

## INTERPERSONAL DECEPTION: III. EFFECTS OF DECEIT ON PERCEIVED COMMUNICATION AND NONVERBAL BEHAVIOR DYNAMICS

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*ABSTRACT:* Much past research on deception has examined it individually and noninteractively. Here we argue for broadening our understanding of deception by examining it as a dyadic and interactive event. Assumptions of an interpersonal perspective, articulated in Interpersonal Deception Theory, are advanced. These include recognizing the agency of both parties to interpersonal exchanges, examining such exchanges at multiple levels, incorporating measures of communication-related perceptions and interpretations as well as behaviors, recognizing that behaviors may be strategic as well as nonstrategic, and viewing such behavior as dynamic rather than static. An experiment reflecting this orientation is presented in which pairs of participants, half friends and half strangers, conducted interviews during which interviewees (EEs) either lied or told the truth to interviewers (ERs) who were induced to be highly, moderately, or not suspicious. Dependent measures included participant (EE and ER) perceptions, interpretations, and evaluations of EE behaviors and trained coders' ratings of actual nonverbal behaviors. Consistent with the theory, deceivers were more uncertain and vague, more nonimmediate and reticent, showed more negative affect, displayed more arousal and non-composure, and generally made a poorer impression than truth-tellers. Their behaviors also connoted greater formality and submissiveness. Also consistent with the theory's premise that deceptive interactions are dynamic, deceivers' kinesic relaxation and pleasantness changed over time, in line with a behavior and image management interpretation, and degree of reciprocity between EE and ER nonverbal behaviors was affected by the presence of deception and suspicion.

Deception is a deliberate act perpetrated by a sender to engender in a receiver beliefs contrary to what the sender believes is true to put the re-

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ceiver at a disadvantage. At its heart, deception is a communicative activity and, in interpersonal contexts, a dyadic one. Yet much deception research has implicitly taken an individualistic approach, focusing either on deceiver (sender) behavior or detector (receiver) judgments rather than on the deceptive transaction itself. This is evident in the rarity, until recently, of research permitting deceivers to interact with those responsible for judging their deception (Burgoon, 1989; Toris & DePaulo, 1985). Common research paradigms have included deceivers posing deception while an observer watches, implicating senders in an unethical act then recording their behavior when confronted, or asking senders to encode truthful and deceptive behavior on videotape for later viewing, listening, or reading by observers. Even in cases where sender and receiver have interacted, receivers have often been limited to reading a standard protocol of interview questions and deceivers have often been restricted to one or two word replies (e.g., Buller, Comstock, Aune, & Strzyzewski, 1989; Buller, Strzyzewski, & Hunsaker, 1991; O'Hair, Cody, & McLaughlin, 1981; O'Hair, Cody, Wang, & Chao, 1990; Toris & DePaulo, 1985; Vrij & Winkel, 1991; Weiler & Weinstein, 1972).

Whether findings from these kinds of studies can be generalized to the common communication circumstance where senders and receivers are both participants and engage in extended and extemporaneous interactions is questionable (Knapp, Cody, & Reardon, 1987). True interpersonal (face-to-face, interactive) deception invokes numerous considerations and demands not present when deception is noninterpersonal or entails highly constrained interaction. For example, situations "that do not obligate the liar to attend to an interviewer's presence may enable him or her to better effect control over some behaviors" (Knapp et al., 1987, p. 393). Because we believe that a dyadic and interactive perspective will extend our understanding of deceptive and honest behavior in important ways, we have begun to develop and test Interpersonal Deception Theory (IDT). IDT emphasizes communication factors as proximal causes of behavior and attempts to predict and explain the interactive dynamics of deception. Building upon distinctions proposed by Buller and Burgoon (1994; Burgoon, 1989, 1992) and previous experiments by Buller and colleagues (Buller & Aune, 1987; Buller et al., 1989; Buller, Strzyzewski, & Comstock, 1991; Buller, Strzyzewski, & Hunsaker, 1991), the current experiment addresses two facets of IDT: a strategic/nonstrategic distinction in deception displays and the dynamic quality of those displays.

### **An Interpersonal Communication Perspective**

The full range of assumptions and propositions associated with IDT are articulated in more detail elsewhere (Buller & Burgoon, 1993; Buller, Bur-

goon, Buslig, & Roiger, 1993; Burgoon, 1989, 1992). Here we present a cursory summary of those most relevant to the current investigation.

Beyond the obvious minimum requirement that deception be examined in contexts where sender and receiver actually communicate with one another, an interpersonal communication perspective requires expanding the locus of attention beyond individual and internal psychological processes such as goals, motivations, and cognitive abilities to dyadic and overt behavior patterns. Psychological variables are presumed to be necessary but not sufficient to predict and explain the topography and success or failure of deceptive encounters.

Second, an interpersonal perspective requires recognizing the agency of *both* parties in shaping the interchange. Most investigations of deception have implicitly embraced a unidirectional view such that a liar actively transmits signals which a receiver passively absorbs. Yet a cardinal principle of interpersonal communication is that it is a transactional process involving feedback and mutual influence (see, e.g., McCroskey, Larson, & Knapp, 1971). As a consequence, the character of deceit may change fundamentally when deceivers and receivers are engaged in ongoing conversation and deceivers must continually monitor their own performance while adapting to receivers' feedback. On this view, interpersonal deception might be better conceptualized as a game of moves and countermoves by deceiver and deceived.

Third, the game metaphor implies strategic behavior. An interpersonal perspective need not embrace the assumption that all behavior is mindful, deliberate, and willful—indeed, much of it is not—but it encourages distinguishing strategic from nonstrategic activity, something that may not be essential in noninteractive situations, where only some classes of behavior are evident. Past research has largely focused on more reactive, involuntary, and psychological aspects of deceptive communication (see Zuckerman, DePaulo, & Rosenthal's [1981] four-factor theory), to the neglect of the more active, voluntary, and functionally oriented features.

Fourth, an interpersonal perspective requires conceptualizing deceptive communication as "multi": multifunctional, multidimensional, multimodal, and multivariate. Interpersonal communication involves numerous functions or goals that may be operative simultaneously (see, e.g., Argyle, 1972; Burgoon, Buller, & Woodall, 1989; Burgoon & Saine, 1978; Ekman & Friesen, 1969b; Patterson, 1983, 1987). Deception strategies are intended to satisfy these multiple and sometimes competing communication objectives. Four that should be especially pertinent to interactive deception are impression management, relational communication, emotion management, and conversation management. The twin functions of impression management and relational communication concern, respectively, the

kinds of images people project for a general audience and the images or "messages" tailored to specific partners that have implications for defining the interpersonal relationship along such dimensions as trust, receptivity, and involvement. Emotion or affect management concerns how people regulate emotional experiences and expressions, including the appropriate revelation or suppression of emotional displays in social contexts. Conversation management concerns how interactants regulate conversational activities such as topic initiation and turn-taking.

These communication functions are themselves multifaceted. Relational communication, for example, is multidimensional (Burgoon & Hale, 1984), and functions are accomplished through a system of kinesic, vocalic, proxemic, and verbal modes of communication, each comprised of numerous cues. Because deceit and its detection occur within a web of multiple interpersonal objectives and meanings, the nonverbal and verbal combinations can vary substantially and may include many elements that are ancillary to the deception or detection display and should not be confused with them. At the same time, duplicitous behavior may diffuse into other functions, leading, for example, a receiver to read a liar's withdrawal as a message of dominance or disinterest.

Fifth, "interpersonal" often implies familiarity. Much deception occurs among people who are acquainted, for whom perceptions and behavioral patterns may differ substantially from those of strangers. Yet most deception research has employed deceivers and detectors who are strangers to one another and therefore may not be relevant to ordinary deceptive encounters.

Sixth, an interpersonal perspective requires conceptualizing and analyzing deception as a dynamic, evolving process. If a receiver's awareness of partner's possible duplicity (a.k.a. suspicion) sets up a chain reaction of offensive and defensive maneuvers by both, then behavioral patterns evidenced at the outset of an exchange may differ radically from those manifested later. Behavioral modifications in the face of disbelief or skepticism may ensnare not just deceivers but also truth-tellers and be as much a product of receiver intentions as sender motivations.

Seventh, perceptions and interpretations acquire a central role in an interpersonal perspective. The perception of deceit, as well as actual deceit, may initiate emotional, cognitive, and behavioral changes. In like manner, perceptions of suspicion may instigate behavioral change. An interpersonal perspective acknowledges the importance of the functional and symbolic meanings that are ascribed to deceptive or potentially deceptive interchanges.

These characteristics of an interpersonal perspective underpin the ex-

periment to be reported here, which tests IDT-generated hypotheses that are germane to deceiver communication. The experiment exemplifies an interpersonal perspective in that it (1) examines deception during actual interaction, (2) takes a functional approach, (3) analyzes classes of strategic and nonstrategic behavior, (4) investigates those behaviors in the context of an active, sometimes skeptical and sometimes acquainted receiver, (5) looks at dynamic behavior changes following the onset of deception, and (6) includes perceptual and interpretive measures as well as actual behavior.

### **Deception Hypotheses from Interpersonal Deception Theory**

#### *Strategic and Nonstrategic Communication*

The concept of strategic communication is grounded in the functionality of communication: Communicators' plans and intentions are translated into large behavioral routines (strategies) comprised of specific actions (tactics) (Berger, in press; Kellermann, 1992; Palmer & Simmons, 1993). One of the most fundamental objectives of message senders, be they truthful or deceitful, is to create messages that are believable. Receivers likewise expect honesty from others (Grice, 1989), use source ethos or credibility as one of the elemental bases for judging messages (McCroskey, 1972), and are sensitive to departures from expected communication patterns (Bond et al., 1992; Burgoon, 1993; Knapp, Hart, & Dennis, 1974). Thus, one function of deception is impression management—to protect one's image through skillful performance (e.g., Burgoon & Saine, 1978; DePaulo, Stone, & Lassiter, 1985; Goffman, 1959; Kraut, 1978; Kraut & Poe, 1980; Miller & Burgoon, 1982; Weiler & Weinstein, 1972). And, just as truth-tellers in face-to-face interaction monitor themselves and partner feedback to gauge the success of their presentation, so should deceivers. Any perceived threat to a performance's success should heighten self-monitoring, partner-surveillance, and efforts to bolster credibility (Buller, Strzyzewski, & Comstock, 1991).

At the same time that deceivers are attempting to put their "best face forward," they may also be attempting to send relational messages signaling sincerity, trustworthiness, positive affect, and involvement while simultaneously suppressing signs of negative arousal, adroitly switching turns and topics, and listening attentively to the other. Accomplishing the multiplicity of conversational demands is likely to tax even the most skilled communicator and may exceed the capabilities of most communicators. Thus, IDT stipulates that both strategic and nonstrategic behaviors are likely to be present during interactive deception. Even though some de-

ceiver behaviors are likely to be deliberate and instrumental, other behaviors may be inadvertent, leaking clues to deception in the form of negative affect, heightened arousal, or impaired communicative performance.

In an effort to identify broad classes of strategic and nonstrategic behavior, Buller and Burgoon (1994) proffered a seven-category typology for grouping deception-related tactics that draws partly upon the earlier work of Knapp et al. (1974) and DePaulo et al. (1985). The four strategic categories of *vagueness/uncertainty*, *withdrawal/reticence/nonimmediacy*, *disassociation*, and *image-protecting behaviors* can be further reduced to information management, behavior management, and defensive maneuvers. At the information management level, deceivers may intentionally use verbal and nonverbal means to introduce hesitancy, equivocation, and mixed messages to ambiguate the information being supplied and to distance themselves from what is being said. Bavelas, Black, Chovil, and Mullett (1990) contended that equivocation is a common deceptive strategy because, as a "half-truth," it permits the deceiver to escape telling an unpleasant truth while avoiding the guilt, arousal, and possible detectability of complete fabrication. At the behavior management level, deceivers may attempt to "disengage" from the conversation, reduce involvement in the interaction, or become more taciturn so as to control the amount of information that is transmitted to the receiver and preempt inquiry by the partner. Finally, as a defensive maneuver, deceivers may attempt to maintain a poised and friendly demeanor that allays suspicion.

The nonstrategic categories include the more commonly identified features of deceptive displays—what Ekman and Friesen (1969a) called "leakage" and what Zuckerman and colleagues (Zuckerman et al., 1981; Zuckerman & Driver, 1985) associated with increased arousal, negative affect, attempted control, and cognitive demands. The specific categories in the Buller-Burgoon typology are *arousal and nervousness cues*, *negative affect cues*, and *incompetent communication performances* (the latter encompassing performance decrements due to overcontrol and cognitive load). Moreover, the combined behavioral management strategies and nonstrategic leakage behaviors together should have the effect of reducing conversational involvement. Low conversational involvement is expressed through nonimmediacy, inexpressiveness and suppression of physical activity, self-focus, awkward and nonfluent interaction management, and cues of tension or nervousness (Coker & Burgoon, 1987). Thus, strategic behavior management and nonstrategic behavior can be described more parsimoniously as entailing reduced conversational involvement and impaired communication performances.

The evidence supporting these strategic and nonstrategic patterns is

abundant in the noninteractive literature (see, e.g., Miller & Burgoon, 1982; Zuckerman & Driver, 1985, for summaries). Several studies have demonstrated that honest senders use different verbal strategies to enhance their credibility than do dishonest ones (Weiler & Weinstein, 1972), that deceivers show reduced expressiveness and behavioral restraint (DePaulo & Kirkendol, 1989; Ekman, 1988; McClintock & Hunt, 1975; Vrij & Winkel, 1991), and that absence of a friendly, attentive demeanor connotes dishonesty (O'Hair, Cody, Goss, & Kraye, 1988). Other research has confirmed that several arousal-related behaviors are present during deception and these can be distinguished from arousal during truth-telling (deTurck & Miller, 1985; Vrij & Winkel, 1991). Among the frequently observed deceptive displays are increased adaptor behaviors, raised pitch, and tense vocal cues that signal heightened arousal or anxiety; micromomentary unpleasant facial expressions, unpleasant voices, and head shaking that reveal underlying negative feelings, possibly due to guilt about deceiving or fear of being detected; and nonfluencies, lack of self-synchrony, channel discrepancies, and incongruent or excessive responses that may reflect cognitive difficulties associated with producing deception (see Buller & Burgoon, 1994; Knapp et al., 1987; Miller & Burgoon, 1982; Zuckerman & Driver, 1985).

However, little of the research has been conducted in truly interactive contexts. Consequently, while previous research has identified various facial or vocal features that are implicated in deceptive displays, we do not know how these prototypical expressions are masked, exaggerated, or blended in actual interchanges. Frozen instances of deception may be distant cousins to deception in normal discourse, and strategic attempts to promote a favorable image may offset the leakage cues. Buller and Aune (1987) first tested this possibility in a study comparing deception displays across relationship types. Although deceivers did exhibit nonimmediacy, arousal, and negative affect, as expected, and although they better controlled their behavior when interacting with familiar others than with strangers, a finding suggestive of strategic behavioral control, they failed to exhibit the predicted positive, image-enhancing behaviors. A second interactive experiment employing probing questions (Buller et al., 1989) found more behaviors suggestive of information and behavior management by deceivers, including greater reticence, fewer interruptions, and, when probed, increased gazing and sustained facial animation relative to truth-tellers.

Extending upon these initial interactive studies, the current experiment tested the hypothesis that *compared to truth-tellers, deceivers display greater (a) vagueness and uncertainty, (b) nonimmediacy, (c) inexpressive-*

ness, (d) nervousness, (e) negative affect, and (f) communication incompetence (H1).

If one assumes that receivers are not passive bystanders but instead active message-processors who are attuned to message credibility, an important question arises: Is the above deception profile altered in the face of suspicion? Weiler and Weinstein (1972) proposed that suspiciousness on the part of an interviewer would cause both honest and dishonest interviewees to engage in the same credibility-enhancing maneuvers. But they found that honest interviewees used more credibility-enhancing strategies when the interviewer was supportive whereas deceivers increased such strategies when the interviewer was suspicious. Buller, Strzyzewski, and Comstock (1991) speculated that deceivers scrutinize partners for evidence that partners are oblivious to their dissembling and, if they suspect otherwise, step up their behavior management to minimize arousal leakage while simultaneously becoming more involved, pleasant, and expressive to appear credible. But are deceivers actually able to make these adjustments successfully without also impairing their communication performance? Buller et al.'s (1991) actual findings were mixed, but included many indicative of lack of success. Other research on planned versus spontaneous lying (e.g., O'Hair et al., 1981; O'Hair et al., 1990) and on motivated lying (e.g., DePaulo, Kirkendol, Tang, & O'Brien, 1988; DePaulo, Lanier, & Davis, 1983; Zuckerman & Driver, 1985) has shown that conscious information and behavior management may actually impair performance, leading deceivers to appear stiff, unnatural, anxious, and unsuccessful. In light of conflicting speculations and empirical evidence, a research question was advanced: *Does the presence of suspicion minimize or exacerbate deception displays* (RQ1)?

### *The Dynamics of Deception*

A second feature of IDT to be addressed here is the dynamic nature of deceptive encounters. As an interpersonal communication event, deception should exhibit the same dynamic properties as other interpersonal interactions. Moreover, the contention that deceivers engage in information management, behavior management, and defensive maneuvers implies that behavior will change as deceivers monitor and adjust their performances.

Buller and Aune (1987) documented that deception-related behavior is dynamic. They found some behaviors were present at the outset of interactions but declined as the interaction progressed (e.g., chair twisting and general animation); other changes emerged in the middle or near the end of conversations (e.g., increased vocal pleasantness and increased imme-



diacy); and yet others remained unchanged relative to the dynamic behavior of truth-tellers (e.g., brief face and head adaptors). The two later experiments showed that these dynamic changes were affected by probing and suspicion. For example, deceivers increased gazing and sustained more facial animation than truth-tellers when probed, possibly in an attempt to appear more credible, and both truthful and deceptive communicators became more guarded and inexpressive when confronted by probing or suspicion (Buller et al., 1989; Buller, Strzyzewski, & Comstock, 1991). Thus, we hypothesized that *deception displays change over time toward greater behavior management and image protection* (H2).

Related to the contention that behavior during interactive deception is dynamic is the extent to which one person's behavioral changes influence or are influenced by the partner's as an interaction unfolds. The interpersonal interaction literature has documented that mutual influence is common, sometimes producing matching (reciprocal) behavior patterns and sometimes producing opposite (compensatory) ones (see, e.g., Andersen, 1985; Cappella, 1985; Hale & Burgoon, 1984). One possibility is that deceivers, when confronted by intensive questioning by another, may compensate by becoming withdrawn, nonimmediate, and submissive. Previous literature has often depicted deception as fitting this profile; it seems plausible that such a response pattern would become more pronounced if deceivers were confronted by an assertive, suspicious receiver. On the other hand, growing evidence suggests that people entrain automatically and subconsciously to the behavior of others and that reciprocity is the prevailing pattern (Bernieri & Rosenthal, 1991; Burgoon, Dillman, Stern, & Kelley, 1992; Burgoon, Le Poire, & Rosenthal, 1992). If this holds true in deceptive interactions, then deceivers might actually match the interaction style used by their questioners or vice versa. One person's immediacy or arousal might evoke a similar pattern from the other. If these reciprocal patterns were to obtain, it would complicate the picture of deception in that a deceiver's behavioral displays might be under the control of the partner as well as the act of deception. Consequently, a second research question addressed *the extent to which interactants exhibit reciprocal or compensatory interaction patterns during deception* (RQ2).

## Method

### *Participants*

Participants ( $N = 240$ ) were undergraduate students who interacted with friends ( $n = 63$  dyads) or strangers ( $n = 57$  dyads) in a videotaped discussion of personal values and beliefs.<sup>1</sup> These pairings resulted in 25

same-sex and 32 opposite-sex pairings among strangers, and 43 same-sex and 20 opposite-sex pairings among friends. By role, 40% of interviewees and 39% of interviewers were male.

### *Procedure and Independent Variables*

The procedures, which were partially adapted from those used by Toris and DePaulo (1985) and Buller and Aune (1987), were designed to produce extended, extemporized discourse from strangers and friends alike and to create plausible deception and suspicion manipulations. Because impression management is operative in both familiar and unfamiliar relationships, the experiment was introduced as examining how people represent themselves to strangers or familiar others when expressing personal beliefs. An interview format was selected to produce comparability across pairs in topics covered and in interviewer verbal behavior. To encourage some free encoding, interviewers were instructed to ask interviewees for explanations of their answers and interviewees, to give them.

Participants were randomly assigned to interviewee (EE) or interviewer (ER) roles and to experimental conditions. EEs completed a questionnaire covering the items to be asked in the upcoming interview. The questionnaire consisted of 16 statements, modeled after social desirability and Machiavellianism scales, to which respondents answered true or false (e.g., "I would never think of letting someone else be blamed for my wrongdoings," "I sometimes think when people have a misfortune they only got what they deserved"). Meantime, ERs reviewed the same items, reworded as the questions to be asked during the interview.

Next, EEs received the deception induction while ERs received the suspicion induction. Half the EEs received the following deception induction shown in the first part of each bracketed statement below; the other half received instructions to be truthful (the second part of the bracketed statements):

Some people, when answering these kinds of questions in actual conversation, tend to misrepresent their true feelings and actions. We want to determine if conversational partners [can detect such lies/recognize truthful answers]. Therefore, we would like you to [lie as convincingly as you can on all questions after question 5/be as truthful as possible in giving your answers to all questions].

Including a truthful baseline period familiarized participants with the situation before beginning deceit, gave interviewers a sample of truthful behav-

ior against which to compare later behavior should they detect changes, and created a clear juncture for introducing the suspicion manipulation.

ERs were randomly assigned to a no, moderate, or high suspicion condition. Those in the two suspicion conditions were told that people are sometimes less candid and truthful when answering questions face-to-face than when completing anonymous questionnaires. In the moderate suspicion condition, the assistant added:

We will be following along your partner's questionnaire as you ask the questions. Because we are interested in how accurately people represent themselves to others, if I have reason to believe that your partner is not giving you straight answers, I will signal you by walking through [the room adjacent to the interview room]. . . . I would like you to probe his/her answers in more detail to see if you can determine if he/she is telling the truth.

In the high suspicion condition, ERs were told that if people lie on one question, they are likely to lie on another, and that the walk-through signal would indicate that the partner had lied on one of the questions. To further stress the likelihood of deceit, the wording of the probing instruction was changed to read, "determine if he/she is lying on the remaining questions." In the no suspicion condition, these statements were omitted. All ERs were then told that at the end of the interview, they would complete written evaluations of their partner's relaxation, openness, involvement, and candor. This statement was designed to equalize ERs' initial attentiveness to their partner's communication.

Interviews were conducted in a room resembling a living room equipped with swivel chairs and a one-way mirror through which interactions were videotaped with participants' consent. After question five, assistants walked through the adjacent room, made eye contact with the ER, who was facing toward that room, and retreated. The interviews continued for five minutes, after which EEs and ERs were separated to complete their respective dependent measures and to be debriefed.

### *Dependent Measures*

To measure perceived verbal and nonverbal communication, ERs and EEs each rated EE's specific communication behavior. ERs also evaluated EE behavior on its general desirability and expectedness and the relational message interpretations they (ERs) attributed to it. The specific communication measures consisted of several Likert-format statements describing communication behaviors related to vagueness/uncertainty, brevity, gaze,

adaptor use, nervousness, and manipulateness. Due to concerns for respondent fatigue and the importance of also measuring interpretations associated with communicative behavior, the behaviors chosen were necessarily a selective sample of possible cues. The expectedness and evaluation statements, which were interspersed among these, were taken from Burgoon and Walther (1990).<sup>2</sup> (Less successful performances were assumed to be those evaluated negatively and seen as atypical.) Interpretations were measured with 25 statements from Burgoon and Hale's (1984, 1987) Relational Communication Scale. This factor-based instrument, which taps fundamental interpretive dimensions along which people judge interpersonal communication and relationships, has been used elsewhere to assess meanings assigned to nonverbal and verbal behavior (see, e.g., Burgoon, 1991; Burgoon & Newton, 1991; Newton & Burgoon, 1990). Item wordings express what messages the partner was perceived to have sent to the respondent (e.g., "My partner created a sense of closeness between us," "My partner didn't care what I thought," "My partner appeared to be nervous talking with me").

To minimize multicollinearity in the data analyses and reduce the measures to a parsimonious subset, items were grouped according to their functional relatedness (e.g., arousal) and subjected to reliability analysis (factor analysis being precluded by the sample size). The resultant communication behavior composites and their respective Cronbach alpha reliabilities on the ER questionnaire were: vagueness/uncertainty (evasive, ambiguous, inconsistent answers; long response latencies), .57; nervousness (fidgety and uncomfortable, object adaptor behaviors), .71; evaluation, .81; and expectedness, .49. Measured as single items because of their conceptual distinctness or weak correlations with other items were gaze avoidance, brevity of answers, negative affect (pleasantness), and impression made. On the EE questionnaire, two composites were formed: own vagueness/uncertainty, .65; and own nervousness, .80. Measured as single items were gaze avoidance, brevity, and perceived impression made.<sup>3</sup> The vagueness/uncertainty measure represents strategic information management. Gaze avoidance is one aspect of immediacy, a form of strategic behavior management. Nervousness (an arousal indicator), negative affect, expectedness, evaluation, and impression made are all "non-strategic" measures related to poor communication performance. Relational communication dimensions and their respective alpha reliabilities were: immediacy, .83; affection, .85; composure, .78; dominance, .55; formality, .48; and receptivity/trust, .77. Beyond measuring interpretations, the immediacy, affection, and composure dimensions supplement the behavioral measures associated with immediacy, negative affect, and arousal.

### *Nonverbal Coding*

Subsequently, trained coders ( $N = 12$ ) rated the EEs and ERs on several nonverbal kinesic, proxemic, and vocalic behaviors commonly implicated in the deception literature as strategic behaviors or leakage cues (Buller, 1988; Burgoon & Buller, 1994; Zuckerman & Driver, 1985). Two teams of three coders who observed the video-only portion of the videotaped interviews rated EEs or ERs on 14 kinesic and proxemic behaviors and associated perceptions on 7-interval scales (usually bounded by "not at all" and "very"). The remaining two teams listened to the audio portion of the videotapes and rated EEs or ERs on 14 vocalic behaviors and perceptions. The measures were combined into composite categories on the basis of conceptual and empirical relatedness in previous studies (see, e.g., Coker & Burgoon, 1987) and reliability analysis. The kinesic/proxemic categories retained for interpersonal deception analysis here and their respective interitem (coefficient alpha) and interrater (Ebel's intraclass) reliabilities were: *immediacy* (physical closeness, amount of gaze, directness of facing, amount of forward lean), .64, .74; *kinesic pleasantness* (frequency of smiling and facial pleasantness), .94, .73; *kinesic activation* (frequency of self-adaptors, object-adaptors, random movement, and rocking and twisting), .57, .69; and *kinesic relaxation* (a global perceptual measure employing the attributes relaxed, calm, anxious, and tense), .86, .40. The one retained vocalic category was *vocal pleasantness* (rhythmic, pleasant, flat, friendly, warm), .89, .64.<sup>4</sup> All nonverbal coders underwent discussions of behavioral definitions and extensive training using practice videotapes.

All coding occurred after the onset of deception and suspicion, which began after question five. Observations of the interactions confirmed that all interviews had completed the first five questions in the first 1-1/2 minutes. Coding therefore was completed on two 1-minute observations beginning at 1-1/2 and 3-1/2 minutes for each interaction. Coders were blind to the experimental conditions and purposes of the experiment.

### *Manipulation Checks*

Three checks were made on the deceit manipulation. EEs rated their enacted deceit on two items embedded in the EE questionnaire ("I was sincere in answering the questions" and "All my answers to the questions were truthful," both of which were reverse scored; reliability = .86), recorded at the end of the questionnaire whether they had lied or told the truth after the first few questions, and reported the percentage of time they had lied. To check the suspicion manipulation, ERs rated their suspicion on the scale item, "I suspect my partner was not telling me the truth."

## Results

### *Manipulation Checks*

*Deception.* All deceiving EEs reported they had lied after the first few questions, and deceivers said they lied significantly more of the time ( $M = 90\%$ ) than did truth-tellers ( $M = 4\%$ ),  $F(1, 106) = 1115.55, p < .0001$ . EEs' ratings of their enacted deception further confirmed a successful manipulation,  $F(1, 106) = 587.38, p < .0001, \eta^2 = .90$  (lie  $M = 5.83$ , truth  $M = 1.54$ ). An interaction with relationship revealed that EE deceivers reported being more dishonest with friends than with strangers,  $F(1, 106) = 4.94, p = .028$  (lie/stranger  $M = 5.31$ , lie/friend  $M = 6.25$ , truth/stranger  $M = 1.50$ , truth/friend  $M = 1.58$ ). Further corroboration of the deceit manipulation emerged from a supplementary analysis on the perceived deceit measure. ERs perceived more deceit when EEs were in fact deceiving,  $F(1, 108) = 9.31, p = .003$  (lie  $M = 3.38$ , truth  $M = 2.69$ ).

*Suspicion.* ERs reported more suspicion in the moderate ( $M = 4.02$ ) and high ( $M = 3.70$ ) suspicion conditions than in the no-suspicion condition ( $M = 3.05$ ),  $t(117) = 2.06, p = .021$ . Although high-suspicion ERs did not report more suspicion than moderate-suspicion ones, subsequent analyses (especially on nonverbal behaviors) reveal numerous differences between the moderate and high conditions, indicating that differences were in fact induced.<sup>5</sup> ERs were also more suspicious when EEs were actually lying,  $F(1, 108) = 8.48, p = .004$  (lie  $M = 4.15$ , truth  $M = 3.10$ ) and were strangers,  $F(1, 108) = 4.96, p = .028$  (stranger  $M = 4.04$ , friend  $M = 3.23$ ). (Complete effects of suspicion on ER and EE behavior are reported in Burgoon, Buller, Dillman, & Walther, 1993.)

### *Hypothesis 1 and Research Question 1*

All hypotheses and research questions were tested in 2 (deception: truth/lie)  $\times$  3 (suspicion: high/moderate/low)  $\times$  2 (relationship: stranger/friend) reduced model MANOVAs or ANOVAs (all nonsignificant effects with  $F$ -values less than 1.0 were pooled in the error term). MANOVAs were used for sets of variables that were conceptually related, showed substantial intercorrelations, and produced significant Bartlett tests of sphericity. Separate analyses were conducted on ER perceptions, EE perceptions, and observer ratings. The latter analyses on coded nonverbal behaviors included two additional within-subjects factors: role (ER/EE) and time (Time 1/Time 2).

Hypothesis 1 predicted that deceivers would communicate (a) greater

nonimmediacy and reticence, (b) greater vagueness and uncertainty, (c) more nervousness and tension, (d) more negative affect, and (e) less competent communication performances than truth-tellers. Research Question 1 raised the possibility of moderating effects due to suspicion. To address these issues, analyses examined as dependent variables: (1) ER ratings of EEs' nonverbal and verbal behavior, (2) EEs' ratings of own nonverbal and verbal behavior, (3) evaluation and expectedness ratings of EE behavior (rated by ER), (4) relational message interpretations attributed to EE behavior (as rated by ER), and (5) coders' ratings of EE nonverbal behavior.

A MANOVA on ER ratings of EE nonverbal/verbal behavior produced a main effect for deception, Wilks'  $\Lambda = .90$ ,  $F(5, 103) = 2.31$ ,  $p = .049$ , with significant univariate effects on gaze avoidance,  $F(1, 107) = 9.43$ ,  $p = .003$ ,  $\eta^2 = .08$ ; poor impression,  $F(1, 107) = 4.57$ ,  $p = .035$ ,  $\eta^2 = .04$ ; and nervousness,  $F(1, 107) = 3.62$ ,  $p = .06$  (.03 one-tailed),  $\eta^2 = .04$ . There was also a near-significant Suspicion  $\times$  Deception  $\times$  Relationship interaction, Wilks'  $\Lambda = .85$ , approx.  $F(10, 206) = 1.71$ ,  $p = .080$ , with significant univariate effects on vagueness/uncertainty,  $F(2, 107) = 4.35$ ,  $p = .015$ ,  $\eta^2 = .08$ , and nervousness  $F(2, 107) = 3.17$ ,  $p = .046$ ,  $\eta^2 = .06$ . A separate ANOVA conducted on brevity due to its low correlation with the other measures also produced a significant main effect for deception,  $F(1, 106) = 5.66$ ,  $p = .010$ ,  $\eta^2 = .05$ . The means, shown in Tables 1 and 2, indicated that compared to truth-tellers, deceivers were seen by ERs as avoiding gaze, giving briefer answers, being more nervous (especially when lying to strangers), and creating a poorer impression. Vagueness depended upon the relationship and degree of suspicion: Strangers were seen as least vague when telling the truth under high suspicion; friends were seen as least vague when lying under high suspicion but most vague when lying under moderate suspicion.

A MANOVA on EEs' self-reported communication behavior produced a main effect for deception, Wilks'  $\Lambda = .56$ ,  $F(5, 101) = 15.95$ ,  $p < .0001$ , with significant univariate effects on three variables: vagueness/uncertainty,  $F(1, 105) = 59.76$ ,  $p < .0001$ ,  $\eta^2 = .36$ ; nervousness,  $F(1, 105) = 5.67$ ,  $p = .019$ ,  $\eta^2 = .05$ ; poor impression,  $F(1, 105) = 10.56$ ,  $p = .002$ ,  $\eta^2 = .09$ ; and brevity,  $F(1, 105) = 17.74$ ,  $p < .0001$ ,  $\eta^2 = .14$ . The means (Table 1) indicate that when EEs were deceiving, they perceived themselves to be more vague/uncertain, nervous, and brief, and to make a poor impression. Thus EEs' self-descriptions largely matched ERs' descriptions of them.

A MANOVA on ER ratings of the expectedness and evaluation of EE's behavior produced a deception main effect, Wilks'  $\Lambda = .94$ ,  $F(2, 107) = 3.35$ ,  $p = .039$ , with a significant univariate effect for evaluation,  $F(1,$

TABLE 1

**Main Effect Means for Deception Effects on Interviewee (EE) Nonverbal/  
Verbal Behavior, Evaluation and Expectedness of EE Behavior, and  
Relational Message Interpretations Attributed to EE Behavior**

Variable	Deception	Truth
EE nonverbal/verbal behavior reported by ER		
Vagueness/uncertainty	2.90	2.67
Brevity	5.59	4.86*
Gaze avoidance	3.17	2.22*
Negative affect	2.89	2.64
Nervousness	3.37	2.81*
Poor impression	2.71	2.27*
EE nonverbal/verbal behavior reported by self		
Vagueness/uncertainty	3.79	2.30*
Brevity	5.66	4.31*
Gaze avoidance	3.02	2.53
Nervousness	3.37	2.69*
Poor impression	4.12	3.19*
Evaluation and expectedness of EE behavior reported by ER		
Evaluation	5.50	5.96*
Expectedness	5.20	5.36
Relational messages attributed to EE behavior by ER		
Affection	4.41	4.89*
Immediacy	4.72	5.31*
Composure	4.62	5.04*
Informality	5.00	5.42*
Receptivity/trust	4.79	5.32*
Dominance	2.53	3.06*

\* $p < .05$

108) = 5.71,  $p = .019$ ,  $\eta^2 = .05$ . The means (Table 1) showed that EEs' general behavior was evaluated less favorably by their partners when they were lying than when they were telling the truth.

EE relational messages (rated by ER) were analyzed with a MANOVA



**TABLE 2**  
**Cell Means for Interaction Effects on EE Nonverbal/Verbal Behavior**  
**Reported by ER**

Variable and condition	Strangers			Friends		
	No suspicion	Moderate suspicion	High suspicion	No suspicion	Moderate suspicion	High suspicion
Vagueness						
Deception	2.62	3.08	3.05	3.06	3.48	2.02
Truth	2.58	3.25	2.28	2.69	2.45	2.70
Nervousness						
Deception	2.75	3.25	4.70	4.04	3.15	3.15
Truth	2.90	3.20	2.56	2.83	2.95	3.50

for five intercorrelated dimensions (average  $r = .45$ , range = .24 to .64) and a separate ANOVA on dominance (due to its weak correlations with other dimensions, range of  $r = -.09$  to .15). The MANOVA produced a main effect for deception, Wilks'  $\Lambda = .89$ ,  $F(5, 110) = 2.69$ ,  $p = .025$ , with significant univariate effects for all five dimensions: affection,  $F(1, 114) = 6.52$ ,  $p = .012$ ,  $\eta^2 = .06$ ; immediacy,  $F(1, 114) = 9.22$ ,  $p = .003$ ,  $\eta^2 = .07$ ; composure,  $F(1, 114) = 3.00$ ,  $p = .043$  one-tailed,  $\eta^2 = .03$ ; formality,  $F(1, 114) = 5.94$ ,  $p = .016$ ,  $\eta^2 = .05$ ; and receptivity/trust,  $F(1, 114) = 9.08$ ,  $p = .003$ ,  $\eta^2 = .07$ . Dominance also produced a main effect for deception,  $F(1, 108) = 10.98$ ,  $p = .001$ ,  $\eta^2 = .09$ . The means (Table 1) revealed that deceptive EEs were seen as less affectionate, immediate, composed, receptive/trustworthy, informal, and dominant than truthful EEs.

To determine if degree of deceit also influenced communication patterns, a supplementary analysis was conducted correlating EEs' reported deceit (the manipulation check measure) with all the above communication measures. The results, shown in Table 3, show that the more EEs reported being deceptive, the more they were seen as being vague/uncertain, nervous, unpleasant, avoiding gaze, behaving unexpectedly, making a poor impression, and generally engaging in undesirable behavior (based on ERs' and their own reports). The more EEs deceived, the more EEs were also seen as expressing nonimmediacy, nonaffection, noncomposure, formality, and nonreceptivity/untrustworthiness. Thus, degree of deceptiveness was strongly associated with partner perceptions.

Finally, the analyses on coded nonverbal behaviors produced significant effects on two measures, confirming the arousal and affect predictions

TABLE 3

**Correlations between Interviewee (EE) Reported Deceit and  
EE Nonverbal/Verbal Communication Behaviors, Expectedness, and  
Evaluation of EE Behavior, and Relational Message Interpretations  
Attributed to EE Behavior**

	EE's reported deceit
EE nonverbal/verbal behavior reported by ER	
Vagueness/uncertainty	.19
Brevity	
Gaze avoidance	.29**
Negative affect	
Nervousness	.20
Poor impression	.23*
EE nonverbal/verbal behavior reported by self	
Vagueness/uncertainty	.58**
Brevity	
Gaze avoidance	
Nervousness	.28**
Poor impression	.38**
Evaluation and expectedness of EE behavior reported by ER	
Evaluation	-.41**
Expectedness	-.22
Relational messages attributed to EE behavior by ER	
Immediacy	-.39**
Affection	-.31**
Dominance	
Composure	-.31**
Informality	-.20
Receptivity/trust	-.36**

\* $p < .01$  one-tailed; \*\* $p < .001$  one-tailed; all other correlations,  $p < .05$

but not the immediacy ones (Table 4). A Time  $\times$  Role  $\times$  Deception interaction on kinesic relaxation,  $F(1, 88) = 3.91$ ,  $p = .051$ ,  $\eta^2 = .04$ , showed that EE deceivers were initially less relaxed than truth-tellers, as predicted, and that compared to ERs and truthful EEs, deceptive EEs changed the most over time (a finding related to H2). A Time  $\times$  Role  $\times$

**TABLE 4**  
**Means for Coded Nonverbal Behavior as a Function of Deception, Role, and Time**

Variable and time	Interviewee (EE)		Interviewer (ER)	
	Deception	Truth	Deception	Truth
Kinesic relaxation				
Time 1	4.48	4.70	4.97	5.02
Time 2	4.75	4.79	5.06	5.18
Average	4.62	4.75	5.02	5.10
Kinesic pleasantness				
Time 1	4.36	4.68	4.59	4.67
Time 2	4.57	4.69	4.68	4.76
Average	4.47	4.68	4.64	4.72

Deception interaction on kinesic pleasantness,  $F(1, 88) = 5.18, p = .025, \eta^2 = .06$ , showed a pattern parallel to that for kinesic relaxation. EE deceivers were initially less pleasant kinesically than truth-tellers, as predicted, and over time, they showed the greatest increase in pleasantness relative to truthful EEs and to ERs. Suspicion did not moderate deception effects (i.e., there were no suspicion by deception interactions).

Overall, the analyses confirmed Hypothesis 1. The behavioral profile of deceivers was one of greater nonimmediacy and reticence, vagueness and uncertainty, arousal and nervousness, negative affect, and communication incompetence relative to truth-tellers. In answer to the research question, only vagueness and nervousness were moderated by suspicion (and relational familiarity). Thus, deception largely produced main effects and few interactions.

#### *Hypothesis 2 and Research Question 2*

Hypothesis 2 predicted that nonverbal behaviors during deceptive encounters change over time in the direction of greater behavior and image management. The hypothesis received partial support from the two previously reported interactions on kinesic relaxation and kinesic pleasantness. Liars were initially far less relaxed and pleasant kinesically than truth-tellers, but liars' relaxation and pleasantness converged with truth-tellers' by Time 2 (see Table 4 for means). For kinesic pleasantness, a Relationship  $\times$

**TABLE 5**  
**Means for Coded Nonverbal Behavior as a Function of Relationship, Role, and Time**

Variable and time	Interviewee (EE)		Interviewer (ER)	
	Stranger	Friend	Stranger	Friend
Kinesic relaxation				
Time 1	4.42	4.59	4.29	4.66
Time 2	4.56	4.64	4.37	4.94
Average	4.49	4.62	4.33	4.80
Proximity				
Time 1	3.11	3.42	3.35	3.70
Time 2	2.96	3.41	3.31	3.73
Average	3.04	3.42	3.33	3.72
Facing				
Time 1	4.74	5.23	4.51	4.52
Time 2	5.06	4.96	4.77	4.61
Average	4.90	5.10	4.64	4.57
Gaze				
Time 1	5.33	5.35	4.72	4.61
Time 2	5.63	5.61	5.07	4.91
Average	5.48	5.48	4.90	4.76
Lean				
Time 1	2.12	1.93	2.25	1.95
Time 2	1.96	1.81	2.20	2.07
Average	2.04	1.87	2.23	2.01

Role  $\times$  Time interaction,  $F(1, 88) = 5.15, p = .026, \eta^2 = .06$ , also revealed that all interactants became more pleasant over time, but it was especially the case for ERs interacting with friends.

Apart from the deception-related time effects, other nonverbal behaviors that showed changes over time were vocal pleasantness and immediacy. We report them here because they offer further evidence of the dynamic quality of nonverbal behaviors during interpersonal encounters. Everyone's vocal pleasantness increased over time,  $F(1, 88) = 4.33, p = .040, \eta^2 = .05$ . An initial analysis of immediacy behaviors treated as a composite did not reveal differences across the two time periods. However, the possibility that some immediacy behaviors might be compensating for other immediacy behaviors led us to separate the four immediacy

measures and include the four as an additional repeated factor in the MANOVA. In this analysis, three significant interactions emerged: Relationship  $\times$  Role  $\times$  Time, Wilks'  $\Lambda = .10$ ,  $F(3, 86) = 3.27$ ,  $p = .025$ ; Time  $\times$  Relationship  $\times$  Nonverbal behavior, Wilks'  $\Lambda = .17$ ,  $F(3, 86) = 5.76$ ,  $p = .001$ ; and Time  $\times$  Role, Wilks'  $\Lambda = .17$ ,  $F(3, 86) = 5.76$ ,  $p = .001$ . The combined patterns were as follows: (1) both EEs and ERs increased gaze over time; (2) strangers tended to increase facing over time, while EE friends, who had the most facing initially, reduced it over time to the same level as other relationship and role pairings; (3) proximity was fairly static over time and greatest among ERs interacting with friends, and (4) lean remained static over time and similar among all relationship and role pairings (see Table 5).

RQ2 addressed the extent to which over-time nonverbal changes reflect mutual influence. Intraclass correlations tested the degree of correspondence between EE and ER behavior within and across conditions. The analyses on patterns of reciprocity and compensation showed a prevailing pattern of reciprocity, regardless of deception condition (immediacy  $r_1 = .42$ , kinesic pleasantness  $r_1 = .43$ , kinesic relaxation  $r_1 = .12$ , kinesic activation  $r_1 = .20$ , vocal pleasantness  $r_1 = .18$ ). When, however, deception was combined with suspicion and compared to the absence of both deception and suspicion—what would constitute a “normal” interaction pattern—some interesting patterns emerged. Whereas interactants showed a high degree of reciprocity on immediacy, kinesic relaxation, and vocal relaxation when suspicion and deception were *absent* ( $r_1 = .75$ ,  $r_1 = .51$ ,  $r_1 = .37$ ,  $p < .05$ , respectively), these patterns appeared to be greatly attenuated when both suspicion and deception were *present* ( $r_1 = .36$ ,  $p < .05$ ;  $r_1 = -.09$ , *ns*;  $r_1 = .21$ , *ns*, respectively). Conversely, there was little reciprocity of vocal pleasantness and kinesic activation in the suspicion and deception *absent* condition ( $r_1 = -.02$ , *ns*;  $r_1 = .04$ , *ns*, respectively) but substantial reciprocity of each in the suspicion and deception *present* condition ( $r_1 = .51$ ,  $p < .05$ ;  $r_1 = .32$ ,  $p < .05$ ) (see Burgoon et al., 1993, for other results). Although the only comparisons between “absent” and “present” correlations to reach or approach statistical significance were the kinesic relaxation comparison ( $z = 1.75$ ,  $p < .05$ , two-tailed) and the vocal pleasantness comparison ( $z = 1.55$ ,  $p < .10$ , two-tailed), the small sample sizes (20 per condition) may account for this. The patterns themselves are certainly suggestive of the combination of suspicion and deception altering interaction patterns.

## Discussion

The current investigation grew out of a desire to examine deception as an interpersonal communication event and to incorporate interpersonal com-

munication principles in the study of deception. Hypotheses and research questions derived from Interpersonal Deception Theory (IDT) were tested in an interactive context. The resultant findings add to our understanding of how deception is enacted when the receiver is an active, sometimes doubting participant in the interaction.

### *Manifestations of Deception*

Hypothesis 1 proposed that in interactive contexts, deceivers strategically manage nonverbal and verbal information and behavior through greater nonimmediacy, reticence, vagueness, and uncertainty, but that they also "leak" nervousness, tension, and negative affect, and produce communication performances that appear incompetent relative to truth-tellers. The results from participant and observer reports alike largely confirmed the hypothesis. Deceivers and their partners reported that deceivers exhibited nonimmediacy and reticence by avoiding gaze and giving briefer answers, and partners saw their behavior as connoting nonimmediacy and nonreceptivity/untrustworthiness. Deceivers also saw themselves as more uncertain and vague (although partner perceptions depended on their own level of suspicion and relational familiarity). Deceivers reported being more nervous and observers confirmed that they showed heightened arousal through decreased kinesic relaxation in the first time period. Although partners saw variable nervousness across the various combinations of deception, suspicion, and relational familiarity, they also rated deceivers' communication as less composed. Deceivers leaked some negative affect according to observers, who rated their behavior as more unpleasant kinesically in the first time period, and to partners, who attributed less positive affect to their behavior. Finally, performance impairment was evident not only in the loss of composure but also in the fact that partners evaluated deceivers' behavior as undesirable and unexpected, and both deceivers and partners said deceivers made a poor impression. Additionally, partners interpreted deceptive behavior patterns as expressing more formality and submissiveness than truthful ones.

Together, these findings imply that deceivers were indeed attempting to control their information and behavior, consistent with the premises of Intepersonal Deception Theory. But if the end objective was to project a more favorable image, they were not very successful at it. By becoming more formal, restrained, docile, reticent, and tense, they effectively dampened their conversational involvement and created a much less favorable impression than truth-tellers. A strong implication of this pattern is that deceit may be as evident from the absence of appropriate conversational en-

gement as by the presence of various leakage cues, and if strategic information and behavior management results in suppressed involvement, it is likely to backfire.

### *Interaction Dynamics*

At the same time, consistent with Hypothesis 2, deceivers did manage to improve their kinesic performance by becoming more relaxed and pleasant as the conversations progressed over time, an indication that some strategic adjustments were being made. Pleasantness may be a common way that communicators attempt to allay or avoid suspicion and is consistent with our contention that a major strategy in deceptive encounters is forwarding a positive image. Yet, consistent with findings from earlier studies (Buller & Aune, 1987; Buller, Strzyzewski, & Comstock, 1991), such masking was not completely successful in that deceivers earned poor evaluations from their partners despite these changes. Perhaps had more time been permitted, they could have improved their performance sufficiently to approximate a normal interaction style and so allay their receivers' suspicions. This experiment was limited in looking at only two time periods from a fairly brief interaction. We might expect that given enough time and feedback from partners, many deceivers could successfully mask some of the kinesic deception cues. Whether they could do so with vocal cues is less clear, inasmuch as there was less vocal impairment present in the first place. Determining the ability of deceivers to improve their performances over lengthier interactions would be a fruitful direction for future research, as would be testing channel differences to clarify which ones are leakiest during a normal interaction. The fact that several other nonverbal behaviors also changed over time does support our contention that interpersonal exchanges are dynamic and underscores the need to assess the dynamics of nonverbal interaction so that deceptive behaviors and behavioral changes can be interpreted properly within interactive contexts.

Underlying the proposition of dynamic changes is the presumption that the changes are partly motivated by partner behavioral adjustments and feedback, i.e., interactants are mutually influencing each other. A unique aspect of this investigation was analysis of these adaptation patterns between senders and receivers and the possible influence of deception on them. Earlier, Toris and DePaulo (1985) had hinted at possible disruptive effects of deception. Having found that during honest interviews, interactants reciprocated liking for one another and had similar perceptions of the applicant's tension level but that during dishonest interviews, these rela-

tionships did not hold, they raised the possibility that "reciprocity of affect is disrupted and that social perceptions begin to diverge when one person is engaged in a dishonest relationship with another" (p. 1072). Although the current findings do not address the concordance in social perceptions, they do indicate that behaviorally, many reciprocal nonverbal patterns continued despite the presence of deception, that affective responses in the vocal channel actually became more strongly reciprocal when both deception and suspicion were present, but that reciprocity of immediacy and relaxation was attenuated. Thus it appears that during interactive deception, when deceit is coupled with suspicion, some interaction patterns may be disrupted but that many, including vocal affect, may continue to show reciprocity.

#### *Moderating Effects of Relational Familiarity*

One impetus for the design of the current experiment was to ascertain whether relational familiarity alters deception patterns. The current results do not support our entering assumption that friends would behave differently than strangers when deceiving. The only dependent measure on which relational familiarity moderated deception displays was vagueness/uncertainty. Whereas strangers were the least vague when telling the truth under high suspicion, friends were the least vague when lying under high suspicion, possibly because they felt the need to make their lies more concrete so as to be convincing. The absence of many interactions between relational familiarity and deception suggests that many past deception findings, and especially those generated in interactive contexts, may generalize to familiar as well as unfamiliar relationships. Of course, this tentative conclusion needs more empirical testing before being accepted.

#### *Measurement Implications*

Before closing, we should comment on the relative merits of using participant reports as compared to observer ratings. To our knowledge, no other interactive studies have used this strategy. Here, the participants' own reports captured quite a few behavioral differences and showed strong consensus in their perceptions. Moreover, the participant reports were consistent with observer ratings. This might argue for future research relying solely on participant perceptions, inasmuch as they are far simpler to collect, can cover more global and subjective aspects of behavior, and might be more "valid" representations of participants' own phenomenological experience.



The reader should be alerted, however, that the analyses of suspicion effects on ER behavior (see Burgoon et al., 1993) were not as consistent and, in fact, produced opposite patterns on immediacy. Thus, it seems unwise to rely solely on participants' reports, especially if one considers that they may be distorted by stereotypical assumptions about deception. For example, deceivers may believe their deception is more transparent and "leaky" than it actually is and consequently self-report poor performances. Suspicious receivers may also expect deceivers to be vague and nonimmediate and thus perceive sender behavior that way, regardless of how senders actually behaved. This problem of inaccuracy due to reliance on stereotypical cues might be especially exacerbated if the deception were obvious. Unfortunately, this issue cannot be addressed with the current research because we did not collect accuracy measures, and with good reason. Half the ERs were alerted in advance that their partners might be lying. This created unequal sensitization to the prospect of partner deceit. Future investigations examining the accuracy question, however, might be well-advised to consider the possibility of stereotypic judgments. Under these circumstances, triangulation with observational data seems prudent.

Moreover, observational data are a necessity for detecting fluctuations over time. In the current investigation, several behaviors changed over the two time periods and some behaviors produced deception by time interactions, indicating that the influence of deception did not remain static over the course of the interaction. Under these circumstances, it is unclear whether post-interaction participant reports would reflect the initial behavior, the most recent behavior, or some perceptual average. Additionally, studies of mutual influence patterns over time require multiple measurements of behavior. Thus, interactive designs appear to necessitate inclusion of behavioral measures to tap interaction dynamics.

### Conclusion

These preliminary results beg for further studies employing yet additional measures, especially verbal ones, and more extended interactions with multiple time measurements. The interplay between verbal and nonverbal behaviors, between strategic and nonstrategic activity, and between deceiver and deceived is clearly complex. Disentangling the relationships among behaviors and actors over time will doubtless require numerous investigations. But the current results are at least suggestive that an interpersonal, interactive perspective on deception may bring to light new and

different relationships than previously found in noninteractive contexts. The continued merger of deception principles and interpersonal communication principles may open new frontiers in our understanding of deception and of interpersonal communication.

### Notes

1. Friends were defined as someone with whom they were well-acquainted but who was not their best friend or romantic partner. Relational familiarity was included as a factor to determine if it would moderate deception and suspicion displays. Because the results produced primarily main effects, they have been omitted and are available from the first author; any relevant interactions are noted in the results.
2. The following Likert statements on the ER questionnaire measured ER's perceptions of specific EE verbal and nonverbal behaviors, the expectedness of EE's behavior, and how desirable or undesirable ER evaluated EE's behavior:

#### *Verbal/Nonverbal Behaviors*

My partner gave very brief answers.  
 My partner gave evasive and ambiguous answers to my questions.  
 My partner took a long time before responding to my questions.  
 My partner avoided looking me in the eye while answering.  
 My partner appeared fidgety and uncomfortable.  
 My partner fiddled with his/her clothes or objects.  
 My partner was very pleasant during the discussion.  
 My partner's answers were wishy-washy.  
 My partner's answers were consistent.  
 My partner made a good impression on me.

#### *Expectedness*

My partner's behavior was unusual.  
 My partner behaved the way I expect most people to behave.  
 My partner engaged in normal conversational behavior.

#### *Evaluation*

My partner's behavior was undesirable.  
 I found my partner's manner of communicating very unpleasant.  
 My partner's behavior was appropriate.  
 I liked the way my partner interacted with me.  
 I was bothered by my partner's communication style.

#### *EE self-ratings were as follows:*

I gave evasive and ambiguous answers to the questions.  
 I took a long time before responding to the questions.  
 I was wishy-washy in my answers to my partner.  
 My answers to my partner's questions were consistent.  
 I felt relaxed and at ease while interacting with my partner.  
 I was very tense while talking to me partner.  
 I avoided looking my partner in the eye while answering.  
 I felt nervous while talking to my partner.  
 I gave very brief answers.  
 I was successful in making a good impression on my partner.

3. It might be argued that because some of these reliability coefficients are less than ideal, the dimensions with low reliabilities should be deleted from the analysis or combined with other dimensions. However, the main risk in using less reliable measures is that they

contribute to Type II error. This possible attenuation of findings is offset by the benefit of potentially detecting relevant distinctions among relational messages and between communication evaluation and its expectedness. As the results will demonstrate, even the less reliably measured dimensions frequently produced significant findings, revealing differences that would have been masked if these measures had been dropped or aggregated with others.

4. Additional measures not reported here were *conversation management* (length of response latencies, smoothness of turn switches), .72, .45; *fluency* (fluency, amount of nervous vocalizations), .60, .34; and *vocal relaxation* (relaxed, calm, anxious, and tense), .92, .41. and *frequency of nodding* (a single item intended to measure pleasantness). These measures failed to produce significant results, probably due to their low reliabilities.
5. Because Buller et al. (1991) had encountered difficulty in inducing a high degree of suspicion, and because there is reason to question whether post-interaction ratings of suspicion are uncontaminated by the interaction itself, a separate manipulation check study was conducted. Participants ( $N = 40$ ) received the same suspicion inductions as the experimental subjects, began the interview, then were stopped after the walk-through signal to complete measures on the degree to which they expected their partner to lie and were motivated to detect deceit (respective reliabilities: .81, .56). (The manipulation check study also included some additional features not reported here: a vigilance measure that had low reliability  $r = .40$ ; separate measurements before the actual interaction and after its initiation, to track the persistence of the induction effects into the interaction; and a pilot test of a very high suspicion manipulation.) Results showed that suspicion induced a linear increase in expectations that the partner would lie,  $t(36) = 4.02, p = .027$  (no suspicion  $M = 14.06$ , moderate  $M = 15.14$ , high  $M = 19.59$ ) and increased motivation to detect deception in the two suspicion conditions (no  $M = 12.41$ , moderate  $M = 15.50$ , high  $M = 15.35$ ),  $F(2,36) = 4.56, p = .017$ .

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