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Nonverbal Betrayal of Feeling[1]

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In three experiments, the behaviors of deceitful communicators were explored to study the more general situations in which a person is unwilling or unable to communicate his feelings verbally. The hypothesis which received some support was that negative affect-indicating nonverbal cues occur more frequently in deceitful than in truthful communications. Communicators exhibited less frequent movements while they were being deceitful, assumed less immediate positions relative to their addressees, talked less, talked slower, had more speech errors, and smiled more. In addition to their relevance for deceit, the findings also provided detailed information about the significance of the various nonverbal cues employed in the study.

There are many social situations in which nonverbal behaviors become of focal interest, particularly when a communicator is either unable or unwilling to express his feelings explicitly. The concept of repression in psychoanalytic theory, for instance, led to the exploration of nonverbal behaviors as a means for inferring a client's "unacceptable" feelings (e.g., Deutsch & Murphy, 1955). The assumption was that some behaviors are unwittingly emitted by a person during his conversation on a given topic which help to identify his unverbalized distress and discomfort, or his deliberate distortions. To explore this issue in the present study, it was necessary to select a method by which subjects would verbally express something other than what they really felt or experienced. Deceitful communications seemed to provide a reasonably satisfactory paradigm for that purpose.

Early experiments which employed latency measures in word-association tasks (e.g., Marston, 1920) or GSR and blood pressure measures (e.g., Chappell, 1929)

were motivated by the hypothesis that a deceitful communicator can be expected to exhibit fear or avoidance reactions which are reflected in subtle physiological cues. Although the findings from these experiments did not unequivocally support the hypothesis, they did provide a guideline to the study of nonverbal cues in deceit: a communicator is expected to exhibit a greater degree of negative affect while being deceitful.

Given this assumption, the literature on nonverbal attitude communication provided several hypotheses. Posture and position variables can be grouped into immediacy cues (i.e., touching, physical proximity, forward lean, eye contact, and shoulder orientation to an addressee) as direct correlates of positive feeling (e.g., Mehrabian, 1969). Accordingly, immediacy was expected to be greater during truthful than deceitful communications in the following experiments. Similarly, the following hypotheses for various movement, facial, and verbal cues were based on the positive-negative attitude communicating significance of these cues. When a communicator is deceitful rather than truthful, he gesticulates and exhibits positive head nods less frequently (Rosenfeld, 1966) and smiles more (Mehrabian & Williams, 1969). Also, a more deceitful communicator speaks at a slower rate, talks less in terms of number

of words, and produces more frequent speech errors (Rosenfeld, 1966; Kasl & Mahl, 1965). Although these hypotheses suggested a limited set of nonverbal behaviors as possible indicators of deceit, additional cues were analyzed in the following experiments for exploratory purposes.

EXPERIMENT I

In this experiment, subjects communicated both deceitfully and truthfully to different judges. Initially, the subjects were asked for their opinion regarding the legalization of abortion—a heavily debated issue at that time, which was selected to elicit strong negative or positive feelings. Each subject then presented a truthful communication regarding abortion (one consistent with his or her views), and also a deceitful communication (inconsistent with his views). To simulate two common conditions of deceit, the effects of a reward-shock factor were also explored. In the reward condition, subjects were promised and given bonus pay for lying successfully, i.e., provided the judge was unable to detect their deceit; in the shock condition they were threatened with, and given mild, shock if the judge detected their deceit.

Method

Fifty-six University of California undergraduates were paid to participate as subjects in the experiment. Each subject first indicated his attitude toward abortion, and then wrote a paragraph explaining his position. Those subjects who expressed extreme views (both for and against) were selected to continue the experiment. Those without extreme views were paid and dismissed at that point, although very few had to be dismissed. Participating subjects then received a detailed set of written instructions explaining what they were to do in what followed.

These instructions presented the experiment as a challenge to the subject's ability to always give the impression of truthfulness, whether actually telling the truth or being deceitful. Subjects received two lists of statements, one of arguments supporting abortion and the other of arguments against it, and some information about John B. Watson. They had 10 min to study the material, after which they made three presentations, one each to three different judges: (1) a practice communication about John B. Watson, (2) a

communication advocating abortion, and (3) a communication against abortion. The practice condition always came first, followed by conditions 2 and 3 in random order. Thus, one situation was consistent with the subject's belief on the issue of abortion, whereas the other was contrary to his belief as expressed in the initial phase of the experiment. He was to present both communications in a manner that would convince the judges he was giving his true opinion. Subjects had 5 additional min before each presentation to prepare what they wanted to say. No judge knew any particular subject's stance on the issue, nor which condition he was enacting at any time, since these opinions had been obtained by another assistant in the experiment who alone knew the subject's attitudes.

In the reward conditions, subjects were told that if they convinced both judges they were telling the truth, at the end of the experiment they would receive a $2.00 reward from the judge they had fooled. In the punishment condition, subjects were told they would be shocked at the end of the experiment by the judge who correctly concluded they were not telling the truth. A shock device was in the room during this condition and had been pointed out to the subject. The addressee-judges, rather than the experimenter, were to dispense reinforcers so as to maximize their emotion-arousing quality for the subject.

Four observers watched each subject's behaviors during the second and third communication conditions, through a one-way mirror. Three scored various subsets of the dependent measures, listed in Table 1, together with speech, gesticulation, and head nodding rates; the fourth alternately scored various categories for reliability. The relevant subset of scoring criteria reported by Mehrabian (1969) was used. Immediacy = $-.6$ distance $+ .3$ eye contact $+ .3$ forward lean $-.1$ shoulder orientation; relaxation = arm asymmetry $+$ sideways lean $+$ reclining angle, where all variables were normalized. Speech error rate was scored later from audiorecordings. Like the judges, none of the observers knew any subject's true attitude toward abortion.

Results

Reliability figures for the scoring of each dependent measure have been given by Mehrabian (1969), and were deemed satisfactory such that all dependent measures were retained for further analyses. For each dependent measure, the scores obtained from the observers for a given con-

dition and subject were averaged. Then, each dependent measure was analyzed using a $2 \times 2 \times 14 \times 2$ factorial design. There were two levels of sex of the subject-communicator, two levels of reinforcement (anticipated reward versus punishment), 14 subjects nested under each of the Sex $\times$ Reward conditions, and finally two levels of deceit (deceit versus truth) which involved repeated measures.

Table 1 summarizes the results of the analyses of variance. The significant effects for each dependent measure are given in parentheses and, in the case of two-way interactions, arrows connect those cell means found to differ significantly. For instance, analysis of variance of immediacy scores showed significance for Reinforcement $\times$ Deceit: subjects who were promised reward for successful deceit were more immediate while truthful (.06) than while deceitful (−.20), and there was no corre-

TABLE 1

SUMMARY OF SIGNIFICANT FINDINGS FROM ANALYSES OF VARIANCE IN EXPERIMENT I[a]

Dependent measure (Independent effect)	F	MS_e	Means		
Immediacy (Reinforcement $\times$ Deceit)	3.4	0.17		Truth	Deceit
			Reward	.06 $\leftrightarrow$	−.20
			Punishment	.06	.08
Relaxation (Reinforcement)	4.7	6.1	Reward = .51		Punishment = −.51
Facial pleasantness (Reinforcement)	30.4	0.23	Reward = 1.13		Punishment = 1.63
(Sex $\times$ Deceit)	4.9	0.18		Truth	Deceit
			Male	1.29 $\leftrightarrow$	1.54
			Female	1.39	1.29
Rocking rate (Sex $\times$ Reinforcement)	3.4	140		Reward	Punishment
			Male	3.2	4.5
			Female	8.7 $\leftrightarrow$	1.7
Foot movement rate (Deceit)	4.4	38	Truth = 6.8		Deceit = 4.3
Leg movement rate (Reinforcement)	3.7	7.5	Reward = 1.7		Punishment = 0.7
(Deceit $\times$ Reinforcement)	5.0	6.1		Truth	Deceit
			Reward	2.34 $\leftrightarrow$	0.98
			Punishment	0.30	1.03
Speech duration (Reinforcement)	5.2	15675	Reward = 181 sec		Punish. = 127 sec
Speech error rate (Deceit)	4.1	3.6	Truth = 3.13		Deceit = 3.86

[a] $p < .10$, $df = 1/52$ for all effects reported in this table. Arrows connect cell means which, based on t tests differ significantly at the .05 level. Rate measures are number of movements per 100 sec.

sponding significant difference for subjects who were told they would be shocked if their deceit were detected correctly.

EXPERIMENT II

This experiment explored the effects of the following factors on the nonverbal behavior of a subject: the actual deceitful versus truthful quality of the verbal communication, role playing of a deceitful versus truthful communication, the sex of the communicator, and the interactions of these with the Extroversion and the Neuroticism scores on the Eysenck Personality Inventory (Eysenck & Eysenck, 1963) and the Mandler and Sarason (1952) Test Anxiety Questionnaire. Subjects first gave their opinions on a variety of social issues, 12 of which involved specific persons and 12 which involved more abstract issues. Then they received instructions to present four types of communications: (A) telling the truth in a manner such that the listener is convinced that one is telling the truth, (B) telling the truth in a manner such that the listener is convinced that one is lying, (C) lying in a manner such that the listener is convinced that one is telling the truth, and (D) lying in a manner such that the listener is convinced that one is lying. The subject presented 12 issues to one judge in a prearranged order, such that sets of three issues were communicated in each of these four ways.

Method

Forty-eight University of California undergraduates served as paid subjects in the experiment. They first received instructions for rating each of 24 issues on a 7-point scale ranging from "strongly against" to "strongly in favor." The issues were such things as lowering the voting age to 18, peace demonstrations, wiretapping by the government, mercy killing, capital punishment, barring of prayers in public schools, or the control of firearms. For each subject, 12 issues were selected to which he had responded in an extremely favorable or unfavorable manner. To obtain additional commitment from the subject, he was asked to write about two sentences for each, explaining his position. The experimenter selected three issues for each of the four conditions which have already been enumerated.

The subject was told that the next part of the experiment was a game involving four conditions. He received detailed instructions explaining the four conditions and how he was to proceed in each one. He also received a list of the 12 issues which had been selected for him on the basis of his responses. Each numbered issue was preceded by the letter A, B, C, or D, to indicate to him which condition he was to portray in his presentation of that particular issue. The order of the conditions was counterbalanced over all subjects.

After each presentation, the addressee-judge recorded his opinion as to whether the subject was lying or telling the truth. The subjects had been told that they would receive one point each time the judge scored them as telling the truth when they presented conditions A or C, or judged them as lying during conditions B or D. They were also informed that if, at the end of the 12 presentations, they had earned 10 or more points, they would receive a bonus of $3.00. As in Experiment I, the subject began with a sample condition to help him relax and become familiar with the setting. The judges did not know which condition a subject was enacting at any time; they knew only that the subject would be lying 50% of the time. Two male and two female judges were used in the experiment, such that subjects always addressed persons of their own sex.

Subjects were told afterwards how accurately the judge had been able to guess their performance in the 12 conditions. Three subjects actually received the $3.00 bonus because they had earned 10 or more points. In the last phase of the procedure, subjects responded to the Eysenck Personality Inventory and the Mandler and Sarason Test Anxiety Questionnaire.

Four observers who were located behind a one-way mirror in an adjacent room recorded the behaviors, using the categories and criteria of Experiment I. Speech error rate was not scored in this experiment, but eye shift rate was scored.

Results

Scores for each dependent measure were analyzed using a $2 \times 2 \times 12 \times 2 \times 2$ factorial design. There were two levels of communicator sex, two levels of communicator Anxiety (or alternately, in a second series of analyses of variance, two levels of communicator Extroversion), with 12 subjects nested under each of the Communicator Sex $\times$ Personality variable conditions, and repeated measures taken over each of two levels of deceit (truthful versus

TABLE 2

SUMMARY OF SIGNIFICANT FINDINGS FROM ANALYSES OF VARIANCE IN EXPERIMENT II[a]

Dependent measure (Independent effect)	F	MS_e	Means		
Immediacy					
(Role-played deceit)	10.6	.28	Truth = .04		Deceit = −.04
(Sex × Extroversion)	2.9	1.5		Extroversion	Introversion
			Male	.13 ↔	−.41
					↕
			Female	.11	.17
Relaxation	4.9	14.3	Male = .60		Female = −.60
Facial pleasantness					
(Actual deceit)	7.8	.065	Truth = 1.04		Deceit = 1.15
(Actual deceit × Role-played deceit)	12.0	.08		Actual truth	Actual deceit
			Role-played truth	1.02	.99
					↕
			Role-played deceit	1.05 ↔	1.31
Gesticulation rate					
(Sex × Extroversion × Actual deceit)	4.4	2.2		Truth	Deceit
			Male		
			Extrovert	3.2	3.6
				↕	
			Introvert	4.3 ↔	3.7
			Female		
			Extrovert	3.1 ↔	2.3
			Introvert	2.6	2.7
Head nodding rate					
(Actual deceit × Role-played deceit)	4.7	.53		Actual truth	Actual deceit
			Role-played truth	1.9	1.7
				↕	
			Role-played deceit	1.5	1.8
Speech duration					
(Role-played deceit)	7.2	114.0	Truth = 43 sec		Deceit = 38 sec
Speech rate					
(Actual deceit × Role-played deceit)	9.2	.087		Actual truth	Actual deceit
			Role-played truth	2.10 ↔	1.99
				↕	
			Role-played deceit	1.89	2.02

[a] $p < .10$, $df = 1/44$ for all effects reported in this table. Arrows connect cell means which, based on t tests, differ significantly at the .05 level. Rate measures are number of movements per 100 sec.

deceitful actual communications) and role-played deceit (role-played truthfulness and role-played lying).

In one set of analyses of variance, the Extroversion scale was used to explore possible interactions of one personality variable with deceit in determining nonverbal behaviors. In a second set of analyses of variance, the personality factor employed (and referred to as Anxiety) was the sum of a subject's z scores on the Test Anxiety Questionnaire and on the Neuroticism Scale. These combined Anxiety and Neuroticism scores were used since initial separate sets of analyses of variance involving the Anxiety and Neuroticism dimensions yielded similar results. The results of this second experiment are summarized in Table 2, using the same format as that of Table 1.

EXPERIMENT III

In this experiment, the subject responded to a number of personality scales prior to participating in the experiment. The intent of the experiment was completely disguised from the subject and the method was designed to maximize the subject's desire to lie without being caught.

Method

Forty-one University of California undergraduates served as paid subjects in this experiment. Nine of these did not accept the confederate's offer to cheat, or subsequently confessed to cheating and thus did not complete the experiment. Of the remaining subjects, 19 were male and 13 were female.

Each subject was first administered the Test Anxiety Questionnaire and the Eysenck Personality Inventory. He was then taken to another room where a confederate of the experimenter, posing as another subject, was seated and seemed to be studying instructions. The subject was given about 5 min to read the same set of instructions, which explained that the experiment was a study of ESP and described the situation that he and another subject (the confederate) would participate in. They would sit at opposite ends of a partitioned table and try to communicate by ESP. Each would have a button to press, and a buzzer would sound only when both buttons were pressed simultaneously. They would be permitted only brief presses (1 sec or less)

and could press the button only once every 15 sec. Thus, in an 8-min session, the maximum number of possible buzzes was 32. Since they could not see each other over the partition, they were to use ESP channels to achieve the buzzes. Allowing that they could get some by chance, they were told that if they made the buzzer work at least 15 times, they would be considered to have ESP and would receive bonus pay.

The confederate subject enacted either a "cheat" or a "no-cheat" condition on the basis of a prearranged schedule which he selected himself, and which was unknown both to the experimenters and to those who were recording the subject's behaviors. In the "cheat" condition, after about 1 min had elapsed, the confederate-subject got up from his chair, looked around the partition, and without saying anything, signaled to the subject when to press his buzzer. If the subject was willing to accept the signal, they continued in this way and achieved the number of buzzes required for them to receive the cash bonus. In the "no-cheat" condition, the confederate simply held his button down almost continuously during the entire interval, so that again the required number of buzzing sounds was achieved.

Thus, following both conditions, the subject reported that he and his partner had successfully communicated using ESP; but following the "cheat" condition, the subject knew he had cheated to get the desired number of buzzing sounds.

At the end of the 8-min period, an interviewer led the subject to an adjacent room, seated him and asked:

"Could you tell me how you went about trying to communicate with ESP?" "How did you feel while you were trying to communicate using ESP?" "Do you think the choice of a partner is important in this type of situation?" "Did you follow the instructions?"

At all times during these interactions the interviewer wore a relatively pleasant facial expression and sat leaning forward about 10° in his chair, in a moderately relaxed posture (i.e., relatively asymmetrical placement of arms and legs) and looked at the subject about 90% of the time.

The interviewer told the confederate whenever a subject confessed to cheating, so that the confederate could readjust his schedule. No knowledge of the conditions was available to the interviewer until all the subjects had been run. In the final stage of the procedure, an experimenter who was not the interviewer met with both the con-

federate and the subject and carefully debriefed the subject.

During the entire interview period the subject's behavior, position, and verbalizations were video-recorded from an adjacent room through a one-way mirror, without the subject's knowledge. In addition, observers rated the subject's eye contact with the experimenter. Subsequently, the video-recorded tapes were independently scored by three raters who used the categories and criteria of Experiment II (excluding eye-shift rate) in addition to those given in Table 3. None of the raters knew which condition he was scoring.

Results

For each of the dependent measures, the scores obtained from the raters for a given subject were averaged. Average scores for each dependent measure were next analyzed using a $2 \times 2 \times 8$ factorial design. There were two levels of deceit (deceitful versus truthful communication), and two levels of Anxiety (or Extroversion, in a second set of analyses), and eight subjects nested under each of the Deceit $\times$ Anxiety (or Extroversion) conditions. The Anxiety factor was the same as in Experiment II. The results of this experiment are summarized in Table 3 using the same format as in the preceding tables.

DISCUSSION

The results from all experiments suggest the following tentative generalizations. Significant results for immediacy cues (distance, forward lean, and eye contact) were consistent with the hypothesis and indicated that a greater degree of negative feeling is communicated in nonverbal behaviors when a communicator is being deceitful. In one experiment which explored frequency of eye shifts toward or away from the addressee, no significant effects were obtained, thus suggesting that amount of eye contact, rather than rate of eye shifts, may be the basis for the popular notion that "shifty eyes" reflect deceit.

Postural relaxation was not hypothesized as relating to deceit; the findings likewise did not indicate any relationship. Among the movement cues, the hypotheses for head nodding and gesticulation were supported

in every instance where a significant effect was obtained.

In the first two experiments, communicators exhibited more pleasant facial expressions when they were being deceitful. This was consistent with the following interpretation of Mehrabian and Williams (1969). "Greater facial pleasantness . . . [when it occurs] in somewhat awkward social situations . . . may indicate greater efforts of a communicator to relieve tension and discomfort by placating the addressee" (p. 56). Findings from the third experiment suggested further refinement of that interpretation. Introverted or high-anxious communicators exhibited less facial pleasantness while they were being deceptive, whereas the reverse was true for low-anxious communicators. This experiment did elicit much stronger feelings from the communicators than the first two. So this finding, together with the high-anxious or introverted communicators' generally lower ability to cope with the difficult interpersonal situation involved, indicates that the anxious (but not the less anxious) communicators in the third experiment were experiencing too much distress to have been able to willfully manipulate the situation by smiling more frequently. Thus, Mehrabian and Williams' suggested interpretation of smiling may be applicable barring extreme cases of communicator discomfort.

Finally, in the third experiment, among those who were being truthful, the facial expressions of high-anxious communicators were more pleasant than those of low-anxious ones. That is to say, excluding special situations of deceit and their concomitant discomfort or anxiety, the high-anxious communicators exhibited a greater degree of smiling relative to low-anxious ones—a finding which is expected in terms of the general interpretation that the individual who feels insecure or uneasy in an interaction is the one who smiles more.

The findings of the three experiments do show that the interaction of anxiety (or more generally, inability to skillfully cope with difficult interpersonal situations) with deceitful-truthful communication can be explored fruitfully as a determiner of non-

TABLE 3
SUMMARY OF SIGNIFICANT FINDINGS FROM ANALYSES OF VARIANCE IN EXPERIMENT III[a]

Dependent measure (Independent effect)	F	MS_e	Means		
Relaxation (Extroversion)	3.3	7.5	Extroversion = 1.12		Introversion = − .64
Facial pleasantness (Deceit × Anxiety)	11.2	.21		Truth Deceit High-anxiety 1.6 ↔ 1.0 ↕ ↕ Low-anxiety 1.0 ↔ 1.5	
(Deceit × Extroversion)	6.0	.24		Truth Deceit Extroversion 1.1 1.5 ↕ Introversion 1.5 ↔ 1.0	
Trunk swivel rate (Deceit × Extroversion)	5.3	15.3		Truth Deceit Extroversion 1.1 ↔ 4.1 ↕ Introversion 5.1 ↔ 1.6	
Head nodding rate (Deceit × Anxiety)	3.2	2.7		Truth Deceit High-anxiety 2.8 ↔ 0.9 ↕ Low-anxiety 2.1 2.4	
(Deceit × Extroversion)	5.1	2.4		Truth Deceit Extroversion 3.0 ↔ 1.3 ↕ Introversion 1.2 1.9	
Self-manipulation rate (Deceit × Anxiety)	2.9	.93		Truth Deceit High-anxiety 1.1 0.5 ↕ Low-anxiety 0.3 0.8	
Speech rate (Deceit)	4.4	1.3	Truth = 1.7		Deceit = 2.5
Speech volume (Anxiety)	2.9	.68	High-anxiety = 2.2		Low-anxiety = 2.7
Percentage talk during total duration of interaction (Deceit)	3.5	183	Truth = 89%		Deceit = 80%

[a] $p < .10$, $df = 1/28$ for all effects reported in this table. Arrows connect cell means which, based on t tests, differ significantly at the .05 level. Rate measures are number of movements per minute.

verbal behaviors. The relevant hypothesis is that the greater one's skill in interpersonal relations, the less is the negative affect communicated nonverbally while being deceitful. Experimenting with children versus adults can provide a test of this hypothesis. Also, individual difference measures of interpersonal skill, such as the Phillips (1968) social competence scale, can be used to test the same hypothesis with adults.

Among the implicit speech cues, as hypothesized, the significant effects consistently showed that speech duration (or length) was less and speech error rate was higher for more deceitful communicators. Also, in the second experiment, both the effects of actual and role-played deceit served to decrease speech rate. However, in the third experiment speech rate was higher when communicators lied. Since distress was higher for communicators who lied in Experiment III, the contradiction can be resolved by assuming that speech rate is high for slight levels of discomfort (such as in the truth condition of Experiment II), is low for moderate levels of discomfort (such as in the deceit conditions of Experiment II), and is high for very high levels of discomfort (such as in the deceit condition of Experiment III).[2]

In addition to the findings which differentiated deceitful and truthful communications, there were many others which supported earlier interpretations of the significance of various nonverbal cues. In the first experiment, there was more eye contact and less relaxation with a threatening addressee (i.e., a judge who could possibly shock the subject) than with a nonthreatening addressee. This is consistent with Mehrabian's (1968, p. 29) finding that male communicators exhibited an unusually greater degree of eye contact and less relaxation with extremely disliked males than with extremely disliked females. He noted that although eye contact decreases (and relaxation increases) as dislike of the ad-

[2] Note that the values of speech rate were estimated on a 5-point scale in Experiment III, but were measured in terms of number of words per 100 sec in Experiment II.

dressee increases to a moderate level, this effect is reversed for even greater degrees of dislike, thus indicating vigilance in response to a threatening other.

In interpreting their movement data, Mehrabian and Williams (1969) suggested that rocking, gesticulation, and leg and foot movement rates are correlated with communicator relaxation and/or status. The findings were consistent with this interpretation. In Experiment I, females, who would be expected to be affected most, rocked less with threatening than with nonthreatening addressees. Gesticulation rate was positively correlated with relaxation in Experiments I and II. In Experiment I, leg and foot movements were more frequent when the communicator was truthful than when he was deceitful, and leg movements were more frequent when a communicator talked to a nonthreatening than to a threatening addressee. In the third experiment only, rates of leg and foot movement correlated directly with postural relaxation.

All of the significant findings relating to head nodding supported Rosenfeld's (1966) interpretation. In one experiment, high-anxious subjects nodded less frequently than low-anxious ones while they were being deceitful, and in general, lower rates of head nodding were associated with deceitful communication.

Length of communication has been suggested as an index of a communicator's positive attitude toward the object of his communications, toward the addressee, or toward the communication act itself (Mehrabian, 1965; Rosenfeld, 1966). In the first experiment speech duration was greater with a nonthreatening than with a threatening addressee. In the second and third experiments, lengthier communications were obtained with the truthful than with the deceitful communications. Speech rate and speech error rates have already been discussed. Finally, speech volume, which indicates a more dominant and self-assured feeling of the communicator, was higher for the less anxious communicators in Experiment III.

In sum, when being deceitful, communi-

cators nodded, gestured, and had less frequent leg and foot movements; they assumed less immediate positions relative to their addressees, talked less and more slowly, had more speech errors, and smiled more. The findings also provided the following additional information about the significance of the various nonverbal cues which were employed. Consistent with previous tentative interpretations, (a) greater degrees of eye contact and less relaxation show vigilance and are expected in situations where the addressee is somewhat threatening; (b) during awkward or formal interactions smiling is associated with a communicator's effort to relieve tension and placate his addressee; (c) while seated, rates of rocking, gesticulation, and leg and foot movement indicate a communicator's comfort and relaxation; and (d) speech volume is a correlate of a more dominant and self-assured feeling of a communicator.

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