheeler (1980) examined the daily social encounters of attractive and unattractive college students. They found that for men (but not for women), physical attractiveness was significantly correlated with the number of mutually initiated opposite-sex interactions that subjects reported. They also found that for both men and women, physical attractiveness was significantly correlated with ratings of interaction quality and satisfaction, particularly in interactions with people of the opposite sex. In a subsequent study, Reis, Wheeler, Spiegel, Kernis, Nezlek, and Perri (1982) found that, relative to their less attractive counterparts, attractive men rated their interactions as being more intimate and disclosing, and attractive women reported being more satisfied and pleased with their social encounters.

Perhaps the most important question raised by these studies concerns the processes by which physical attractiveness can influence naturally occurring interaction behavior. In the Reis et al. (1980, 1982) studies, attractive men and women reported their interactions with opposite-sex partners to be particularly satisfying and rewarding. In addition, the strength of this effect was found to increase over time (i.e., throughout the academic year) for both freshman and senior subjects. The researchers interpreted these data as consistent with the notion that attractive individuals, being aware of both the social value placed on their looks and the potential use of this asset, have more options than unattractive individuals in their choice of interaction partners. This reasoning suggests that physically attractive people might have more satisfying and rewarding opposite-sex interactions than unattractive people simply because they are able to attract more desirable interaction partners.

Note that this explanation posits a relatively indirect effect of attractiveness on the quality of opposite-sex interactions—that is, one that is mediated by the desirable qualities and behavior of the interaction partners whom physically attractive individuals are able to attract. It therefore diverges from the more traditional explanation that physical attractiveness has a relatively direct effect on the quality of opposite-sex interactions by evoking favorable cognitive, affective, and behavioral reactions from the partners of physically attractive individuals that are not evoked from the partners of relatively unattractive ones. This more traditional explanation provides the explicit or implicit rationale for studies that experimentally manipulate the physical attractiveness of a target person to study the effects of this variable on the subject’s perceptions and behavior (e.g., Byrne, London, & Reeves, 1968; Kleck & Rubenstein, 1975; Snyder et al., 1977).

Because these two explanations are not mutually exclusive, it would be useful to test for the effects of men’s and women’s physical attractiveness on naturally occurring heterosexual interactions in a context in which the assignment of partners is essentially random and not determined in any way by their level of attractiveness. Clearly, any effects that emerged in this context could reflect only the direct impact of the men’s and women’s physical attractiveness on their own and their partner’s behavior in the immediate interaction. They could not reflect the more indirect impact of attractiveness on the selection of interaction partners.

To test this proposed direct effect of physical attractiveness, male and female subjects in this study were randomly paired as interaction partners without regard to their respective levels of physical attractiveness. The random pairing of the dyad members should have enabled us to determine which effects of attractiveness, if any, can be accounted for without recourse to a selection-of-partner interpretation.

Shyness

Shyness (or social anxiety) is defined as “the discomfort and inhibition experienced in the presence of others that derives directly from the interpersonal nature of the situation” (Jones, Briggs, & Smith, 1986). It is typically assessed with various self-report inventories, all of which are highly correlated (Jones et al., 1986). However, shyness can be assessed from other perspectives as well: (a) Participants in the interactions can report their feelings and impressions (e.g., tense-relaxed, awkward—at ease, and outgoing—inhibited), (b) independent observers can rate the participants on comparable dimensions, and (c) independent observers can code the videotapes for specific verbal and nonverbal behavioral markers of shyness (Briggs & Smith, 1986).

People who score high on shyness and social anxiety scales report relatively more negative thoughts about themselves during dyadic interactions (Ickes, Robertson, Tooke, & Teng, 1986), particularly if these interactions involve a member of the opposite sex (Bruch, Gorsky, Collins, & Berger, 1989; Cacioppo, Glass, & Merluzzi, 1979; Hill, 1989; Turner, Beidel, & Larkin, 1986). Compared with their nonshy counterparts, shy individuals report being more tense and self-preoccupied during dyadic interactions and focus specifically on the likelihood of being negatively evaluated (Asendorpf, 1987, 1989; Melchior & Cheek, 1990). They also describe themselves as inhibited, awkward, unfriendly, and incompetent relative to those who score low on measures of shyness (Cheek & Buss, 1981; DePaulo, Kenny, Hoover, Webb, & Oliver, 1987). In general, shy individuals tend to perceive and interpret their own social abilities negatively. Indeed, one recent reviewer has gone so far as to suggest “that shy individuals suffer from a pervasive lack of beneficence in their processing of self-relevant information” (Cheek & Melchior, 1990, p. 68).

Independent observers also rate people with higher scores on shyness scales as appearing more shy, anxious, awkward, and inhibited during dyadic interactions (Asendorpf, 1987, 1989; Cheek & Buss, 1981; Jones & Briggs, 1984; Pilkonis, 1977).
Objective ratings show that these individuals actually do talk less, initiate fewer conversational sequences, avert their gaze more often, smile less, show less facial expressivity, and are more likely to engage in nervous self-touching (Cheek & Buss, 1981; Daly, 1978; Mandel & Shrauger, 1980; Pilkonis, 1977). And while they are perceived by others to be relatively shy as well, the impression they make on others is never as negative as that implied by their own self-rated ability (Bruch et al., 1989; DePaulo et al., 1987; Jones & Briggs, 1984).

Although these results converge to form a reassuring pattern, there are some characteristic methodological limitations in the studies from which they derive. First, most of the researchers have either asked subjects to role play a dyadic encounter (e.g., Curran, Wallander, & Fischetti, 1980; Turner et al., 1986), have used a confederate as a dyad member (e.g., Bruch et al., 1989; Pilkonis, 1977), or have overtly audio- or videotaped the interaction (Asendorpf, 1987; Leary, Knight, & Johnson, 1987; Leary, Kowalski, & Bergen, 1988). Whereas procedural features of this sort are often necessary to achieve the specific goals of a study, they constrain the naturalness of the resulting interactions and may themselves exert considerable influence on interpersonal behavior and perceptions.

Second, previous studies have often selected only those subjects who score extremely high or low on a measure of shyness (e.g., Asendorpf, 1987; Bruch et al., 1989; Check & Buss, 1981). The advantage of selecting participants with extreme scores is that it increases the likelihood of uncovering a relationship given a limited sample size. However, this increase in power is achieved by artificially inflating the magnitude of the relationship. Thus, studies that are based on groups of extreme scorers correctly assess whether an effect exists, but they do not provide accurate estimates of the size of the effect being studied (Alf & Abrahams, 1975; Fedlt, 1961).

Third, previous studies have often relied on summary impressions to assess the role of cognitions in the experience and expression of shyness. The most commonly used measure in this regard is the Social Interaction Self-Statement Test (Glass, Merluzzi, Biever, & Larsen, 1982), which requires subjects to provide summary ratings that estimate how frequently they experienced positive (facilitative) or negative (inhibitory) thoughts during an interaction (e.g., Bruch et al., 1989; Turner et al., 1986). However, assessing the specific thoughts and feelings that subjects experienced during an interaction may enable a richer, more detailed understanding of the dynamic relationship between cognitions and behaviors in an unfolding social encounter. To date, only a few studies have examined individual differences in shyness or social anxiety using a video-reconstruction strategy in which participants are prompted by a videotape to recall the specific thoughts and feelings they experienced during the interaction (Asendorpf, 1987, 1989; Ickes et al., 1986).

Fourth, because previous research has typically studied one gender at a time, additional work is needed on the question of how gender affects the cognitive, affective, and behavioral expression of shyness. Some recent evidence suggests that both the gender of the individual participants and the gender composition of the dyad can moderate the effects of shyness in initial dyadic encounters. For example, it appears that high scores on shyness are more strongly related to negative self-statements for men than for women (Bruch et al., 1989) and that mixed-sex interactions are more socially threatening than same-sex interactions (DePaulo, Dull, Greenberg, & Swaim, in press; Russell, Cutrona, & Jones, 1986; Turner et al., 1986).

Overview and Objectives

The purpose of this study was to examine the effects of shyness and physical attractiveness on the thoughts, feelings, and behavior that occur in initial, unstructured interactions between two strangers of the opposite sex. Because the literature we just reviewed does not provide the basis for a theoretically unified account of these effects, the goals of our study were more inductive and exploratory than deductive and confirmatory.

In general, however, we expected to confirm previous findings indicating that (a) shyness has a pervasive inhibitory effect on the behaviors expressed in initial, mixed-sex interactions; (b) this behavioral inhibition is accompanied by certain cognitive concomitants of shyness (i.e., negative, self-focused thoughts and feelings) that could interfere with interaction-relevant cognition and behavior; and (c) interaction with physically attractive members of the opposite sex is affectively pleasant and therefore motivates attempts to establish more intense and communal relationships with them. More specific questions to be investigated in this study (e.g., determining the direct, as opposed to the indirect, effects of physical attractiveness) have already been noted.

The expanded dyadic interaction paradigm (Ickes et al., 1986; Ickes & Tooke, 1988; Ickes, Bissonnette, Garcia, & Stinson, 1990) was used in this study because it provides an established method for determining the manner in which dispositional factors operate in initial interactions and contribute to the formation of first impressions. It also provides a viable technique for assessing the links between naturalistic social behavior and naturalistic social cognition in unstructured, dyadic interactions. Finally, it enables the investigator to combine some of the best features of both naturalistic and laboratory research (cf. Clark & Reis, 1988).

Essentially, the paradigm involved two phases of data collection. The first phase involved the unobtrusive recording of spontaneous, naturalistic social interactions that were relatively free of the task and situational demands associated with most interaction paradigms. The resulting videotapes were recorded in a controlled observational setting and could be reliably coded to yield a range of behavioral measures that could be analyzed at both the individual and dyadic levels. (For detailed reviews of the paradigm and the observational coding categories, see Ickes, 1982, 1983; Ickes et al., 1986; Ickes & Tooke, 1988; Ickes, Bissonnette, Garcia, & Stinson, 1990). In the second phase of the paradigm, each dyad member was instructed to observe the videotaped interaction immediately after the actual interaction. We asked the participants to list the thoughts and feelings that were experienced during the interaction as they viewed the videotape.

Three advantages of the expanded dyadic interaction paradigm are directly relevant to this research. First, mixed-sex dyads were formed wherein partners were randomly paired without regard to their respective levels of physical attractive-
ness or shyness. Randomly assigning strangers into pairs ensured that selection factors did not influence subsequent perceptions or interpersonal behaviors. It also permitted more accurate estimates of effect magnitudes for physical attractiveness and shyness.

Second, by using an unstructured interaction paradigm, we could examine the effects of the men's and women's attractiveness and shyness on their naturally occurring cognitions and emotions as well as on their spontaneous interaction behavior. In other words, we could take an unobtrusive and fine-grained look at the influence these predictor variables naturally exerted on the cognitive, emotional, and behavioral components of initial, mixed-sex interactions. (A detailed description of the measures corresponding to each of these components is provided in the Method section.)

Third, unlike most other studies in which only 1 dyad member's perceptions and behavior are assessed, this study enabled us to determine how the men's and women's physical attractiveness and shyness affected both their own and their partner's behavior during a period of initial interaction. Dyad-level influences of attractiveness and shyness could also be studied (i.e., according to the logic outlined by Kenny [1988, 1990] and Kenny & La Voie, 1985).

To the best of our knowledge, this study is the first to examine systematically the effects of physical attractiveness and shyness on the thoughts, feelings, and interpersonal behavior of men and women interacting for the first time. Understanding the separate contributions of shyness and attractiveness would obviously be complicated to the extent that these predictor variables are themselves correlated. Previous research indicates that shyness correlates substantially with self-ratings of attractiveness but has near zero correlations with ratings of physical attractiveness by independent observers (Bruch, Giordano, & Pearl, 1986; Cheek & Melchior, 1990; Jones et al., 1986). Because our focus was on physical attractiveness as perceived by others (i.e., independent raters), no relationship with shyness was expected.

The data reported in this article were collected from 38 mixed-sex dyads whose responses were the focus of a previous article on empathic accuracy (Ickes, Stinson, Bissonnette, & García, 1990). Because no experimental manipulations were imposed on these dyads, we were able to analyze the same data set to determine the influences of the men's and women's shyness and physical attractiveness without having to worry that such influences were moderated by a manipulated condition or treatment variable. As a consequence, the findings of the study do not overlap, and are not qualified by, those reported previously.

Method

Subjects

The subjects were 38 women and 38 men enrolled in introductory psychology classes at the University of Texas at Arlington. They were recruited through a modified version of the usual "sign-up sheet" procedure in which separate sign-up sheets were used to schedule non-pre-selected male and female volunteers into mixed-sex dyads. Each pairing for a given session was essentially random (cf. Ickes et al., 1986). The separate sign-up sheets bore the names of different experiments and directed subjects to report to different waiting areas before their participation in the study.

Setting and Equipment

As indicated in Figure 1, the observation room in which the dyadic interaction was recorded was furnished with a long couch (1) and an accompanying coffee table (2) that concealed an FM wireless microphone. A video camera focused on the area of the couch and coffee table was concealed in a darkened storage room (15) across a hallway from the observation room. This arrangement permitted the experimenter to record the dyadic interaction through the open doorways of the storage and observation rooms with minimal likelihood of the camera's being detected.

Adjacent to the observation room was a control room used to house the video and audio equipment operated by the experimenter and a research assistant. Along one wall of the control room was the experimenter's control station. Here the experimenter could sit in front of a single table (10 in Figure 1) that supported two identical videocassette recorders that were both connected (by means of a V-adapter) to the video camera in the storage room across the hallway. Each videocassette recorder was also connected to one of two 25-in. color television monitors (11 and 12) that were oriented to face through one-way mirrors into identical test cubicles. The test cubicles (13 and 14) were each equipped with a help button that allowed subjects to signal the experimenter (by means of a red light) if they needed some assistance or additional information. Each test cubicle also contained (a) a remote start/pause switch and (b) a supply of thought–feeling coding forms (to be described later).

Procedure

Following the directions given on their respective sign-up sheets, the 2 subjects who were scheduled for each session reported to different waiting areas in the psychology building. These areas were physically isolated from each other but were both in reasonably close proximity to the suite of research rooms just described. The separate sign-up sheets and waiting areas were used to help ensure that (a) 2 friends or previously acquainted individuals would not sign up for the same session and (b) each scheduled pair of subjects would not meet and interact before their session began.

Collection of the videotape data. After checking the operation of the video equipment, the experimenter collected the 2 subjects from their respective waiting areas and, while conducting them to the observation...
room, observed their reactions for any sign that they were already acquainted with each other. Once satisfied that the subjects were indeed strangers, the experimenter escorted them into the observation room, asked them to place any books or other belongings on the table (5 in Figure 1), and directed them to be seated on the couch (1). The experimenter then reached for copies of the informed-consent form from a box on one of the bookcases (6) but pretended to discover that only one copy of the form was left. Explaining the need to get additional copies of the form, the experimenter left the observation room, promising to return "in a few minutes." At this point, a research assistant in the control room started the videotaping. Exactly 6 min later, at the end of the observation period, the experimenter returned to the observation room and the videotaping was terminated.

After probing for any evidence of suspicion, the experimenter conducted a partial debriefing. The subjects were told that they had been videotaped for the purpose of studying their naturally occurring interaction behavior. The experimenter described the videotaping procedure, explained the methodological importance of not telling the subjects about the taping in advance, and informed them that their written consent was required for the tape to be used as data. To assure the subjects that their rights to privacy had been protected, the experimenter explained that the videotape had not yet been reviewed or studied in any way. If 1 or both of them exercised the right to have the tape erased immediately, instead of releasing it for use as data, the content of the interaction would remain their own private concern. (None of the subjects in this study requested to have the tape erased.)

Collection of the thought-feeling data. Once the subjects' written consent had been obtained, the experimenter described the next part of the study. In this part, the subjects were asked to view the videotape and write down the thoughts and feelings they experienced during the 6-min interaction period. When the subjects had been seated in their individual cubicles (13 and 14 in Figure 1), the experimenter used video instructional tapes to give them detailed instructions regarding the thought-feeling data collection procedure. The two videocassette recorders were then activated, and the subjects used their start/pause controls independently to start and stop their respective copies of the videotape.

The subjects were instructed to stop the videotape at each point during the interaction that they recalled having had a specific thought or feeling. They recorded each thought or feeling on a thought-feeling coding form by entering (a) the time the thought or feeling occurred (available as a digital readout on the upper left part of the videotape), (b) whether the entry was a thought or a feeling (coded "I was thinking:" or "I was feeling:" on the coding sheet), (c) the specific content of the thought-feeling entry (written in sentence form to complete the initial phrase), and (d) whether the entry was presumed to be positive, negative, or neutral in its overall affective tone (coded +, −, or 0 on the coding sheet).

The instructions the subjects received explicitly encouraged them to report all of the thoughts and feelings they remembered having had as accurately and honestly as possible. The importance of being completely candid was emphasized, and the subjects were assured that the thoughts and feelings they recorded would not be seen by their interaction partners. On the other hand, the instructions cautioned them to report only those thoughts and feelings they distinctly remembered having during the observation period. They were not to report any thoughts and feelings that occurred to them for the first time while viewing the videotape.

Collection of the final self-report measures. In the final part of the study, the subjects were asked to remain in their respective cubicles long enough to complete a posttest questionnaire. This questionnaire included items that assessed the subjects' perceptions of (a) the quality of their interaction (i.e., "forced, awkward and strained" vs. "smooth, natural and relaxed") and (b) the degree to which they liked each other. When each subject had completed the questionnaire and returned it to the experimenter, the experimenter then debriefed the subjects more fully; asked them not to discuss the study with potential future subjects; and then thanked them, gave them point credit for their participation, and released them.

Behavioral Measures

Three types of behavioral data—static behaviors, dynamic behaviors, and personal pronoun usage—were coded from the videotapes by independent judges who were kept unaware, insofar as possible, of any independent or predictor variables being studied. The static behaviors, which either occurred only once or did not vary much across time, included measures of the degree of each subject's body orientation toward his or her partner and the openness of each subject's body posture. The interrater reliabilities for these measures were .70 and .89, respectively.

The temporally more variable dynamic behaviors included the total frequency and duration of verbalizations (i.e., speaking turns), directed gazes, mutual gazes, expressive gestures, and expressions of positive affect (i.e., smiles and laughter). Also included was a measure of the number of verbal reinforcers (e.g., yeah, right, and uh-huh) provided by each dyad member during the course of the interaction. The interrater reliabilities of these measures ranged from .75 to .99, with a mean of .90. (For the operational definitions of these dynamic behavior measures, see Ickes & Turner, 1983, pp. 214-215).

Two independent judges coded personal pronoun usage from the videotapes. They used tally marks to record the number of first-, second-, and third-person pronouns (broken down into the subcategories of singular and plural) occurring in each dyad member's conversation. These values were then divided by the total number of personal pronouns used by the dyad member to create percentage scores that previously have been shown to be free of any confound with individual differences in the amount of talking (Ickes, Reidhead, & Patterson, 1986). These percentage score measures provide a common metric for assessing the degree to which the content of the dyad members' conversations reflect a focus on self (first-person pronouns), one's current interaction partner (second-person pronouns), or some other person or
persons not involved in the current interaction (third-person pronouns). The interrater agreement rates for these measures were .97, .94, and .92, respectively.

**Self-Report Measures**

Three types of self-report data were obtained that are relevant to this investigation: (a) the subjects' responses on a self-report measure of shyness (Cheek & Buss, 1981), (b) the dyad members' own reported thoughts and feelings, and (c) their responses to the previously described items on the posttest questionnaire. To minimize their perceived relevance to this study, the 9 items on Cheek and Buss' shyness measure were embedded in a research survey that included over 100 items tapping a range of different personality traits of widely varying content. This research survey was administered to the subjects at the end of each experimental session under the rationale that the data were being collected for another project. For this sample, the internal consistency value of the shyness measure was .80.

**Thought-Feeling Measures**

The subjects' own thought-feeling data were later coded by two judges who determined whether the thought-feeling entry represented a direct perspective (subject's own perspective) or a metaperspective (subject's representation of his or her partner's perspective; cf. Laing, Phillipson, & Lee, 1966). The same two judges also determined the target or object of the perception expressed by the entry (self, partner, other person(s), environmental object, event, or circumstance). The rates of interrater agreement for these categorical classifications were .99 for perspective and .87 for target-values consistent with those previously reported by Ickes et al., 1986.

The coded thought-feeling data for the subjects within each dyad were subsequently entered into a software program called COLLECT YOUR THOUGHTS (Ickes, Bissonnette, Garcia, & Stinson, 1990). This program produces as output various summary indexes of thought-feeling content. In this study, these measures included the percentages of each subject's reported thought-feeling entries that were coded as thoughts, feelings, positive entries, negative entries, self-relevant entries, partner entries, other(s) entries, environment entries, direct perspective entries, and metaperspective entries. A few more fine-grained measures that were of special theoretical interest (e.g., the percentages of negative self-entries and positive partner entries) were also computed.

**Physical Attractiveness Measure**

The physical attractiveness of each subject was assessed by 11 raters (5 men and 6 women) who viewed a clip of the first 20 s of each dyadic interaction with the sound turned off. Each dyad member's attractiveness was rated on a 10-point scale ranging from extremely unattractive (1) to extremely attractive (10). The internal consistency of these ratings was .93, a value that was sufficiently high to justify using the mean of the ratings as the measure of physical attractiveness.

**Results**

**Data-Analytic Strategy**

Note that we have four predictor variables in our study, each of which could plausibly predict a given interaction behavior. The men's talking, for example, could be influenced not only by (a) their own attractiveness (i.e., attractive men might be more confident and socially assertive) but also by (b) their female partner's attractiveness (which might provide a greater incentive for the men to talk), (c) the men's own shyness (which might inhibit their talking), and (d) the women's shyness (which might lead to the failure of the men's talking to be reinforced). Because all four predictors could plausibly determine a given behavior, we had to take all four into account simultaneously (i.e., in a multiple regression framework) and to statistically control or partial out the effects of the three remaining predictors when testing for the unique effect of each.

Before analyzing these data, we had to compute the correlation between the male and female partners' scores on a given criterion variable to determine whether that variable should be analyzed at the individual or dyadic level of analysis. If the dyad members' scores were independent of each other, the variable was analyzed at the individual level (i.e., the four predictors were related to the man's individual behavior and to the woman's individual behavior, as indicated in the lower portion of Figure 2). However, if the dyad members' scores were non-independent, their scores on the variable were combined through

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**Figure 2.** Data-analytic strategy: Partial correlations computed at the dyad level (top) or at the individual level (bottom) of analysis.
averaging to create an aggregated, dyad-level variable for subsequent analysis. (In this case, the four predictors were related to the dyad-level variable, as indicated in the upper portion of Figure 2).

Using guidelines for establishing nonindependence that were slightly more stringent than those suggested by Kenny and La Voie (1985), we defined as dyad-level measures all those dependent measures for which the correlation between the dyad members' scores exceeded .22 (all ps < .15). The actual values of the correlations defining the set of dyad-level measures ranged from .24 to .78 (see Table 1, last column).

Once the two sets of criterion variables—dyad-level measures and individual-level measures—had been identified, multiple regression analyses were used to test the effect of each predictor variable on each criterion variable, with the effects of the three remaining predictor variables statistically controlled. The results of these analyses are reported in Tables 1, 2, and 3. The partial correlations estimating the effects of each predictor variable on various dyad-level measures of thoughts, feelings, and behavior are reported in Table 1. The partial correlations estimating the effects of the men's shyness on individual-level measures of their own and their female partner's thoughts, feelings, and behavior are reported in Table 2. Finally, the partial correlations estimating the effects of the men's and women's physical attractiveness on individual-level measures of the men and women's thoughts, feelings, and behavior are reported in Table 3.

A straightforward interpretation of these data would obviously be compromised if shyness and physical attractiveness were found to be significantly correlated for either the men or the women in this study. Consistent with research reported by others (e.g., Bruch et al., 1986; Cheek & Melchior, 1990; Jones et al., 1986), however, the data showed that self-reported shyness and other-rated physical attractiveness were uncorrelated for the men, r(36) = .01, the women, r(36) = -.02, and for all subjects combined, r(74) = .01, ns.

Correlates of the Men's Shyness

The partial correlations estimating the effects of the men's shyness on various dyad-level behaviors are reported in the first column of Table 1. These data indicate that the men's shyness was negatively correlated with such aspects of the dyad members' verbal behavior as the frequency and duration of their speaking turns and the number of questions they asked each other. The men's shyness was also negatively correlated with aspects of the dyad members' nonverbal behavior that included the frequency and duration of their positive affect (i.e., smiles and laughter), their directed gazes, and their mutual gazes. Considering the strong and pervasive inhibitory influence of the men's shyness on these primary measures of interactional involvement, it is hardly surprising that the men's shyness was also negatively correlated with the dyad members' ratings of the perceived quality of their interaction.

The partial correlations estimating the effects of the men's shyness on their own and their female partners' individual-level behaviors are reported in Table 2. The data in the first column of Table 2 indicate that the men's shyness was positively correlated with the percentage of negative thought–feeling entries they reported having experienced during the interaction, and, in particular, with the percentage of negative feelings that concerned themselves. On the other hand, the men's shyness was negatively correlated with the percentage of thoughts and feelings they reported having had about their female partners. Finally, the more shy the men were, the less open their body postures were and the fewer expressive gestures they used.

These individual-level correlations converge with the dyad-level correlations in suggesting that the greater the men's level of shyness, (a) the more uncomfortable and self-conscious they felt, (b) the more inhibited they were in their own nonverbal behavior, and (c) the less interactional involvement (both verbal and nonverbal) they displayed in the dyadic interaction.

The data in the second column of Table 2 reveal that the men's shyness was positively correlated with the percentage of self-entries, particularly with the percentage of negative self-entries that their female partners reported. Moreover, the men's shyness appears to have inhibited such aspects of the women's nonverbal behavior as their gestures and their degree of body orientation toward their male partners. These effects of the men's shyness on the women's behavior tend to parallel similar effects of the men's shyness on their own behavior. Our assumption is that the direct effects of the men's shyness on their own behavior were responsible for the indirect effects of the men's shyness on the behavior of their female partners.

Note, however, that the men's shyness had some distinctive effects on the women's gazing behavior that were not apparent in the men's. These effects took the form of strong negative correlations between the men's shyness and the frequency with which the women initiated and terminated mutual gazes with them. Because the corresponding correlations for the men were near zero and nonsignificant ( .01 and −.12, respectively; refer to the first column in Table 2), it is clear that the men's shyness had essentially no effect on their own initiations and terminations of mutual gazes but dramatically limited the women's ability to initiate mutual gazes (by meeting their male partners' gazes) or to terminate mutual gazes (by breaking off the mutual gazes by looking away before their male partners did). These relationships are graphically depicted in Figure 3.

A follow-up analysis conducted at the individual level revealed (a) a significant negative partial correlation (r = −.53, p < .002) between the men's shyness and the duration of time they spent looking at their partners but (b) a nonsignificant negative partial correlation between the men's shyness and the frequency of their gazes (r = −.23). Given the entire pattern of data for directed and mutual gazes, there is only one reasonable inference that can be drawn. This inference is that the more shy the men were, the more they managed to keep their female partners from establishing and subsequently breaking eye contact with them by looking at the women only in very brief glances and then looking away quickly if they found the women to be already looking at them. Through this process, the shy men could control the onset, offset, and overall level of mutual

4 The results of moderated multiple regression analyses, designed to test selected dependent measures for statistical interactions involving subsets of the four predictor variables, are described later in this article.
Table 1

Correlations of the Men's and Women's Shyness and Physical Attractiveness With Dyad-Level Behaviors, Controlling for the Effects of the Other Three Predictors

<table>
<thead>
<tr>
<th>Dyad-level measure</th>
<th>Shyness</th>
<th>Attractiveness</th>
<th>Male-female correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thought-feeling content</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(% positive entries)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thought-feeling content</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest self-report</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived interaction quality</td>
<td>-.49****</td>
<td>-.27</td>
<td>.28</td>
</tr>
<tr>
<td>Subject likes partner</td>
<td>-.45***</td>
<td>-.30</td>
<td>.28</td>
</tr>
<tr>
<td>Verbal behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbalizations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>-.42***</td>
<td>-.30</td>
<td>.28</td>
</tr>
<tr>
<td>Duration</td>
<td>-.45***</td>
<td>-.27</td>
<td>.30</td>
</tr>
<tr>
<td>No. questions asked</td>
<td>-.38**</td>
<td>-.14</td>
<td>.10</td>
</tr>
<tr>
<td>No. conversation sequences initiated</td>
<td>-.39***</td>
<td>-.30</td>
<td>.12</td>
</tr>
<tr>
<td>% third-person singular pronouns</td>
<td>-.54*****</td>
<td>-.06</td>
<td>.49***</td>
</tr>
<tr>
<td>Nonverbal behaviors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive affect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>-.34**</td>
<td>-.26</td>
<td>.39***</td>
</tr>
<tr>
<td>Duration</td>
<td>-.36**</td>
<td>-.22</td>
<td>.38**</td>
</tr>
<tr>
<td>Direct gazes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>-.41***</td>
<td>-.36**</td>
<td>.32</td>
</tr>
<tr>
<td>Duration</td>
<td>-.45*****</td>
<td>-.31</td>
<td>.11</td>
</tr>
<tr>
<td>Mutual gazes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>-.44*****</td>
<td>-.38**</td>
<td>.32</td>
</tr>
<tr>
<td>Duration</td>
<td>-.39***</td>
<td>-.25</td>
<td>.49***</td>
</tr>
</tbody>
</table>

Note. For each of the partial correlations, df = 33. Given the interdependence of the male and female dyad members' scores for all of the variables in this table, one would not expect that a given predictor's correlation with the male's (individual) behavior would differ significantly from its correlation with the female's (individual) behavior. Pearson-Filon tests confirmed this expectation, indicating no significant differential correlation for any of the findings.

* p < .05. ** p < .005. *** p < .001.
Table 2

Correlations of the Men’s Shyness With the Men’s and Women’s Behavior, Controlling for the Effects of the Other Three Predictors

<table>
<thead>
<tr>
<th>Measure</th>
<th>Correlation of men’s shyness with Men’s behavior</th>
<th>Correlation of men’s shyness with Women’s behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thought–feeling content</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% feelings</td>
<td>.47****</td>
<td>.23</td>
</tr>
<tr>
<td>% self-entries</td>
<td>.20</td>
<td>.37*</td>
</tr>
<tr>
<td>% negative entries</td>
<td>.49****</td>
<td>.26</td>
</tr>
<tr>
<td>% negative self-entries</td>
<td>.50****</td>
<td>.34*</td>
</tr>
<tr>
<td>% negative self-feelings</td>
<td>.51****</td>
<td>.29</td>
</tr>
<tr>
<td>% partner entries</td>
<td>-.37*</td>
<td>-.33*</td>
</tr>
<tr>
<td>Nonverbal behaviors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mutual gazes initiated</td>
<td>-.01</td>
<td>-.63****</td>
</tr>
<tr>
<td>(frequency)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mutual gazes terminated</td>
<td>-.12</td>
<td>-.54****</td>
</tr>
<tr>
<td>(frequency)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressive gestures</td>
<td>-.40**</td>
<td>-.49****</td>
</tr>
<tr>
<td>(frequency)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressive gestures</td>
<td>-.06</td>
<td>-.38**</td>
</tr>
<tr>
<td>(duration)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of body orientation</td>
<td>-.04</td>
<td>-.35*</td>
</tr>
<tr>
<td>Openness of body posture</td>
<td>-.36*</td>
<td>.04</td>
</tr>
</tbody>
</table>

Note. For each of the partial correlations, df = 33.
* t_{(35)} = 3.50, p < .01 (Pearson-Filon test). ** t_{(35)} = 2.14, p < .05 (Pearson-Filon test). The differences for all other pairs were not significant.
* p < .05. ** p < .025. *** p < .01. **** p < .005.

The data do not permit a definitive answer to this question. It may be worth noting, however, that the men’s attractiveness was correlated −.51 with their female partners’ use of third-person singular pronouns but was correlated only −.39 with their own use of third-person singular pronouns. Because the correlation accounted for substantially more variance in the women’s behavior ($r^2 = .260$) than in the men’s behavior ($r^2 = .152$), the most plausible interpretation may be that the women were setting the exclusive tone of these conversations and that the attractive men were following their lead.

This interpretation is made even more plausible by the positive correlation (33) between the men’s attractiveness and the percentage of positive partner thoughts and feelings that their female partners reported (Table 3, second column). This correlation suggests that the women’s feelings of attraction to physically attractive male partners may have motivated them to set an exclusive tone for their conversations to facilitate greater intimacy and mutual involvement. That the women were pressing for more intimacy and involvement than their attractive male partners is further suggested by the finding (reported in the first column of Table 3) that the more attractive the men were, the more likely they were to terminate mutual gazes by looking away while their female partners were still looking at them.

Correlates of the Women’s Physical Attractiveness

As the data in the fourth column of Table 1 show, the women’s physical attractiveness was positively correlated with several dyad-level measures of verbal and nonverbal behavior. With regard to verbal behaviors, the women’s attractiveness was strongly correlated with the frequency and duration of talking within the dyad, with the number of questions asked, and with the number of conversation sequences initiated. With regard to nonverbal behaviors, it was also positively correlated with the dyad-level measures of the frequency and duration of directed

Table 3

Correlations of the Men’s and Women’s Physical Attractiveness With the Men’s and Women’s Behavior, Controlling for the Effects of the Other Three Predictors

<table>
<thead>
<tr>
<th>Measure</th>
<th>Men’s attractiveness correlated with</th>
<th>Women’s attractiveness correlated with</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men’s behavior</td>
<td>Women’s behavior</td>
</tr>
<tr>
<td>Thought–feeling content</td>
<td>.41***</td>
<td>-.11*</td>
</tr>
<tr>
<td>% metaperspective entries</td>
<td>.20</td>
<td>.33*</td>
</tr>
<tr>
<td>% positive partner entries</td>
<td>.28</td>
<td>.33*</td>
</tr>
<tr>
<td>Posttest self-report</td>
<td>.34**</td>
<td>.16</td>
</tr>
<tr>
<td>Subject understands partner</td>
<td>.01</td>
<td>.34**</td>
</tr>
<tr>
<td>Verbal behaviors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. verbal reinforcers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonverbal behaviors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness of body posture</td>
<td>.38***</td>
<td>-.01</td>
</tr>
<tr>
<td>No. mutual gazes terminated</td>
<td>.15</td>
<td>.36**</td>
</tr>
</tbody>
</table>

Note. For each of the partial correlations, df = 33.
* t_{(35)} = 2.31, p < .05. The difference between the pair of correlations is significant by the Pearson-Filon test. The differences for all other pairs were not significant.
* p < .05. ** p < .01. *** p < .005.
gazes and the frequency of mutual gazes. Finally, it was positively correlated with the dyad-level measures of how much the dyad members reported liking each other and how positively they rated the quality of their interaction.

Perhaps the most striking effect of the women's attractiveness was its individual-level correlation with the percentage of metaperspective thought-feeling entries reported by the men in this study (Table 3, third column). The more attractive the women were, the more likely the men were to symbolically adopt their partners' cognitive perspective and to "see the interaction through her eyes." Consistent with this finding, the women's attractiveness was also positively correlated with the men's perception that they understood their female partners. Finally, the women's attractiveness was positively correlated with the openness of their male partners' body posture.

The greater number of conversation sequences initiated in dyads with physically attractive women hints at an interaction pattern in which the conversation was sporadic and discontinuous. It suggests, in other words, that the conversation sequences were short-lived and died out fairly rapidly and that new ones were subsequently initiated that suffered the same fate. This interaction pattern makes sense if one assumes that physically attractive women did not encourage extended conversation with their male partners, whom they may have perceived as "coming on" to them. Such an assumption would also account for our discovery, in subsequent individual-level analyses, that the women's attractiveness was significantly correlated with an increased duration of their male partners' talking (partial $r = .48$, $p < .005$) but not of their own talking (partial $r = .25$, ns). In addition, it would account for the women's attractiveness being positively correlated with their own, but not with their male partners' use of verbal reinforcers and termination of mutual gazes (Table 3, column 4).

In summary, the most parsimonious explanation of the data in the last two columns of Table 3 may be that the attractive women perceived their male partners as "coming on" to them, and to avoid encouraging these overtures, tended to break off eye contact and allow the conversation sequences to die by letting the men "talk themselves out" without responding at any length themselves. This same explanation also accounts fairly well for the men's reactions to their female partners' attractiveness. Specifically, the male partners of attractive women tried repeatedly, but without much success, to engage them in extended conversation. Given these efforts, it is not surprising that the men were highly motivated to adopt their female partners' cognitive perspective (i.e., through metaperspective taking) to figure out how to make these interactions work. The men's subsequent perceptions that they understood their attractive partners may have been partly veridical, because partner attractiveness was found to be a modest but significant predictor of actual empathic accuracy (Ickes, Stinson, Bissonnette, & Garcia, 1990). The same perceptions may have been partly illusory, however, if the men failed to appreciate that the attractive women did not want to encourage their overtures.

**Preliminary Tests of Possible Interaction Effects**

Because the four predictor variables in this study were uncorrelated, they should operate as nonredundant predictors of the behavior and perceptions of the men and women in these initial interactions. What we have not yet done, however, is test for possible interaction effects involving different subsets of these four variables (men's shyness, women's shyness, men's attractiveness, and women's attractiveness).

Multiplicative product terms could be computed to test for statistical interactions involving two, three, or all four of the predictors. However, the sheer number of possible interactions (11 for a four-variable model), when multiplied by the large number of dependent measures (at least 60) and further complicated by the need to analyze some measures at the dyad level and others at the individual level, meant that any attempt to report, describe, and interpret all of the significant interactions in the context of an already lengthy report was clearly beyond the scope of this article.

Lacking sufficient space to report and discuss the interaction

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![Figure 3. Average number of mutual gazes initiated (top) and terminated (bottom) as a function of the men's shyness level. (The means depicted were adjusted to control for the effects of the women's shyness and the men's and women's attractiveness.)](image-url)
analyses separately for each measure, we elected to report only a couple of preliminary tests of possible interaction effects. To summarize the set of relevant variables as efficiently as possible, we took the following steps. First, on the basis of the results of a varimax factor analysis of the primary measures of interactional involvement, we summed the standardized scores on four dynamic behaviors—frequency of verbalizations, directed gazes, positive affect, and expressive gestures—to form a composite, dyad-level index of interactional involvement. The loadings of these four behaviors on the only factor to emerge from this analysis were .93, .93, .78, and .63, respectively. Second, the scores reflecting the dyad members’ posttest ratings of their interaction as “smooth, natural, and relaxed” (positively keyed) and as “forced, awkward, and strained” (negatively keyed) were summed to form a composite, dyad-level index of perceived interactional quality.

Multiple regression analyses revealed that regressing the composite measure of interactional involvement onto the four predictor variables yielded a multiple $R$ of .68. Similarly, regressing the composite measure of perceived interactional quality onto the four predictor variables yielded a multiple $R$ of .61. Moreover, these findings indicated that a substantial portion of variance in the dyad-level measures of interactional involvement and perceived interaction quality was accounted for by only two attributes of the male and female dyad members: the men’s shyness and the women’s physical attractiveness. For the composite measure of interactional involvement, the men’s shyness and the women’s attractiveness were the only significant individual predictors, with partial correlations of .55 and .50, respectively. They were also the only significant individual predictors of the composite measure of perceived interactional quality, with partial correlations of .49 and .35, respectively.

In general, the various interaction terms failed to contribute significantly to the prediction equation for either interactional involvement or perceived interactional quality. Out of 22 interactions tested, only one was significant (i.e., the interaction of the women’s shyness and the men’s physical attractiveness for the interactional involvement measure). We do not discuss this single interaction because it was neither strong nor readily interpretable and because one significant interaction out of 22 tested could be expected by chance alone.

Given the strong and pervasive main effects reported in Table 1 and the general lack of qualifying interaction effects reported here, we suggest that an additive model based primarily on the men’s shyness and the women’s physical attractiveness might account quite parsimoniously for their behavioral involvement and perceived interaction quality at the dyadic level of analysis. On the other hand, a more complex model might still be required to account for the men’s and women’s behaviors and perceptions at the individual level of analysis.

**Discussion**

The results of this study not only replicate and confirm those of previous investigations but add several novel insights as well. Accordingly, our discussion of the results for the shyness and physical attractiveness variables (a) reviews the ways in which they replicate and reinforce the results of earlier studies and then (b) focuses on the theoretical and practical implications of the findings in this study that have not been previously reported.

**Summary and Implications of the Attractiveness Data**

Our findings contribute in several ways to understanding how physical attractiveness influences the unstructured interactions of mixed-sex dyads. First, our findings complement those of earlier studies regarding the social value that people place on physical beauty (Berscheid et al., 1971; Dion et al., 1972; Walster et al., 1966; see Patzer, 1985). In general, these findings indicate that individuals not only value and desire but also seek to establish and intensify interactions with those who are physically attractive. Similarly, the apparent exclusivity effect we found suggests that when women are in the company of attractive men, they attempt to establish a more intimate and communal relationship with their partners—even during the earliest minutes of their first interaction. Moreover, when men interact for the first time with attractive women, they not only try repeatedly to engage their partners in conversation but also attempt to adopt their partner’s cognitive perspective, presumably with the goal of maximizing the success of these overtures. These findings are clearly consistent with the assumption that interacting with physically attractive members of the opposite sex is a social investment worth pursuing (cf. Crouse & Mehrbani, 1977; Sigall & Landy, 1973).

Second, our results also reinforce the general assertion that interactions with physically attractive people are affectively pleasant and qualitatively positive. As the dyad-level correlations in Table 1 show, the women’s attractiveness was positively correlated with the degree to which the dyad members liked each other and perceived their interaction as pleasant. Similarly, the men’s attractiveness was positively correlated with the percentage of positive thoughts and feelings the dyad members reported during their interaction as well as with the amount of time they smiled at each other.

Third, our findings permit greater specificity in the theoretical interpretation of these attractiveness effects. By randomly pairing the male and female dyad members, we eliminated the attractive persons’ usual opportunities to select their interaction partners. Consequently, our results can be interpreted as reflecting the relatively direct impact of physical attractiveness on the initial interactions of randomly paired, opposite-sex strangers. This interpretation suggests that it is possible to account for the Reis et al. (1980, 1982) finding that physically attractive people rate their opposite-sex interactions as particularly satisfying without recourse to a selection-of-partner interpretation. Although we cannot rule out the possibility that the relatively direct effect of attractiveness we obtained is further augmented by a more indirect selection-of-partner effect, it does seem clear that partner selection is not a necessary cause of the association between physical attractiveness and self-reported satisfaction in the interaction of heterosexual dyads.

Fourth, perhaps the most intriguing of the present findings is what we have tentatively labeled the exclusivity effect. It has already been demonstrated that individuals seek to establish communal relationships with physically attractive people (e.g., Clark & Mills, 1979). What the present findings appear to document is a previously unrecognized process by which an attempt is
made to create a communal atmosphere in initial, heterosexual interactions through the restriction of conversational references to third-party individuals. The present data suggest that the women in these interactions may have been primarily responsible for setting a more exclusive conversational tone as a function of the physical attractiveness of their male partners. Further studies will be needed, however, to determine both the underlying dynamics and the generality of this effect.

Fifth, the dynamic influence of the female partners' attractiveness on both dyad members' behavior is also deserving of future research. In the current study, the men who were paired with attractive women adopted their partner's cognitive perspective while repeatedly attempting to engage them in conversation. These behaviors appear to have been influenced by those of the attractive women, who seemed to exercise some caution in these initial interactions. Women are taught to be wary of strange men, especially those who seem interested only in their looks. By breaking off eye contact and not encouraging lengthy conversation, the attractive women may not only have evidenced the greater distrust of men that Reis et al. (1982) have documented but also may have required the men to exert greater cognitive and conversational effort to make the interactions work. Apparently, the interactions involving attractive women succeeded in spite of these obstacles, as the dyad-level correlations revealed that posttest measures of liking for partner and perceived interaction quality were both positively correlated with the women's attractiveness. On the other hand, in less enforced interaction contexts, the same obstacles might serve as a kind of filtering mechanism by which attractive women selectively interact with the most persistent (though not necessarily the most sincere) men.

Sixth, consistent with popular stereotype, the men in this study appeared to be more greatly affected by the women's attractiveness than the women were by the men's. This asymmetrical influence is most clearly suggested by the data in Table 1, where it can be seen that the significant correlates of the women's attractiveness outnumber the significant correlates of the men's attractiveness by a ratio of about 3 to 1. Although the men's attractiveness was certainly not irrelevant to the dynamics of these interactions, as the significant correlations in column 3 of Table 1 and columns 1 and 2 of Table 2 indicate, its effects did not appear to be as pervasive as the effects of the women's attractiveness in the present study.

Finally, although researchers have noted the importance of studying the long-term effects of physical attractiveness (Hatfield & Sprecher, 1986; cited in Berscheid & Walster, 1974; Reis et al., 1980, 1982), relatively little is known about the specific cognitive, emotional, and behavioral correlates of physical attractiveness in initial, mixed-sex interactions. The findings of the present study provide a fine-grained, detailed look at these relations, many of which suggest promising directions for future research.

Summary and Implications of the Shyness Data

The results from the shyness data are broadly consistent with previous research on the role of shyness in dyadic interactions. Self-reported shyness was related in the direction predicted by previous research to behavioral measures of interactional involvement, to measures of positive and negative thoughts and feelings, and to posttest perceptions of the interaction. The results also enabled several novel insights, however, that raise some interesting issues worth pursuing in future research.

Generally, the pattern of findings differed markedly for men and women. The first and most striking gender difference was that the women's shyness scores were related to only two of the behavioral measures (i.e., directed and mutual gazes), whereas the men's shyness scores were broadly related to measures of verbal and nonverbal behavior as well as to various types of thought and feeling entries. Hints of a similar gender difference have emerged in previous studies involving mixed-sex dyads (Beidel, Turner, & Dancu, 1985; Pilikonis, 1977).

Viewed collectively, these studies lend some support to the speculation that, because social stereotypes require men to take the initiative in initial mixed-sex encounters more often than women, "the burden of shyness, particularly when manifested in one's overt behaviors, may be much greater for males than for females" (Bruch et al., 1986, p. 184). Although women's shyness scores have been found to be related significantly to similar behavioral and cognitive measures in two other studies (Cheek & Buss, 1981; Melchior & Cheek, 1990), it is important to note that the dyadic partner in both of these studies was also a woman. This pattern of results raises the interesting possibility that shyness may be more of an issue for women in same-sex interactions and more of an issue for men in mixed-sex interactions.

A second intriguing gender difference emerged from the analyses of the variables pertaining to gazing behavior. The entire pattern of data for these variables suggests that the more shy the men were, the more they managed to keep their partner from establishing and maintaining eye contact with them. Apparently, shy men can restrict opportunities for their female partners to initiate and terminate mutual gazes without significantly limiting their own ability to engage in the same behavior. This pattern of results leads us to speculate that eye contact is an important marker variable that can help us understand how shyness affects the behavior of both dyad members in these initial mixed-sex interactions. Perhaps shy men use this strategy as a way of psychologically avoiding an overwhelming social situation when it cannot be physically avoided or escaped. If so, this avoidant gaze control may be adaptive in the short run, by allowing shy men to deal with their anxiety at their own pace and discretion.

On the other hand, the shy men's gaze control may be maladaptive in the long run, by creating a pattern of disturbed visual interaction that leads both the men and the women to experience negative, self-referenced feelings and to reduce their level of interactional involvement. This interpretation is supported by the findings documenting the influence of the men's shyness on their female partner's behavior. The men's shyness scores were related to indices of the women's nonverbal behaviors and thought-feeling content even though the women's own shyness scores were not related to these indices. Furthermore, the men's shyness scores influenced their partner's interactional involvement as much as it influenced their own.

We suggest that the shy men's gazing strategy may have helped to mediate the negative reactions and impaired performance of the women in these encounters. Thus, in addition to
its direct effect of limiting mutual gaze at the dyad level, the shy men's unusual gazing behavior may have been responsible for such indirect effects as making the women feel self-conscious and uncomfortable, inhibiting the verbal and nonverbal behavior of both dyad members, and causing both dyad members to rate the interaction more negatively. If the unusual gazing behavior of the shy men is indeed a major cause of the problems that occur in their initial interactions with women, then an intervention designed to normalize the gazing behavior of shy men might also help to normalize and enhance the quality of other aspects of their interactions with members of the opposite sex. Conducting empirical tests of the effectiveness of such an intervention should be an important goal of future research.

A third and final gender difference worth mentioning involves the relationship between shyness and focus of attention. The men's, but not the women's, shyness scores were related to both partners' independently reporting a larger percentage of negative self-entries and a correspondingly smaller percentage of partner-directed entries. Thus, the men's shyness led both dyad members to become more preoccupied with their own anxiety and distress and to devote fewer thoughts and feelings to their partner. These findings complement and extend those of a recent study by Bruch et al. (1989) in which shy men reported more negative self-thoughts on the Social Interaction Self-Statement Test (Glass et al., 1982) after a contrived, mixed-sex dyadic interaction than did all other groups (nonshy men, shy women, and nonshy women). On the other hand, because shy women have reported being more self-preoccupied than nonshy women during a same-sex interaction (Melchior & Cheek, 1990), these findings again suggest that the nature of the interaction (same sex vs. mixed sex) may moderate the way that men and women experience and express their shyness in initial encounters.

Conclusions

There are at least four broad conclusions to be drawn from the results of this study. First, the results leave no doubt that two individual-difference variables, shyness and physical attractiveness, have a dramatic impact on initial mixed-sex interactions. The strength and pervasiveness of this impact in the present study was evident for behavioral measures of interactional involvement as well as for self-report measures of perceived interactional quality, liking for partner, and the kinds of thoughts and feelings experienced during the interaction by the dyad members.

Second, the present findings reveal that the impact of shyness and physical attractiveness on an initial, mixed-sex interaction is different between men and women. Therefore, we suggest that caution be used in any attempt to generalize across gender or from studies of same-sex dyads to studies of mixed-sex dyads. Future research should investigate more systematically how the influences of shyness and attractiveness on initial encounters are moderated by the gender of each dyad member and by the gender composition of the dyads.

Third, the results of this study highlight the interdependency in dyad members' scores on certain behavioral and self-report measures. Our data revealed influences of the men's and women's shyness and physical attractiveness at both the dyadic and individual levels of analysis. Findings such as these clearly illustrate the limitations of experimental studies that examine only the influence of a target's attribute (e.g., attractiveness) on a perceiver's perceptions and behavior. Although such studies may succeed in determining the causal ordering of the attribute-behavior relationship, they often fail to determine the variable's dynamic effects on the individual- and dyad-level behavior of all those involved in the social encounter. Clearly, future studies should recognize, rather than ignore, the problem of behavioral interdependence, and researchers should analyze and report findings at both the dyadic and individual levels of analysis.

Fourth, the results offer additional evidence that the expanded interaction paradigm is a powerful and exceptionally informative method for studying initial interactions as they naturally occur. In this study, several data patterns were strikingly diagnostic of underlying processes. It should be obvious that this outcome is due in part to the "triangulated" insights provided by a wide range of behavioral measures and by a similarly wide range of thought-feeling content measures. Less obvious, perhaps, is that this outcome is also due in part to the deliberate lack of situational constraints on these unstructured interactions. By forcing the dyad members to rely on individual-difference variables to provide the cues to guide their behavior, this feature of the dyadic interaction paradigm allows personality-based processes to stand out as figural against the ground of a psychologically weak situation (Ickes, 1982; Snyder & Ickes, 1985).

As a final point, at least two limitations of the present study should be noted. First, our assessments of the predictor variables—shyness and attractiveness—were less than optimal and could be improved in future research. In particular, the shyness measure should be administered to subjects well in advance of their laboratory interaction, something that was precluded in this study because of the unavailability of space on the departmental pretest. In addition, the objective ratings of physical attractiveness might be made from more static videotape excerpts in which no interaction was occurring and the target's dyad partner was masked off. The practical advantages of these latter refinements could prove to be minimal, however, given the nearly perfect (93) reliability of the attractiveness ratings and the fact that they were obtained with the sound turned off at a point in the interaction when conversation in most of the dyads had not yet begun.

Second, in any exploratory study in which a large number of dependent variables are used, the question of Type I error inevitably arises. Attempting to answer this question in terms of an experimentwise error rate is often unsatisfactory, for reasons cited by Lykken (1968). More to the point are questions about the magnitude or effect size of the findings reported in the study (Cohen, 1990) and the extent to which these findings are internally corroborative (i.e., form patterns of theoretically meaningful, mutually supportive results) and externally corroborative (i.e., are consistent with the findings of previous independent research). Of the significant correlations reported in Tables 1, 2, and 3, the average magnitude is greater than .40, a value that Funder (1987) and Funder and Ozer (1983) have argued is typical of the strongest effects in personality and social psychology. In addition, there is considerable evidence (re-
viewed earlier) for both the internal and external corroboration of these results.

Still, the ultimate test of any effect is its replicability. For this reason, the present findings should not be regarded as definitive. Instead, they should be viewed as offering some interesting hypotheses about, and some consistent evidence for, the dynamic interactional processes that are precipitated in initial mixed-sex interactions by individual differences in shyness and physical attractiveness.

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