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Testing for the Motivation Impairment Effect during Deceptive and Truthful Interaction

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According to the motivation impairment effect (MIE) hypothesis, deceivers who are highly motivated to succeed should suffer detrimental effects on nonverbal performance but facilitative effects on verbal performance relative to deceivers who are less motivated. This should make highly motivated deceivers' lies more detectable when receivers have access to nonverbal channels. Burgoon (1998) articulated a number of problems with the reasoning underlying the motivation impairment hypothesis and with the data used to support it. Drawing on a more recent theory of interpersonal deception, the current investigation challenges the MIE hypothesis by advancing the alternative predictions that (a) motivation often enhances both verbal and nonverbal performance and (b) does so irrespective of whether deception or truth-telling is occurring. Results from multiple operationalizations of motivation and performance support these predictions.

A counterintuitive prediction advanced in the literature on interpersonal deception is that the harder people try to deceive others, the more likely they are to fail. This prediction, dubbed the motivation impairment effect (MIE) (DePaulo & Kirkendol, 1989), suggests that when speakers are attempting to deceive others, their level of motivation to succeed in their lies actually backfires and paradoxically renders them less successful than speakers who are unmotivated.

In this investigation, we examined the MIE hypothesis in light of countervailing predictions and empirical evidence emanating from

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interpersonal deception theory and recent deception research. Using multiple operationalizations of motivation and performance impairment, we advanced and tested the competing predictions that speakers' motivation improves both their verbal and nonverbal performance irrespective of whether deception or truth-telling is occurring.

The Motivation Impairment Hypothesis

The hypothesized motivation impairment effect (MIE) is founded on the notion that relative to truth-telling, deception involves increased emotional, cognitive, and psychological arousal triggered by feelings of guilt, discomfort, or fear of detection. Communicators' attempts to control such arousal tend to manifest themselves in the form of nonverbal leakage—unintentional nonverbal behaviors that suggest a speaker is deceiving (Ekman & Friesen, 1969). Highly motivated deceivers presumably try harder than unmotivated deceivers to control their communicative behavior and to produce credible deception performances. According to the MIE hypothesis, however, the increased arousal and behavioral control associated with such efforts actually impairs deceptive success rather than enhances it as a consequence of increased nonverbal leakage. The harder deceivers try to create convincing lies, therefore, the more likely they are to appear suspicious and, hence, fail at their efforts.

On its face, the reasoning behind the MIE is similar to Baumeister's (1984) more general "choking under pressure" hypothesis, which holds that excessive arousal debilitates all manner of social performance, not just deception. Importantly, however, the MIE hypothesis predicts a negative relationship between motivation and performance only in those instances when observers have access to senders' nonverbal cues. In verbal-only conditions, the hypothesis predicts that motivation improves performance (DePaulo & Kirkendol, 1989). As first articulated by DePaulo, Lanier, and Davis (1983), the hypothesis predicts that "in any condition in which nonverbal cues are available, the lies of highly motivated senders will be more readily detected than the lies of less motivated senders. However, if only verbal cues are made available, then the lies of highly motivated senders will be less readily detected" (p. 1097).

These differing predictions reflect a difference in the fundamental controllability of verbal and nonverbal behavior. Motivation-induced arousal ostensibly impairs only nonverbal performance largely because nonverbal behavior is relatively difficult to control. Hence, although motivated deceivers may use motivation to their verbal advantage, by directing cognitive energy toward the careful and deliberate crafting of a plausible story, their motivation-induced arousal may "leak out" through nonverbal channels in ways of which they may be unaware (e.g., fidgeting) and/or cannot control (e.g., excessively perspiring). Thus, the MIE suggests that if receivers have access *only* to the verbal

channel, then motivated senders will be advantaged over unmotivated senders. However, if receivers have access to nonverbal channels (either exclusively or in conjunction with the verbal channel), the motivation will disadvantage—rather than advantage—senders attempting to deceive.

The MIE has been addressed in numerous studies (e.g., DePaulo, Blank, Swaim, & Hairfield, 1992; DePaulo, Kirkendol, Tang, & O'Brien, 1988; DePaulo et al., 1983; DePaulo, LeMay, & Epstein, 1991; DePaulo, Rosenthal, Green, & Rosenkrantz, 1982; DePaulo, Stone, & Lassiter, 1985; Krauss, 1981). At first glance, they appear to provide substantial empirical support for its predictions. However, in a recent review of the MIE literature, Burgoon (1998) brought to light numerous conceptual and methodological shortcomings of this line of inquiry that should temper the conclusions it invites. Our purpose in the present inquiry was to revisit these critiques and to apply the principles of a newer deception theory that leads to predictions in opposition to those of the MIE hypothesis.

Re-Examining the MIE Hypothesis

Conceptual issues. The MIE proffers two fundamental predictions: (1) senders' motivation facilitates their verbal performance but impairs their nonverbal performance, which renders deception more detectable when receivers have access to nonverbal cues; and, (2) these effects occur only when senders are deceiving. Two rival hypotheses are that motivation affects nonverbal and verbal performances in the same, often facilitative, way, and that these effects have nothing to do with deception per se.

Underlying the prediction that motivation impairs only nonverbal behavior is the presumption that while verbal behavior is largely controllable, nonverbal behavior is primarily automatic, reactive, and unintentional. There can be no question that certain types of nonverbal leakage often occur outside conscious control. However, interpersonal deception theory (IDT; Buller & Burgoon, 1996) offers an alternative perspective on the nature of nonverbal displays during deception. IDT postulates that deceivers are active, not passive, agents who can strategically plan and adapt their interpersonal behaviors to maximize credibility and deceptive success. Deception displays, therefore, are posited to include both strategic elements, such as the deliberate management of verbal information, accompanying nonverbal behavior, and overall image, and nonstrategic elements, such as unconscious arousal and affect cues. From this perspective, senders choose from an array of verbal and nonverbal behaviors designed to increase their deceptive success. Further, receivers of deception attempts signal their own suspicion, consciously or subconsciously. As senders perceive such suspicion, they alter their performances to suppress such cues, allay suspicion, and enhance credibility.

A number of empirical investigations lend support to this strategic management interpretation (see Buller & Burgoon, 1994). For instance, Buller, Burgoon, Floyd, Chen, Viprakasit, and Grandpre (in press; Burgoon, Buller, Floyd, & Grandpre, 1996) determined that deceivers consciously tried to control their nonverbal behaviors to create a normal, consistent appearance and to minimize signs of nervousness. Deceivers also reportedly encouraged receivers to talk more and to answer questions first, which not only gave deceivers more time to formulate plausible lies but also to "play off" what receivers said by giving similar answers. Similarly, Greene, O'Hair, Cody, and Yen (1985) reported that deceivers increased laughing and smiling, which may be attempts to promote a positive image or conceal negative affect cues. They also observed that when deceivers had time to plan their lies, they were able to keep response latencies short. Other studies have verified that senders adjust their levels of involvement and pleasantness over time, especially in response to what they perceive as negative feedback, to more closely approximate a normal "truthful" demeanor (Burgoon, Buller, Afifi, White, & Buslig, 1999; Burgoon, Buller, & Floyd, 1998; White & Burgoon, in press). Not only do deceivers engage in these strategic behaviors to boost their success, but numerous studies have revealed that greater involvement, consistency, normalcy, and positive affect do indeed make for more successful deception (e.g., Burgoon, Buller, Ebesu, & Rockwell, 1994; Burgoon, Buller, & Guerrero, 1995; Burgoon, Buller, Guerrero, & Feldman, 1994; Seiter, 1997).

These results run counter to the assumption that nonverbal performance inevitably suffers when senders try to deceive, demonstrating instead that strategic, deliberate manipulation of one's verbal and nonverbal behaviors is not only possible but also increases the success of deception attempts. Perhaps more informative on the issue of motivation impairment, however, are studies that have utilized direct measures of motivation. Burgoon, Buller, and Guerrero (1995; see also Burgoon, Buller, Guerrero, et al. 1994) discovered that senders' self-reported motivation bore a curvilinear relationship to self-reported success but was linearly and positively related to observed success. Deceivers who were the most and least motivated thought they were the most successful in creating plausible lies, whereas observers thought that deceivers who were the most motivated were the most successful. Thus, higher motivation was related to both senders' and observers' perceptions of credibility, with low motivation also showing a sense of senders' own success.

IDT thus offers a prediction, contrary to the MIE, that speakers' motivation may enhance both verbal and nonverbal performance. It is also possible that the effects of motivation on speakers' performances are not limited to instances of deception, but are manifested during truth-telling as well. The rationale underlying the MIE is that the motivation-induced arousal accompanying deception "leaks out" through

nonverbal channels, which presumably are largely outside the control of the sender. Such effects are not expected during truth-telling as a result of the absence of deception-related anxiety. As noted above, however, IDT posits that speakers are active agents capable not only of controlling a host of nonverbal behaviors, but also of manipulating them for strategic ends. If one accepts this principle and the body of empirical evidence supporting it, then the question arises as to whether motivation has different effects on speakers' behaviors during deception as compared to truth-telling. We contend that, as a consequence of speakers' abilities to control and manipulate their behaviors, the differences between motivated deception and motivated truth-telling are negligible.

Methodological issues. Burgoon (1998) has offered several critiques of the MIE literature on operational and methodological grounds. Four such critiques influenced the current investigation and are illuminated here: the lack of consensus on definitions of motivation, problems associated with dichotomous motivation manipulations, the lack of manipulation checks, and inferring sender performance impairment from receivers' judgments.

With respect to defining motivation, there is a lack of consensus among theorists and researchers as to what motivation is, and many definitions are fraught with ambiguity. Conceptual definitions have equated motivation with "the combination of forces which initiate, direct, and sustain behavior toward a goal" (Lindsley, 1957, p. 48), "any combination of needs, drives, and wants that involves motivated (i.e., driven) behavior" (Morgan, 1957, p. 4), or the state at which a person's "readiness mechanisms are activated, when he is ready to 'go' and continue 'going'" (Pribram, 1984, p. 26). Burgoon noted that this looseness in conceptual definitions of motivation has often resulted in circular reasoning. Definitions that equate motivation with emotional states are problematic because of their tautological nature. Izard (1979), for example, has argued that "emotion includes as one of its components a distinct quality of consciousness which motivates cognition; emotion interacting with cognition specifies and directs complex behaviors" (p. 194). Izard identified four classes of motivations, including, among others, emotions. According to this conceptualization, emotions include motivation and motivation includes emotions. However, emotions and motivation cannot logically be subcomponents of each other. Similar problems arise when arousal and affective states are regarded as components of motivation. "Rather than motivation producing greater arousal and negative affect, which in turn produce impairment, any signs of arousal and affect, whether positive or negative, would serve as *prima facie* evidence that motivation was present but could not simultaneously be regarded as its consequences" (Burgoon, 1998, pp. 9-10). This conceptual morass suggests a need for utilizing multiple operational indicators of motivation.

A related issue concerns the level at which motivation is measured or manipulated. Many MIE experiments have employed a factorial design in which motivation has been dichotomized (e.g., DePaulo et al., 1983; DePaulo et al., 1985; Krauss, 1981). However, inductions that create high and low motivation groups may carry the tacit (and plausibly flawed) assumption that the motivation-related factors will be experienced homogeneously by participants within each condition. In light of the probability that not all participants within a given condition are equally motivated by the induction, Burgoon advocated measuring motivation at the individual as well as the group level. Because individual- and group-level analyses may yield different results, the present investigation included both.

Third, most MIE research has not subjected motivation inductions to manipulation checks. Rather, motivation has been treated as a hypothetical variable presumed to be operative in high-motivation conditions and not in low-motivation conditions. When such conditions have produced hypothesis-confirming effects on dependent variables, that has been taken as evidence of the manipulation's success. However, such an approach is teleological by focusing on the result and then inferring the cause after the fact. Direct tests of the MIE require empirical checks on whether motivation actually differs between groups.

Finally, tests of the MIE have relied on receiver accuracy as the measure of performance impairment or enhancement. The reasoning is as follows: If senders' lies are more detectable when receivers have access to nonverbal information, i.e., receivers are more accurate in recognizing deceit under those conditions, it must be senders' nonverbal performances that are betraying them. Conversely, failure to detect deceit when only verbal information is available is attributed to senders' verbal content being unassailable. However, this inferential leap ignores such possibilities as receiver heuristics, discrepancies between verbal and nonverbal channels, or differential processing of certain cues, rather than sender verbal and nonverbal performances per se, that may be responsible for receiver accuracy. If nonverbal impairment (or verbal facilitation) is the ostensible culprit, then nonverbal (and verbal) performance ought to be measured directly.

The Present Study

Our purpose in the present investigation was to re-examine the hypothesized MIE by testing rival hypotheses offered by IDT within an experimental design free of many of the methodological shortcomings in previous MIE research. Contrary to the MIE hypothesis, IDT posits that speakers are able to control and strategically modify many nonverbal and verbal behaviors toward desired ends. Such a proposition led us to predict that motivation should have similar, usually facilitative, effects on both verbal and nonverbal behavior in both deceptive and truth-telling conditions. Our first hypothesis was that *motivation is*

positively related to verbal and nonverbal performance, irrespective of whether deception or truth-telling is occurring (H1).

If receivers' abilities to detect deception accurately are partly a function of sender performance, and motivation improves performance, then it follows that detection accuracy should be undermined by higher motivation under conditions of both truth and deception. Our second hypothesis tested this prediction: *as motivation increases, receiver detection accuracy decreases (H2).*

As noted above, we chose in the current investigation to examine the effects of motivation using both continuous and discrete operationalizations of motivation. Combining approaches allowed us to compensate for deficiencies posed by either approach alone. In much of the MIE research, various circumstances are inferred to intensify or reduce motivation to succeed at deception. For example, DePaulo, Stone, and Lassiter (1985) reasoned that if senders were encouraged to make a good impression, they would be more highly motivated to do so when interacting with the opposite sex and with attractive others than when interacting with the same sex and with unattractive others. They, therefore, expected more nonverbal impairment under the former conditions. Following this same reasoning, we should expect senders to be more concerned about maintaining a good relationship and escaping detection of their deceit when interacting with friends than when interacting with strangers, because the consequences of being caught are more grave in the former case. According to the MIE hypothesis, nonverbal impairment and verbal facilitation thus should be greater in interaction with friends (the "high motivation" condition) than with strangers (the "low motivation" condition). However, working from an IDT perspective, we would expect motivation to enhance performance. Therefore, our third hypothesis predicted that *relative to interactions between strangers, senders interacting with friends or acquaintances perform better verbally and nonverbally, irrespective of whether deception or truth-telling is occurring (H3).* Enhanced performance, in turn, should lead to more positive judgments of the sender and higher believability. The fourth hypothesis thus predicted that *receivers interacting with deceptive friends have higher truth biases, more favorable judgments of sender honesty and trustworthiness, and worse detection accuracy than receivers interacting with strangers (H4).*

Method

Data for this investigation came from an experiment whose primary objectives were to examine interpersonal adaptation and the principle of interactivity in deceptive interactions (Burgoon, Buller, & Floyd, 1998) and as such included multiple measures of nonverbal and verbal performance as well as measures of detection accuracy and truth bias. Because several self-report measures from senders are directly rel-

evant to motivation, and because the sample included friends and strangers, another prospective motivation factor, this data set was nicely suited for testing the hypotheses advanced here.

Participants

Participants ($N = 64$) were equal numbers of male and female undergraduate students enrolled in communication and business courses at a large southwestern university. They were recruited for a "study of how acquainted and unacquainted men and women discuss various conversational topics." Half of the participants agreed to bring with them a same-sex friend or acquaintance whom they had known for at least six months and with whom they interacted on a regular basis. The remaining participants were paired with same-sex unacquainted students.

Procedure

The experiment took place in a facility consisting of two apartment-like interaction rooms equipped with comfortable swivel chairs and lavelier microphones, adjoining observation rooms with one-way windows through which unobtrusive videotaping was completed, and stations equipped with VCRs and monitors. Upon reporting to the research site, participants were randomly assigned to sender (Person A) or receiver (Person B) roles.

After consenting to participate and be videotaped, Persons A and B were separated to complete a pre-interaction measure of their goals and expectations (described below), to receive experimental manipulations and to review a list of "potential topics for your conversation" in advance of the interaction. They were then reunited in the interaction room and were instructed to engage in discussion on five topics listed on a set of cards. The topics, taken from a game designed to encourage self-disclosure and open communication, included: "Complete the sentence: 'When I am in a large group, I . . .,'" "Tell about the most significant person in your life," "Tell about a mistake you made recently," "Describe the most unpleasant job you have ever had to do," and "Talk about responsibility." The topics were presented in a cyclical, counterbalanced order within conditions. Participants were to discuss each topic until they had exhausted it and felt they fully understood each other's responses.

Following their interaction, participants reported to separate rooms to watch the videotape of their interaction on two of the topics they discussed. Time constraints and the potential for fatigue and test sensitization made it inadvisable to have respondents rate all four of the senders' deceptive and truthful performances. Therefore, two topics in each interaction were designated as the target topics for which senders' and receivers' perceptions were elicited, one in which Person A gave a truthful response and one in which Person A gave a deceptive

response. These were the second topic in the first block and the first topic in the second block, topics adjacent in the middle of the sequence of five topics. After watching the first video segment, participants completed written measures assessing the interaction and Person A's performance; they then watched the second video segment and completed ratings for that segment. After completing both sets of postmeasures, participants were debriefed and excused. The sessions, including discussion and completion of measures, averaged an hour in length.

Experimental Manipulation

The deception manipulation consisted of telling senders (Persons A) that in some instances, it is not in the best interests of communicators to be completely honest and that the upcoming interaction would permit them to practice their skills of "not telling the whole truth." It was explained that the goal of the experiment was to investigate whether receivers can detect answers that are less than truthful when interjected into "normal" conversation. Senders were instructed to tell the truth on some topics and to deceive on others, with the topic numbers on the cards color-coded as unobtrusive cues.

Because ordinary deception can run the gamut from job applicants overstating their qualifications to make a favorable impression, to friends equivocating about personal failures to avoid embarrassment, to politicians misrepresenting their actions to the media, deception needs to be operationalized in the broadest manner possible so as to approximate most closely the ways in which people routinely deceive (see DePaulo, Kashy, Kirkendol, Wyer, & Epstein, 1996; Turner, Edgley, & Olmstead, 1975). Moreover, past experiments have shown that participants are far more successful at complying with experimental instructions when permitted to deceive in a manner they find most familiar (e.g., Burgoon, Buller, et al., 1995; Burgoon, Buller, Guerrero, et al., 1996). Consequently, Persons A were instructed to use whatever form(s) of deception they wished to use, including outright lies, evasions, omissions, obfuscations, and equivocations—all forms of information management that deceive receivers by departing from the truth.

Participants discussed five topics. A first, brief question that was designed to acclimate participants to the setting and conversational task was answered truthfully by everyone. The next four topics were split into blocks of two, with senders' truthfulness alternated across the blocks. Half of the senders followed a truth-deception order, providing truthful responses on target Topics 1 and 2 and deceptive responses on Topics 3 and 4. The remainder followed the reverse order (DDTT). Topics followed a digram-balanced Latin square order within truth and within deception.¹ Receivers (Persons B) were blind to the deception manipulation and were told that their main goal was to keep the interaction flowing smoothly.

Measures of Motivation

Prior to the interaction, Persons A rated their interaction goals on a series of rating scales ranging from 0 (not at all important to you) to 10 (very important to you). Fourteen items, combined into three composites, served as three candidate operationalizations of motivation in the present experiment. Person A's *goal to deceive Person B successfully*—measured with items such as “succeed in making Person B believe you,” “give convincing answers,” and “keep Person B from discovering you are not telling the truth”—was considered the most direct estimate of senders' motivation to succeed with the deception. Because Hypothesis 2 was predicated on degree of acquaintance inducing differential degrees of motivation, a second set of goals was included to represent motivation to protect the relationship and/or one's self-image within it. Along with the other goals, it also served as a manipulation check on motivational differences between friends and strangers. Person A's *goal to manage the relationship with Person B* was measured with items such as “get along with the other person,” “establish a good relationship with Person B,” and “be seen in a positive light.” Finally, in light of the MIE assumption that a major factor in performance impairment is the degree of negative arousal experienced, we reasoned that those people who were more concerned about maintaining personal comfort might be more motivated to succeed. Consequently, a third set of goals was included to capture this possibility. Person A's *goal to manage arousal* was measured with items such as “keep from embarrassing yourself,” “keep from appearing nervous,” and “get the conversation over quickly.” Coefficient alpha reliabilities for these three composite goal measures were .94, .84, and .79, respectively.

Following the interaction, senders rated the degree to which they carefully monitored their own performance and were attentive to their partners' feedback during each of the target topics. We reasoned that these ratings might constitute the extent to which senders had actually “tried harder” to succeed with their performances. Hence, these “vigilance” ratings for Topics 2 and 3 served as two additional candidate indices of motivation that were taken following the interaction and with the benefit of reviewing the actual interaction itself. The three items that formed this monitoring measure—“was not very aware of what my partner was doing while I was talking” (reverse-scored), “watched carefully to see what my partner was thinking of me,” and “paid careful attention to my partner's feedback”—yielded reliabilities of .64 and .65 for the two rating periods.

Sender Performance and Receiver Accuracy

After watching their discussion on each of the two questions, Persons A and B completed a series of scales ranging from 1 (strongly disagree) to 7 (strongly agree) that assessed senders' truthfulness and senders' verbal and nonverbal behaviors.

To measure receiver detection accuracy and truth bias, Persons A rated how truthful they were in their responses to each of the four target topics on 11-point rating scales (0 = not at all truthful, 10 = completely truthful), and Persons B rated the perceived truthfulness of Person As' answers on the same four measures. Accuracy was computed by taking the absolute value of the difference between As' and Bs' scores. Greater accuracy was represented by *lower* scores. Truth bias was calculated by subtracting senders' estimates from receivers' estimates; higher scores represented the extent to which receivers overestimated the truthfulness of receivers' responses. Senders' reports also served as a manipulation check on the truth/deception manipulation.

To measure verbal performance (i.e., information management), Persons B rated Person As' answers on 16 Likert-format items, taken from Burgoon, Buller, Guerrero, Afifi, and Feldman (1996), that were designed to measure multiple dimensions of information management. To reduce multicollinearity and increase parsimony, these and the nonverbal performance items were subjected to principal components factor analysis with varimax rotation and reliability analysis. In light of the items' conceptual and empirical relatedness, two composite measures of verbal performance were created. *Veridicality/personalism* addressed how truthful the responses were perceived to be and how attributable to the sender. *Completeness/clarity/directness* addressed how detailed, nonambiguous, and relevant the answers were.² Topic 2 and Topic 3 reliabilities for these two measures were .70, .87, .84, and .88.

Nonverbal behavior management was measured with 15 additional items that formed two composites. *Involvement/dominance* included such behaviors as gaze, facial and gestural expressivity, postural orientation, liveliness, dynamism, and confidence; *expectedness* reflected the degree to which Person B perceived Person A behaved in a typical and appropriate manner. Topic 2 and Topic 3 reliabilities for these respective measures were .86, .85, .59, and .79. Image management was assessed with seven items—four related to *pleasantness* (facial, vocal, smiling, nodding) and three related to *overall good impression* (poise, believability, making a good impression). Reliabilities were .70, .75, .70, and .86. Finally, seven items captured nonstrategic activity and were scored such that higher scores represented *nonimpairment*. Items included managing the conversation skillfully, absence of disfluencies, and smoothness of verbal performance. Coefficient reliabilities were .82 and .86.

As a further subjective measure of Person Bs' perception of senders' trustworthiness, believability, and general rapport, Persons B also completed seven Likert-format items taken from Burgoon and Hale's (1987) Relational Communication Scale related to perceived relational

messages of trust, similarity, and sincerity. Reliabilities were .82 for Topic 2 and .84 for Topic 3.

Subsequently, three trained coders rated Person As' dominance, involvement, and pleasantness on the same two topics at four time intervals (two intervals per topic) using a seven-item semantic differential scale. Interitem (coefficient alpha) reliabilities and interrater (Ebel's intraclass correlation) reliabilities were as follows: dominance, .93, .85; involvement, .97, .94; pleasantness, .85, .66.

Results

Manipulation Checks

Deception manipulation. A repeated measures analysis of variance on senders' self-reported truthfulness revealed a significant time-by-truth/deception order interaction, $F(3, 174) = 133.21, p < .001, \eta^2 = .70$. The means, which appear in Table 1, indicate that Persons A were far more truthful when they were instructed to be truthful than when they were instructed to be deceptive.

Relationship motivation. Means and *t*-test comparisons between friends' and strangers' pre-interaction goals indicated that friends placed greater importance on succeeding with the deception manipulation (friend $M = 9.08, SD = .97$; stranger $M = 8.04, SD = 1.90$), $t(62) = 2.76, p = .008$, and on maintaining a good interpersonal relationship (friend $M = 8.02, SD = 1.39$; stranger $M = 7.06, SD = 1.45$), $t(62) = 2.69, p = .009$, but not on managing arousal (friend $M = 6.98, SD = 1.65$; stranger $M = 6.53, SD = 1.97$), although the means were in the right direction.

Hypothesis 1: Motivation as a Predictor of Conversational Behavior

The first hypothesis predicted that motivation is positively related to verbal performance and nonverbal performance, irrespective of whether

TABLE 1
Sender-Reported Truthfulness Means for Time-by-Truth/Deception Order Interaction

Topic	Truth/Deception Order	
	Truth First	Deception First
1	8.89	2.43
2	8.92	1.91
3	2.34	9.14
4	2.38	9.69

Note. The truthful responses appear on Topics 1 and 2 for those in the truth-first condition and on Topics 3 and 4 for those in the deception-first condition. Deception means are Topics 3 and 4 for those in the truth-first condition and Topics 1 and 2 for those in the deception-first condition.

senders are engaging in deception or truth-telling. To address the hypothesis, we correlated Person Bs' ratings of Person A's verbal and nonverbal behaviors, and coders' ratings of A's nonverbal behaviors, with the five operational indicators of motivation for Topic 2 and Topic 3. Because MIE predictions are specific to deception, we first conducted these analyses within truthful and deceptive conditions. For those in the truth first/deception second order, ratings for Topic 2 represent truthful performances, and ratings for Topic 3 represent deceptive performances. For those in the deception first/truth second order, Topic 2 ratings are for deceptive performances and Topic 3 ratings are for truthful performances. Because correlations for the monitoring variable are most relevant where A's ratings for Topic 2 are correlated with B's and coders' ratings for Topic 2, and similarly for Topic 3, only those correlations are reported (see Table 2).

By conducting analyses within the two order conditions, power is substantially reduced, so far fewer correlations emerge as significant. However, the benefits of this stringent approach are that it permits differentiating truthful from deceptive performances in their responsiveness to motivational factors, as is required by the MIE, and only correlations with moderate or larger effect sizes are flagged. However, because our hypothesis predicted motivation facilitation regardless of truth or deception, we next conducted analyses across the total sample. We summarize below the most important relationships. Other correlations are available for inspection.

Verbal performance. For verbal behavior while truth-telling, the relevant correlations are those between the five motivation measures and the two verbal measures (truthful/personal and complete/clear/direct) for the truth-first condition with Topic 2 and the deception-first condition with Topic 3. None were significant. For verbal performance while deceiving, Person As' goal to manage arousal related negatively to judged veridicality (i.e., truthfulness and personalism) for those who deceived on Topic 2 (but not those who deceived later, on Topic 3). This might imply some motivation-related impairment, which is contrary to the MIE prediction of verbal facilitation. However, for those who deceived on Topic 3, there was a positive relationship between motivation to succeed and presentation of a complete, clear, and direct response. In other words, those who followed the truth-then-deception sequence gave better verbal performances, the more they were motivated. This could support a motivation-facilitation effect if it were accompanied by nonverbal impairment under the same conditions. By themselves, however, these two conflicting patterns fail to support the MIE and H1 because they imply that facilitation or impairment is a function of whether the sender had the opportunity to tell the truth first or not.

The follow-up analyses disregarding truth/deception order revealed significant correlations only between completeness/clarity/directness

TABLE 2
 Correlations among Measures of Person A's Motivation, A's Verbal and Nonverbal Performance and Person B's Detection Accuracy, Truth Biases, and Judgment of A's Trustworthiness

Performance Measure and Time Period	Truth/Deception Order	Goal: Successful Deception	Goal: Maintain Relationship	Goal: Manage Arousal	Person A's Monitoring
Truthful/Personal, Topic 2 (B's Rating of A)	Truth first	-.158	.061	-.195	-.211
	Deception first	-.130	.124	-.341*	.126
Truthful/Personal, Topic 3 (B's Rating of A)	Truth first	-.118	.011	-.119	-.226
	Deception first	.031	.131	-.122	.185
Complete/Clear/Direct, Topic 2 (B's Rating of A)	Truth first	-.195	-.062	-.013	.068
	Deception first	-.002	.088	-.196	.349*
Complete/Clear/Direct, Topic 3 (B's Rating of A)	Truth first	.407*	.150	.045	.175
	Deception first	-.040	-.143	-.028	.082
Dominance, Topic 2 (Coder Rating)	Truth first	.268	-.052	-.271	.289
	Deception first	.025	-.237	-.235	.239
Dominance, Topic 3 (Coder Rating)	Truth first	.155	.121	-.234	.150
	Deception first	.057	-.242	-.235	.158
Involvement, Topic 2 (Coder Rating)	Truth first	.433**	-.019	-.087	.357*
	Deception first	-.095	-.267	-.307*	.063
Involvement, Topic 3 (Coder Rating)	Truth first	.229	-.046	-.067	.377*
	Deception at T2/ Truth at T3	-.122	-.205	-.320*	.238
Involved/Dominant, Topic 2 (B's Rating)	Truth first	-.238	.009	.061	.045
	Deception at T2/ Truth at T3	.056	.063	-.189	.213
Involved/Dominant, Topic 3 (B's Rating)	Truth first	-.136	.140	.005	.114
	Deception at T2/ Truth at T3	.001	.134	-.086	.419**
Expressive, Topic 2 (B's Rating)	Truth first	-.219	.115	.088	.100
	Deception at first	.086	.144	-.274	.316*
Expressive, Topic 3 (B's Rating)	Truth first	-.209	.167	-.066	.176
	Deception first	.131	.208	-.017	.345*
Pleasantness, Topic 2 (Coder Rating)	Truth first	.307*	.131	-.177	.150
	Deception first	-.062	.000	-.389*	.201
Pleasantness, Topic 3 (Coder Rating)	Truth first	.072	.290	-.286	.010
	Deception first	-.193	.120	-.296	.216
Pleasant/Positive Image, Topic 2 (B's Rating)	Truth first	-.025	.263	.095	.134
	Deception first	.004	.332	-.213	.077
Pleasant/Positive Image, Topic 3 (B's Rating)	Truth first	-.192	.264	.098	-.006
	Deception first	.051	.320*	.073	.289
Good Impression, Topic 2 (B's Rating)	Truth first	.270	.089	.031	.192
	Deception first	.000	.066	-.202	.437**
Good Impression, Topic 3 (B's Rating)	Truth first	.164	.181	-.021	.146
	Deception first	-.015	.021	-.218	.339*
Nonimpaired Speech, Topic 2 (B's Rating)	Truth first	.203	.127	.061	.163
	Deception first	-.009	.070	-.260	.333*
Nonimpaired Speech, Topic 3 (B's Rating)	Truth first	.086	.136	.239	-.006
	Deception first	.045	-.006	-.079	.171
Trust/Rapport, Topic 2 (B's Rating)	Truth first	.090	.219	.348*	.117
	Deception first	-.021	.474**	-.075	.418**
Trust/Rapport, Topic 3 (B's Rating)	Truth first	.034	.225	.012	.147
	Deception first	-.027	.411**	-.216	.464**
B's Detection Accuracy, Topic 2	Truth first	.089	.327*	.401*	.331*
	Deception first	-.089	.160	-.311*	.365*
B's Detection Accuracy, Topic 3	Truth first	-.020	-.158	-.075	-.104
	Deception first	-.129	.006	.144	-.202
B's Truth Bias, Topic 2	Truth first	.201	.013	-.134	-.383*
	Deception first	.237	.397*	-.032	.380*
B's Truth Bias, Topic 3	Truth first	-.141	-.094	-.326*	.033
	Deception first	.097	-.038	-.013	.040

Note: For those within the truth-first order ($n = 32$), correlations for Topic 2 relate to truthful performances and those for Topic 3 relate to deceptive ones. For those within the deception-first order ($n = 32$), correlations for Topic 2 relate to deceptive performances and those for Topic 3 relate to truthful performances.

*Correlation is significant at the 0.05 level (1-tailed).

**Correlation is significant at the 0.01 level (1-tailed).

and monitoring for Topics 2 and 3, $r(60) = .25$ and $r(60) = .24$, $p < .03$, one-tailed, respectively, which indicates that higher monitoring was associated with better verbal performance. These results, coupled with a similar facilitative impact of motivation to succeed, provide limited support for H1. Whether they are consistent with the MIE hypothesis depends on whether nonverbal impairment and higher deception detection materialized under the same conditions. Those patterns do not consistently emerge, however.

Nonverbal behavior management. Correlations under truth-telling showed several statistically significant relationships. According to the coders, senders who began with truth (i.e., told the truth on Topic 2) exhibited more involvement (and dominance) if they were more motivated to succeed. They also reported higher monitoring of own and partner's behavior. Senders who told the truth later (on Topic 3) exhibited less involvement if they had higher concern for managing arousal. According to the partners, senders who told the truth later showed higher involvement, dominance, and expressivity if they were more vigilant. Thus, depending on which goal was salient, what condition the sender was in, and whose report was analyzed, competing and mixed patterns emerged for involvement and dominance. The prevailing impression, nevertheless, was one of better truthful performance under higher motivation.

Correlations under deception were significant primarily for the monitoring measure, and these were uniformly in the direction of more motivation facilitating nonverbal behavior management. Coders judged those who deceived as more involved if they were motivated. Partners similarly rated deceivers on Topic 3 as more involved and dominant if motivated. They also rated both deception-first and deception-second senders as more expressive and their behavior as more normal and expected if motivated. Additionally, those who were more motivated to maintain a good relationship and began with deception were regarded by partners as behaving in a more expected manner. These results, when combined with the truth-telling patterns, are consistent with Hypothesis 1 and contrary to the MIE hypothesis.

The follow-up analyses across truth and deception conditions resulted in no significant relationships for the succeeding-with-deception and relationship management measures. There were negative correlations between arousal management and dominance, $r(60) = -.24$, $p < .05$, one-tailed, for each topic, however. In addition, there were positive correlations for monitoring with coded involvement, $r(60) = .22$, $p < .01$, and $r(60) = .32$, $p < .01$, one-tailed; coded dominance, $r(60) = .24$, $p < .05$, for Topic 2; partner-rated involvement/dominance, $r(60) = .27$, $p < .05$, one-tailed, for Topic 3; and expressivity, $r(60) = .27$, $p < .05$, one-tailed, for Topic 3. These results fit H1, in that the same patterns materialized under truth and deception, and most supported facilitation.

Nonverbal image management. Under truth-telling, three correlations were significant. According to the coders, truth-first senders were more pleasant, the more they were motivated to succeed with their deceit. According to partners, truth-second senders made a better impression, the more they were vigilant. They were also seen as more pleasant, the more they were motivated to maintain a good relationship. With the exception of arousal management, which tended to have a negative effect on pleasantness, most of the other nonsignificant relationships were also positive.

Under deception, coders (and partners) saw deceivers as less pleasant, the more concerned they were with arousal management. This pattern fits the MIE perspective. However, the other motivation measures were positively related to deceptive performance, which was consistent with H1. According to the partners, pleasantness increased and deceivers fostered a better impression, the more the deceiver was concerned with maintaining a good relationship or was vigilant. Again, then, the exception was primarily with heightened concern for keeping arousal in check.

The follow-up analyses across truth and deception conditions revealed no significant relationships for the succeed-with-deception goal, positive correlations with the relationship management and monitoring goals, and negative correlations with the arousal management goal. Those who were more motivated to maintain a good relationship were rated as more pleasant for Topic 3, $r(60) = .22, p < .05$, one-tailed, and rated by partners as more pleasant for both topics, $r(60) = .25$, and $r(60) = .28, p < .05$, one-tailed, respectively. Those who engaged in more monitoring were rated as creating a better impression during both topics, $r(60) = .30, p < .01$, and $.24, p < .05$, one-tailed. But those who were concerned with arousal management were coded as less pleasant under both topics, $r(60) = .28, p < .05$, and $r(60) = .29, p < .01$, one-tailed. Thus, only those who placed greater importance on managing their comfort and arousal level showed any performance decrements, and that form of motivation affected both truth-telling and deception, not merely deception. Other indicators of motivation showed positive relationships with performance, consistent with H1 and contrary to the MIE hypothesis.

Nonimpaired performance. Recall that one composite measure specifically addressed nonverbal indicators of nonstrategic leakage, which is a critical component of the MIE. This measure is scored such that higher scores represent better, or nonimpaired, performance. The only significant relationship to emerge was for deceivers on Topic 2. They performed better, the more they carefully monitored own and partner's behavior. This same relationship emerged in the follow-up analysis, $r(60) = .23, p < .05$, one-tailed for Topic 2, which indicated that it applied to truth as well as to deception. Deception did not systematically impair or facilitate performance as motivation increased on the

other measures. The lack of motivation-based decrements is contrary to the MIE.

Hypothesis 2: Accuracy, Truth Bias, and Trust

Experiments testing the MIE have relied almost exclusively on receivers' ability to detect deception or their assessment of deceivers' honesty and sincerity. Consequently, these measures are the most directly comparable to prior MIE research. The correlations reveal that if senders were more motivated to maintain a good relationship or were more vigilant, they were judged as more honest and trustworthy during both truth-telling and deceit, consistent with H2 rather than the MIE. Partners were also more inaccurate in judging their truthfulness or deceit in the early stages of the interaction. Partners were disinclined to show a truth bias when judging truth (i.e., they didn't overestimate truthfulness) but did show one on deceit. If deceivers were concerned about their arousal management, however, a different pattern emerged. Motivated senders who began with truth were judged by partners as more trustworthy and honest when speaking truthfully, yet their partners also were disinclined to show a truth bias during truth, were less accurate in judging actual truthfulness, and were more accurate in judging subsequent deceit. Motivated senders who began with deceit were also more readily detected in their deceit on Topic 2, but their partners tended to rate them lower subsequently on honesty when they shifted to truth. In short, higher arousal-management motivation had the effect of eliciting more of a lie bias from partners that led to higher accuracy in detecting deceit but lower accuracy in detecting truth. They may have engaged in behaviors that created suspicion and negative reactions to both their truthful and deceptive performances.

The follow-up analysis produced positive correlations for the relationship management and monitoring measures with trust, truth bias, and inaccuracy. The more motivated the sender, the more the receiver trusted him or her, $r(60) = .29$ and $r(60) = .23$, $p < .05$, one-tailed; the more truth biases the receiver showed, $r(60) = .28$, $p < .05$, one-tailed for the relationship goal; and the less accurate the receiver was in detecting the truth or deceit in sender's messages, $r(60) = .29$, $p < .05$, and $r(60) = .31$, $p < .01$, one-tailed for Topic 2. These results indicate that two of the four forms of motivation corresponded to favorable reactions by receivers and therefore could not be claimed as evidence of performance impairment. Even when arousal was a major motivator and had some impact on performance, it did not lead to better detection accuracy or more skepticism.

To summarize, motivation had some relationship to both truthful and deceptive performance but any evidence of a consistent verbal-facilitation and nonverbal-impairment effect was modest at best. The patterns largely supported motivation facilitating performance. The exception was the motivation to manage arousal, which had an involve-

ment- and pleasantness-dampening effect and tended to trigger a lie bias that led to inaccuracies in judging truth as well as deception. Thus, although the results were mixed, with many nonsignificant effects and small effect sizes, the overall pattern was more consistent with H1 and H2 than the MIE.

Hypothesis 3: Effects of Relationship Type on Performance

The third hypothesis predicted that senders interacting with strangers would exhibit impaired verbal and nonverbal performance relative to those interacting with friends, and that these differences would be irrespective of whether senders engaged in deception or truth-telling. Friend and stranger means were initially compared with two-tailed *t*-tests within the truth-first and deception-first orders because of the conflicting predictions from IDT versus MIE.

Analyses produced very few significant differences, and most related to truthful rather than deceptive performance. Truthful friends were seen by partners as more pleasant ($M = 5.84, SD = .88$) than strangers ($M = 4.99, SD = 1.08$), $t(30) = 2.45, p = .02$, two-tailed, consistent with H3. But truthful friends were also seen as less complete, clear and direct ($M = 4.43, SD = 1.12$) than strangers ($M = 5.24, SD = .86$), $t(30) = -2.26, p = .04$, two-tailed, contrary to H3. There was a near-significant pattern of truthful strangers also being seen as having smoother, more fluent speech (i.e., nonimpaired performance) ($M = 5.41, SD = .73$) than truthful friends ($M = 4.87, SD = .96$), $t(30) = -1.80, p = .08$, two-tailed. When deceiving, friends were coded as more pleasant ($M = 5.12, SD = .62$) than strangers ($M = 4.74, SD = .57$), $t(30) = 2.10, p = .04$, two-tailed, consistent with H3. Follow-up tests ignoring the truth/deception factor revealed that coded pleasantness differences for Topic 2 held regardless of truth or deception, $t(62) = 2.48, p = .01$, two-tailed, as did partner perceptions of sender pleasantness for Topic 2, $t(61) = 2.67, p = .01$, two-tailed. Friends were judged as more pleasant than strangers regardless of whether they were lying or telling the truth. Overall, then, these meager results reveal that friends were more pleasant under both truth and deception, as predicted by H3, but tended to be rated by partners as less effective than strangers in terms of their speech performance under truth-telling, a pattern that challenges both the MIE prediction that motivation improves verbal behavior and our more general prediction of motivation largely facilitating performance.

Hypothesis 4: Effects of Relationship Type on Perceived Honesty, Truth Bias, and Accuracy

The fourth hypothesis predicted differences by relationship type on Person Bs' judgments of As' sincerity and honesty, truth biases, and detection of deception. Despite the limited and mixed findings on performance, deceptive friends in the deception-first condition tended

to be judged more favorably on trust and honesty ($M = 4.79$, $SD = .93$) than strangers ($M = 4.27$, $SD = 1.02$), $t(30) = 1.80$, $p = .08$, two-tailed. Follow-up tests ignoring truth/deception order revealed that these perceptions held, irrespective of whether senders were lying or truth-telling for Topic 2, $t(61) = 2.62$, $p = .01$, two-tailed. These results support H4. Yet, contrary to H4, friends of deceivers in the deception-second condition showed lower truth bias ($M = 1.87$, $SD = 4.03$) and inaccuracy ($M = 3.33$, $SD = 2.84$) than strangers (truth bias $M = 5.33$, $SD = 4.58$; accuracy $M = 6.17$, $SD = 3.27$), truth bias $t(30) = -2.09$, $p = .047$, two-tailed; accuracy $t(30) = -2.40$, $p = .02$, two-tailed. Conceivably, the contrast with the prior truthful performance, coupled with friends' knowledge of the sender, made receivers more accurate in judging senders' deceptive performances. A supplementary analysis ignoring truth/deception also revealed that for the first deceptive topic, strangers were less accurate at detecting deception ($M = 6.36$, $SD = 2.95$) than were friends ($M = 3.03$, $SD = 3.26$), $t(55) = 3.07$, $p = .003$. But this greater accuracy cannot be attributed to nonverbal performance decrements, as the MIE asserts, given that such decrements were not evident to either partners or coders. If anything, nonverbal performance was better under deception, and any speech impairment that occurred during truth-telling should have also enabled deceptive performances to look good by comparison.

To probe further how performance related to the accuracy, bias and honesty judgments, we conducted supplementary multiple regression analyses that regressed the criterion measures of accuracy, truth bias, and trust on the predictor variables of relationship type, truth/deception order, and receiver or coder performance ratings. The analyses produced four significant models. When the criterion measure was trust, receivers gave higher ratings when they thought the sender was more pleasant and behaved more expectedly on Topic 2 or the sender was more involved, dominant, and expected on Topic 3. As already noted, the "high motivation" condition of interacting with friends was the one in which pleasantness was rated higher, so the effect would qualify as motivation-facilitation. The same analysis conducted on coder ratings produced relationship type as the predictor for Topic 2—friends were rated as more trustworthy and honest, regardless of whether they were telling the truth or deceiving—and pleasantness as the predictor for Topic 3—more pleasantness generated more trust. As with the preceding results, these analyses fail to support the MIE rationale; they partially support H4 and the potential for strategic improvement of performance, as postulated by IDT.

Discussion

At the heart of the MIE hypothesis is the dual prediction that, when speakers are attempting to deceive, their motivation to succeed in that effort will improve their verbal performance but simultaneously impair

their nonverbal performance. As a result of the nonverbal impairment, MIE predicts that in any situation in which nonverbal cues are available to receivers, senders' motivation will ultimately inhibit their deceptive success and increasing receivers' detection accuracy. Arguing instead from the perspective of IDT, which is founded on the potential for strategic as well as nonstrategic aspects of deception displays, this investigation tested the hypotheses that senders' motivation can improve both their verbal and nonverbal performance, irrespective of whether speakers are engaged in deception or truth-telling, leading to biased, favorable judgments of sender honesty and trustworthiness and to poorer detection accuracy.

Unlike previous experiments testing the MIE hypothesis, we examined the effects of multiple operational definitions of motivation rather than relying on one single indicator. Correlational tests of the first hypothesis indicated that various forms of motivation differentially affected performance but largely in the direction of improving verbal presentation *and* nonverbal performance (such as behavior management, image management, and dominance). Importantly, these effects held both for partners' (receivers') and trained coders' reports and were evident in both deception and truth-telling conditions. Moreover, a number of verbal and nonverbal behaviors that were not improved by motivation were unaffected by it. That is, motivation was rarely associated with inhibited verbal or nonverbal performance.

Specifically, if one examines all the correlations between the goal of succeeding with the deception and the performance measures, higher motivation was associated with more complete, clear, and direct verbal messages and more involved and pleasant nonverbal demeanor (although partners did not always share those perceptions). Interestingly, all the significant effects and nearly all of the effect sizes of moderate magnitude or larger were in the truth-first condition, which may indicate that the sequencing of truth-then-deception boosted the motivation-facilitation effect. By contrast, for the arousal management goal, there were signs of some impairment *if* the sender began with deception; this resulted in more negative judgments of the sender's honesty. Likewise for the relationship management goal, some nonsignificant negative relationships emerged in the deception-first condition, which further suggests that the sequencing had a significant impact on performance. As regards the MIE hypothesis, this implies that impairment, if any occurs, might be more common in cases in which senders are deprived of the opportunity to begin on safer ground first, i.e., to begin with the truth. Finally, for the monitoring measure, nearly all the effects—both significant and nonsignificant—were in the direction of higher motivation facilitating performance, including carry-over from truth-telling to deception. (And detection was benefitted only for truth-telling, not deception.) These mixed findings underscore the need to specify what form of motivation is at stake and whether the sender is

permitted to draw on familiar, truthful repertoires before engaging in deception. In normal conversation, where truth and deception are typically intermixed, the ability to slide from the overlearned patterns of truthful discourse into a deceptive response may ameliorate any impairment that high motivation might otherwise create.

In sum, these findings run counter to the prediction of the MIE hypothesis by indicating that the various measures of motivation either have a facilitative effect on nonverbal performance or fail to show a detrimental effect on it. According to the MIE hypothesis, we should have seen negative correlations between motivation and the various nonverbal behaviors when speakers were deceiving, yet these patterns did not emerge. Instead, motivation facilitated nonverbal performance and did so regardless of whether deception or truth-telling was occurring. This suggests not only that motivation fails to impair nonverbal performance but that the effects of motivation on nonverbal behavior, contrary to the foundation of MIE's claim, have nothing to do with deception *per se*.

Rather than examining actual performance, tests of the MIE hypothesis have focused on receivers' ability to detect deception and led to the inference that higher detectability results from impaired performance. The MIE hypothesis holds that when a deceiver's nonverbal cues are accessible to the target of a deceptive act, then the deceiver's motivation to succeed should positively predict the receiver's accuracy in judging truthfulness. Burgoon (1998) has critiqued this method in noting that a claim of performance facilitation or debilitation should examine performance directly and that several other factors apart from performance may account for differences in detectability. Notwithstanding, we tested the impact of motivation on detection accuracy, honesty judgments and truth biases by correlating those criterion measures with the multiple operational indicators of motivation measured here. For two motivation operationalizations, correlations were in the direction opposite that predicted by the MIE hypothesis. Only when arousal management was the motivator did receivers show increased accuracy in detecting deceit, and then only if senders began with deceit. This came at the expense of reduced accuracy in judging truth; *i.e.*, receivers apparently abandoned a truth bias in favor of a lie bias. Speculatively, those individuals with high concern for keeping arousal in check exhibited the more general "choking under pressure" patterns that led to less competent performances under both truth and deception. Overall, then, except for this arousal based effect that did not conform to MIE predictions, motivation appeared to have had little effect on receivers' accuracy, and what small effect it did have was in the direction of inhibiting accuracy, rather than improving it.

In addition to conceptualizing motivation on a continuum and investigating its linear relationships with behavioral and accuracy outcomes, we also examined group differences as a function of relationship

type. Although our experiment did not involve the *a priori* creation of high- and low-motivation groups, we reasoned that those interacting with friends would be more motivated to succeed at deception than would those interacting with strangers, given what should be greater face loss at the possibility of being discovered lying to a friend than a stranger. Relationship-type differences on the other operational definitions of motivation supported this reasoning; thus, we used relationship type as a surrogate for high- and low-motivation groups, comparable to the strategy used in previous MIE investigations but in this case, with actual manipulation checks on whether the groups truly differed in their motivations.

The two groups showed few differences in verbal and nonverbal performance. Friends were rated as more pleasant than strangers under both truth and deception conditions, a pattern that probably typifies friendship interactions irrespective of any deceptive intent. Strangers were viewed as giving more complete, clear, direct responses and having less impaired speech than friends when telling the truth on Topic 3, but this impact on verbal and speech performance does not appear to have a direct bearing on the MIE hypothesis. For the most part, then, friends' verbal and nonverbal behavior was neither better nor worse than strangers' under deception, which may indicate that deception does not manifest a nonverbal impairment effect under the higher-motivation condition (i.e., with friends), nor does it improve verbal performance as the MIE would suggest. The fact that significant differences did emerge under the truth-telling condition mitigates the likelihood that the experiment lacked sufficient power to detect differences under the deception condition.

Finally, we examined the effect of relationship type on receivers' judgments of sender honesty and their accuracy in discerning senders' truthfulness. Contrary to the MIE and consistent with H4, friends were judged as conveying more honesty and sincerity under both truth and deception. Yet it was strangers who were less accurate and more biased in their detection for Topics 1 and 3 (but not the other topics). Because we did not create *a priori* high- and low-motivation groups, it is difficult to know whether to attribute strangers' lesser accuracy solely to a difference in motivation, or whether it may also be a product of friends' experience with each other and their resulting ability to detect deception when it is present. The behavioral assessments are more in line with the latter interpretation, because it was strangers who displayed less pleasantness, and friends only showed impairment under truth.

Some may quarrel with whether the current investigation offered a fair test of the MIE hypothesis because MIE investigations have typically employed a verbal-only condition (i.e., receivers have access only to text) that has been contrasted with various conditions including nonverbal channels. However, if this study is viewed as one in which receivers had access to nonverbal channels, then from the MIE perspec-

tive, their deceptive performance should have been more detectable as their motivation increased by virtue of leaking their deceit through nonverbal cues. The fact that the prevailing patterns were more in line with motivation's facilitating rather than impairing performance implies that the MIE did not materialize. Moreover, the MIE hypothesis has typically been tested by taking the difference between truthful and deceptive presentations. The fact that patterns held for truthful as well as deceptive presentations means that deceptive presentations did not result in differentially greater benefit or detriment due to increased motivation. Finally, the use of correlational data might be questioned as less valid than experimental manipulations for drawing causal inferences. However, experimental manipulations are only useful to the extent that they actually induce differences in motivation, something that has not been established in prior MIE tests. In this instance, the comparison between friends and strangers at least mirrors some of the kinds of operationalizations that have been used to test for the MIE. And, if motivation is conceptually regarded as a continuous variable and one that is prone to high degrees of individual variability, then it is sensible to operationalize motivation with multiple self-report measures that reflect a broad spectrum of individual differences in responding to deceptive episodes.

Overall, the pattern of findings challenges the claim that motivation under deception facilitates verbal performance while simultaneously impairing nonverbal performance. Instead the results offer indications that senders who are motivated to succeed, who care about maintaining a good interpersonal relationship, and/or who are especially vigilant about their own and partner's performance can strategically manage their deceptive presentations to approximate a truthful demeanor that engenders trust and evades detection. As interpersonal deception theory postulates, communicators are capable of managing their information, behavior, and image to create credible deceptive presentations. Greater motivation apparently facilitates those efforts.

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ENDNOTES

¹In addition to the truth/deception and deception order factors, the experiment included a third factor—participation—which required half of the participants to discuss the topics in a dialogue and half to do so in alternating monologues so as to test the principle of interactivity. Results of this manipulation are reported elsewhere. A further factor of receiver communication style was collected at the same time but data from the conditions in which style was manipulated are excluded from the current data set.

²Sample items measuring completeness, clarity, and directness included “gave responses that were as informationally complete as possible,” “said things in an indirect way” (reverse-scored), “gave vague and unclear responses” (reverse-scored), and “said things that could be interpreted in more than one way.” Sample items measuring veridicality and personalism were “gave information that wasn’t true” (reverse-scored), “gave false responses to the discussion topic” (reverse-scored), and “made it clear that the feelings, beliefs, or attitudes I was expressing were my own.”