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ACCURACY IN THE DETECTION OF DECEPTION
AS A FUNCTION OF TRAINING
IN THE STUDY OF HUMAN BEHAVIOR

BY

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B.S.J., University of Florida, 1967

THESIS

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INTRODUCTION

Previous research (Maier, 1966; Maier & Thurber, 1968; and others) has suggested that untrained individuals can detect deception in role play interviews at a success rate which exceeds chance levels. Apparently, lies are evidenced through verbal and/or nonverbal behaviors on the part of the deceiver.

Despite lipservice to such platitudes as, "honesty is the best policy," and "he's as honest as the day is long," few people can escape the fact that, from time to time, they tell a lie. Nor can they escape the fact that occasionally they feel that another person has lied to them.

Watergate and other examples of deception among our elected officials have brought the matter of honesty not only to the front pages of our newspapers and the lips of our TV commentators, but also to our consciousness with a new verve. This increased concern is adding momentum to the recent work of behavioral researchers who acknowledge that while it is common to extol honesty and eschew the liar, it is a common fact that lying is a part of the communicative repertoire.

While lying is publicly condemned, it is often privately tolerated ("If he knew the truth, he'd be mortified," or "I had to tell her a white lie to spare her feelings,"). Through deception one can sometimes escape punishment. In the telling of a "white lie" or "fib" one is able to preserve appearances.

A number of studies (Ekman & Friesen, 1969; Maier, 1966; Maier & Janzen, 1967; Maier & Lavrakas, 1976; Maier & Thurber, 1968; Motley, 1974) have shown that untrained laypersons are capable, to some degree, of detecting deception under various circumstances without the aid of mechanical devices. Additional studies (Mehrabian, 1971; Exline, et al., 1970; Ekman & Friesen, 1969, 1972; Knapp, et al., 1974) have determined that many of the verbal and nonverbal signs of deception are synonomous with signs of anxiety.

Maier found that individuals were able to discriminate between deceivers and truth tellers in a role play situation without the aid of any mechanical lie detecting devices. A role play situation was enacted between "Professor Parker" and a student, "Walter Cohen." The student was interviewed by the professor concerning the student's grade on an exam which had been evaluated by a graduate assistant. Half of the students played an honest role and half, having cheated on the exam, played

a dishonest role. Maier's interviewers were able to distinguish between honest and dishonest behavior at a better than chance rate. Maier noted that the same cues often led interviewers to opposite conclusions. It appears that interviewers formed impressions of the relative honesty of the subjects through means other than those behaviors measured. "For lack of a better term, we are inclined to conclude that intuitive judgments were made and that these had a certain degree of accuracy" (Maier, 1966, p. 65).

In a subsequent study, Maier and Janzen (1967) found that some individuals were significantly more accurate than others in detecting deception. Again, behaviors interpreted as cues to deception were very similar for both the accurate and the inaccurate judges. The researchers also concluded that some cases of deception were more difficult to detect than others, and that some judges are more adept detectors than others.

In another replication of the study (Maier & Thurber, 1968) subjects were significantly less accurate in identifying deception when they were present for the interview (watched and heard, 58.3%) than when they listened to the recorded interview (77.0%) or read (77.3%) a transcript of the interview. The authors concluded

that the visual cues of the interview served as a distraction. They suggest that reliance upon verbal cues (transcripts) in courts of appeal may contribute to reversals of lower court proceedings.

Juries are composed of untrained observers and often must make judgments about the integrity of a witness. The witness is always present and, as these results suggest, may serve as a distracter. It is therefore not surprising that decisions of higher courts, in which the testimony is read, might well reverse decisions of a lower court.
(p. 30)

These findings are consistent with the later work of Ekman and Friesen (1969) who obtained support for their theory that people are effective facial liars due to cultural conditioning. These authors argue that people receive more external feedback on facial behaviors than "body" behaviors, resulting in a great amount of practice in simulating appropriate facial expressions. It is thus noteworthy that in Maier and Thurber (1968) conditions in which subjects monitored facial cues produced the least accurate detection of deception.

In a recent series of five experiments, Maier and Lavrakas, (1976) confirmed the theory that lying is viewed as negative behavior that is a prevalent fact of life.

Fifty-eight undergraduate students served as subjects in the first experiment. A number of demographic characteristics were examined as possible predictors of attitudes towards lying. Compared to subjects with a public school background, those who had attended parochial schools estimated a greater incidence of lying in everyday life, and perceived the act of lying as more reprehensible. Also, those who claimed a strong religious commitment were more likely to perceive a greater incidence of lying. In addition, subjects who claimed to live their lives in accordance with a strong moral code rated lying as more reprehensible than those who did not claim such a code. The variables of sex and age were not reliable predictors of attitudes toward lying.

In the second study, 24 subjects rated the reprehensibility of lies under various conditions. The results showed that lies of high status persons were regarded as more reprehensible than those of low status persons. Females saw it as least reprehensible when a female lied to a male and most reprehensible when a male lied to a female. Males took the opposite view. Also, both males and females viewed lying to a friend as more reprehensible than lying to an associate or a stranger.

In the third study, Maier and Lavrakas measured the GSR levels in role plays of truth and lie situations.

Each of 21 undergraduate students assumed both an honest and a dishonest part in a situation in which they were to give "yes-no" responses to a series of questions while being monitored by a lie detecting apparatus (GSR).

Therefore each subject provided data for both truth and lie conditions. Four neutral questions and three loaded questions were asked. The results indicated that the subjects were not consistently differentiated by the lie detector between the honest and the dishonest roles. The authors concluded that either the detection procedure was insensitive or subjects failed to react physiologically in the role play situation as they would in "real life".

The fourth study was a replication of an earlier experiment. Consistent with Maier and Janzen (1967), subjects in experiment four determined honesty from dishonesty at beyond chance levels.

In the fifth of the series of studies, Maier and Lavrakas compared the judgments of honesty and dishonesty between groups and individuals. In each case, the groups were more suspicious of lying than the individuals. This was partially accounted for by the diffusion of responsibility hypothesis (Bem, Wallach, & Kogan, 1965). That is, the individual in a group is more likely to make a rash decision when covered by the anonymity that the group offers than when making a decision that is clearly his.

The authors noted the implications of these findings for decisions made by juries and other committees which stress group consensus.

While the research of Maier and his associates was focused primarily upon detection efficacy, another approach to the study of deception has involved identification of verbal and nonverbal behaviors which discriminate between truthful and deceptive communications. For example, Ekman and Friesen (1974) found indirect support for the proposition that the face, more than the body, is subject to control and disguise during deception. When subjects were asked which behavior they consciously monitored during deception they consistently reported concern for their facial behavior. In line with this finding, Ekman and Friesen found that more accurate judgments of deception were made from body cues than from the face, but only when the observers were initially given a brief sample of the deceiver's truthful behavior. Ekman and Friesen (1969, 1972) also noted anxiety related characteristics in deceivers - hand shrug emblems (helplessness, inability, and uncertainty) and face play manipulations by the hands, such as scratching the bridge of the nose.

Mehrabian (1971) reported other anxiety related characteristics on the part of the deceiver, including

speech errors, blushing, voice tremors, shaking, gulping, and perspiring. His findings confirmed those of Rosenfeld (1966) that people nod and gesture less, employ less frequent foot and leg movement, and talk less and slower in deceptive than in truthful communications. Mehrabian also concluded that deceitful communicators assume less immediate positions relative to their addressee and smile more than those who are telling the truth.

To this list of deceiver characteristics Exline, et al., (1970) add another dimension - reduced eye contact. This is a manifestation of nonverbal indirectness as is the less immediate distance and the lessor amount of eye contact assumed by the communicator (Mehrabian, 1971).

Other researchers have observed the verbal as well as the nonverbal cues which are associated with deception. Motley (1974) found support for the idea that message length is an index to message veracity. He noted that in response to questions requiring a one word answer deceivers characteristically vocalized the word in a more clipped, abrupt manner than did the nondeceiver.

8 The work of Knapp, Hart, and Dennis (1974) supports much of the previous research. They reported that subjects tended to speak slowly (to avoid gaffes) and use fewer words when lying than when telling the truth. In

addition, the deceptive condition produced more circumlocution techniques (fewer and more sweeping statements), nervous mannerisms (figiting with glasses, etc.), messages of a shorter duration, more dependence (bandwagon statements), and more negative affect (less smiling and nodding).

It is important to note that most of these experiments (with the exception of Mehrabian, 1971) took place under role play situations, usually between strangers, and with relatively homogeneous groups. Time in each situation was strictly limited and the topics chosen for discussion rigorously circumscribed. A noteworthy exception to this is Mehrabian's (1971) "ESP" experiment, part of a threefold study of deception. Here, the intent of the study was disguised and the method designed to maximize the desire of the subject to lie without being caught.

In the "ESP" experiment, 29 males and 13 females were told they were participating in a study of ESP. The subjects were individually seated at one end of a partitioned table. A confederate was at the other end of the table, but blocked from view. The two participants (subject and confederate) were given a buzzer and told that if they could activate a buzzer by pressing interconnected buttons at least 15 times (out of a possible 32

responses) they would be considered to possess ESP and would receive bonus pay for their participation in the experiment. In the "cheat" condition, after about one minute had elapsed the confederate looked around the partition, and without saying anything, signaled the subject to press his button. If the subject was a willing participant the two continued in this manner. In the "no cheat" condition the confederate held down his button continuously so that the required number of buzzing sounds could be recorded. During an interview that followed the subjects' verbal and nonverbal behaviors were tape recorded for analysis. Mehrabian noted that decreased immediacy, increased speech errors, faster rate, and, for extroverts, increased facial pleasantness characterized deceptive communications. The findings of the ESP study were generally supportive of the other two studies reported by Mehrabian in that series (1971).

Although some attention has been paid to the abilities of humans to detect detection, there is a lack of research on demographic and personality characteristics as predictors of detection efficacy. Specifically, there is a derth of research on the ability to detect deception by those people whose jobs involve interpersonal communication and the ability to accurately assess others. An area in which interpersonal communication is of paramont

importance is the courtroom, particularly during the process of a trial where verdicts of guilt or innocence must be rendered. Psychiatrists and other social scientists are frequently called upon to testify in court as expert witnesses as to the emotional stability and competence of certain witnesses (as in the Patty Hearst trial of 1976). In addition, there is evidence that psychiatrists may be called upon in the future to testify regarding veracity of certain witnesses. In the case of the State of Florida versus Richard Thompson, 1976 (Brevard County) the presiding judge ruled against allowing such testimony. Yet, the judge deemed the question of sufficient importance to call two social scientists and a psychiatrist as expert witnesses on the question of the relative ability of psychiatrists and laymen to detect deception from nonverbal behavior. Accordingly, the following research questions were formulated:

1. Are psychiatrists and those trained in the field of mental health more adept than laymen in the detection of deception?
2. What verbal and nonverbal cues do psychiatrists, mental health professionals, and laymen ascribe to truthful and deceptive behaviors?
3. Do the verbal and nonverbal behaviors of lying encoders differ from those of truthful encoders?

METHODOLOGY

Subjects

A total of 60 subjects comprised the three decoder groups. Group one consisted of six M.D. psychiatrists and two Ph.D. psychologists who are employed as clinicians. Group two included 24 B.A. and M.A. psychologists and social workers. The third group was comprised of 28 undergraduate students, ranging in age from 18 to 58, none of whom had undergone training in the behavioral sciences.

Procedure and Materials

The stimulus for the experiment was a thirty minute videotape of 14 role plays, each about two minutes in duration. The 14 role plays were selected from a sample of 28 on the basis of visual clarity and other technical considerations. The role players were volunteers for "a communication study." Their participation fulfilled a speech fundamentals course requirement. Six of the participants performed the lie role and eight the truth role. Eight role players were females, three lie and five truth. Six role players were males, three lie and three truth. The methodology was identical to Maier (1966), and

involved an interview between a student and his instructor concerning an exam grade. From the instructor's viewpoint, the student received his graded exam during class. After class the student returned the exam to the instructor and asked for an appointment to discuss his grade. In the truth role play the student had discovered that the instructor's graduate assistant, who had graded the exam, overlooked an answer to the last question. The answer had been written on the back of the last page, but the grader had apparently not seen it. Had the student received even partial credit for that answer his grade would have been a "C" rather than a "D." In the lie condition the student had written the answer on the back of the last page after receiving his graded exam in hopes of convincing the professor that the grader had overlooked the answer. To increase the salience of the roles, each participant was instructed as to his role two days in advance of the taping, and given a time to report to the instructor's office. The student was told to be as persuasive as possible in his efforts to elicit a change in grade.

The role plays were videotaped in an 11' x 16' office, using a visible camera and microphone. Each student found the instructor, a member of the Department of Communication, seated at his desk at the scheduled

appointment time. To maintain interviewer consistency, the instructor began each interview in the same manner. After motioning for the student to sit in a chair at the side of the desk, the instructor said, "I see that we have a little discrepancy concerning your grade," and concluded with, "I'll tell you what, I'm going to arrange for the three of us (instructor, student, grader) to get together and we'll talk about this some more." A list of standard comments was also provided to the instructor for use during the interview. The points made included: Why did the student stop part way down the page on the next to the last answer? It made it look like he had finished; the grader is very conscientious, it is unlikely that he would make such a mistake; and, the last answer (the one under suspicion) is the best on the whole exam, how did it happen that the student knew that answer so well?

The camera "looked over" the instructor's shoulder and was focused upon the student, who sat in a comfortable, swivel office chair which rocked and was equipped with rollers to facilitate movement. The test booklet in question was on the desk in front of the instructor. The 14 role plays were shown to all 60 decoder subjects in groups ranging in size from six to 24 persons.

The subjects were given a brief description of the nature of the videotaped interactions and asked for their "perceptions regarding human behavior in circumstances when people are lying and when they are telling the truth."

The questionnaire (see Appendix A) consisted of a list of 12 behaviors (see Table 1), each followed by a seven interval scale which was flanked by the adjectives "high" and "low." After monitoring the 12 verbal and nonverbal cues, the decoder subjects judged whether the role player had been lying or telling the truth. In addition, the decoders were asked to use the seven interval scale to estimate the impact of the verbal content upon their decisions.

The data obtained from the 60 decoder subjects were used to examine research questions one and two. Data for the analysis of the third research question was collected by two independent methods. Method one employed the ratings of six randomly selected decoder subjects, two from each of the three decoder groups in the original sample. In method two, 18 graduate students in communication served as judges. The judges were given an explanation of the 12 behaviors listed on the questionnaire. After a series of trial runs, the judges viewed the same tape shown to the initial decoders. Each judge

was assigned between one and three cues to observe. All behaviors were monitored by three judges (see Appendix B). For example, three judges simultaneously observed forward, backward, and sideways lean and three judges were responsible for quantifying facial pleasantness and eye contact. The judges were not informed of the nature of the experiment. From their perspective, they were simply measuring behaviors displayed by student role players.

RESULTS

Analysis of Research Question 1

The first research question involved a comparison of detection efficacy among the three decoder groups. The mean number of correct judgments of truthful and deceptive communication by the clinicians was 6.75 (51.9%), compared with 7.13 (54.8%) for the psychologist-social worker group, and 7.64 (58.8%) for the laymen. Analysis of variance of judgment accuracy across the three groups did not approach statistical significance, $F(2, 57) = 1.60, p < .25$. Only the laymen exceeded chance expectations in the detection of deception, $\chi^2(1) = 5.67, p < .02$.

Analysis of Research Question 2

The verbal and nonverbal behaviors which the three decoder groups associated with deception were examined in the second research question. The correctness of the decoded judgments was ignored for this analysis since the purpose was to discover the cues elicited by the role players which each decoder judged to be lying or telling the truth. Table 1 summarizes the relevant data.

Table 1

Mean Behaviors Used to Discriminate
Lying from Truthful Role Players by Decoder Groups

Encoder Behavior	Clinicians (n=8)		Psychologist Soc.-Workers (n=24)		Laymen (n=28)	
	Truth	Lie	Truth	Lie	Truth	Lie
Forward Lean	2.96	3.50	4.43	3.86	3.83	3.87
Backward Lean	2.59	2.51	2.25**	3.59	2.16**	3.13
Sideways Lean	2.30	2.58	2.86	3.05	2.87	3.19
Facial Pleasantness	3.47	3.20	4.10	3.81	3.95	3.64
Eye Contact	4.30	4.21	5.74**	4.59	5.38*	4.53
Nodding	2.58	2.96	2.90	2.89	2.94*	3.65
Trunk Swivel	2.58	3.22	2.60**	4.20	3.05**	4.23
Leg Movement	2.43	3.19	2.27**	3.82	2.86*	3.61
Rocking	1.94	2.48	1.79**	2.74	2.00**	3.13
Self Manipulation	2.64	3.36	2.49**	3.54	2.69**	4.17
Hand Gestures	3.17*	4.17	3.91*	4.53	3.84**	4.89
Speech Error Rate	2.76	2.61	2.41**	3.61	2.64**	4.10

* $p < .05$, two-tailed t -test

** $p < .01$, two-tailed t -test

The means were derived from the seven interval scales for each behavior, with seven indicating a high degree of the behavior, and one a low degree of the behavior. As shown in Table 1, the clinicians saw little difference in the behaviors of those they saw as lying and those labeled truthful. The only behavior discriminating role players whom the clinicians thought to be lying from those judged to be truthful was the category "hand gestures." In marked contrast to this, both the psychologist-social worker group and the laymen recorded significant diversities in a number of the behaviors of role players in perceived truthful and deceptive conditions. While their judgments were no more correct than those of the clinicians, it appears that these two decoder groups did rely upon specific cues to form their decisions. Furthermore, the psychologist-social worker group and the laymen agreed upon the behaviors which separate truthful and deceptive communicators in almost every category. That is, for both of these decoder groups the role players judged to be lying were observed exhibiting significantly more backward lean, less eye contact, more trunk swivel, more leg movement, more rocking, more self manipulation, more gesturing, and more speech errors than role players believed to be truthful. The laymen also ascribed more head nodding to communicators whom

they perceived to be lying.

Analysis of Research Question 3

The analysis of the data relevant to the third research question is crucial to interpreting the results presented thus far. If the lying encoders did not exhibit any "telltale behaviors" in their role plays one would have little reason to expect that detection accuracy would exceed chance levels. Two independent methods were used to examine the third research question. In the first analysis, six of the decoder subjects, two from each group, were randomly selected from the initial sample. The data already provided by the six subjects were used to compare the behavior of role players who were actually lying to the behavior of those who were telling the truth. Table 2 contains the cell means and t-ratios (two-tailed).

Table 2 shows that the behavior of deceptive communicators departed reliably from that of truthful communicators in only two categories. The t-test analyses indicated that deceptive communicators engaged in more gestures and made more speech errors than their truthful counterparts. The only other contrast approaching conventional levels of statistical significance was a tendency for deceptive role players to exhibit more head nodding than truthful role players.

Table 2

Mean Behaviors Exhibited by Truthful and Deceptive
Communicators as Perceived by Decoder Groups

Encoder Behavior	Truth (n=8)	Lie (n=5)	<u>t</u> -ratio
Forward Lean	3.56	3.87	.31
Backward Lean	2.31	2.65	.34
Sideways Lean	3.08	2.59	.82
Facial Pleasantness	3.62	3.77	.31
Eye Contact	4.38	4.43	.13
Nodding	2.52	3.33	1.64
Trunk Swivel	3.42	4.07	.69
Leg Movement	3.42	3.21	.24
Rocking	2.08	2.57	1.26
Self Manipulation	2.90	3.33	.70
Hand Gestures	2.93	4.70	3.84**
Speech Error Rate	2.71	4.07	2.23*

* t .95 (11) = 2.20

** t .99 (11) = 3.11

Since the decoders were monitoring all 12 cues simultaneously, the results of the initial analysis of the third research question are equivocal. Accordingly, a second, more thorough, approach was undertaken. Here, 18 graduate students in communication served as judges. Each judge restricted his observations to one, two, or three assigned encoder behaviors as he viewed the videotaped role plays. Table 3 summarizes the t-test and chi square analyses which are based on the data of the judges.

The chi square which shows that deceivers demonstrate less sideways lean than truthful encoders was the only statistically significant contrast in Table 3. A number of trends were significant beyond the .20 level, using a two-tailed t-test. In these contrasts, deceptive communicators had more head nodding, and more self manipulation than truthful communicators, and less eye contact with the interviewer than the truthful communicators.

The inter-rater reliability coefficients, as determined by the Pearson *r*, are shown in Table 4. Ratings proved highly reliable for head nodding, forward lean, trunk swivel, and leg movement, and hand gestures; moderately reliable for speech error rate, backward lean, and facial pleasantness; and lacking in reliability for eye contact with interviewer, self manipulation, and rocking. In two categories, self manipulation and hand

gestures, data of only two judges were used. The third judge's scores were omitted from the analysis because his scoring was believed to be purposefully random.

The low inter-rater reliability scores for eye contact and self manipulation are distressing in that previous research has shown these behaviors to be relevant to deceptive communication. The lack of reliability for rocking behavior was considered far less critical, since rocking behavior did not vary across levels of truthfulness in any of Mehrabian's three experiments. (1971).

Table 3

Mean Behaviors Exhibited by Truthful and Deceptive Communicators as Perceived by Judges

Encoder Behavior	Truth (n=8)	Lie (n=5)	<u>t</u> -ratio	χ^2
Forward Lean	33.33	57.67	0.97*	3.31**
Backward Lean	45.42	30.67	0.62	1.44
Sideways Lean	39.58	12.66	1.54	7.30
Facial Pleasantness	7.92	10.00	0.37	0.12
Eye Contact	61.67	49.33	1.68	0.69
Nodding***	5.96	8.87	1.40	0.29
Trunk Swivel	23.33	32.67	0.44	0.78
Leg Movement	25.42	17.33	0.51	0.77
Rocking	2.50	6.00	0.77	0.75
Self Manipulation	21.10	35.00	1.52	1.75
Hand Gestures	41.25	41.00	0.12	0.00
Speech Error Rare***	5.20	4.86	0.33	0.01

* $t_{.95(11)} = 2.20$

** $\chi^2_{.95(1)} = 3.84$

***All numbers are percentages except for nodding and speech errors, which were derived from frequencies adjusted according to the briefest interview.

Table 4
Reliability Coefficients
For All pairs of Judges

Encoder Behavior	Judges 1&2 (n=13)	Judges 2&3 (n=13)	Judges 1&3 (n=13)
Forward Lean	0.81*	0.92	0.98
Backward Lean	0.83	0.26	0.55
Sideways Lean	0.69	0.49	0.52
Facial Pleasantness	0.38	0.19	0.77
Eye Contact	0.15	0.07	0.27
Nodding	0.83	0.55	0.81
Trunk Swivel	0.98	0.97	0.98
Leg Movement	0.76	0.91	0.89
Rocking	-0.10	-0.09	-0.10
Self Manipulation	0.19		
Hand Gestures	0.68		
Speech Error Rate	0.63	0.78	0.43

* $r_{.95}(12) = .53$; $r_{.99}(12) = .64$

DISCUSSION

The fact that only one of the decoder groups, the laymen, were able to distinguish between truthful and deceptive communicators beyond chance levels is somewhat surprising. The role play was the same as used by Maier and his associates in their series of experiments (Maier, 1966; Maier & Janzen, 1967; and others) in which decoders consistently exceeded chance expectations in the judgment of deception. One methodological variation which may have contributed to the disparity is that Maier's (1966) interviewers served as the detectors. The interviewers interacted with the student role players in an attempt to discern the veracity of the interviewee. The method of Maier and Thurber (1968) more closely approximates that used in the current study. Maier and Thurber manipulated the communication channel across three levels. The decoders, who were college students, either watched and heard, listened to an audio recording, or read a transcript of the interview. While the detection accuracy of all three groups exceeded chance levels, the group that watched and heard the interview scored

lowest (58% correct judgments). The remaining groups recorded an accuracy rate of about 77%. The authors suggested that the visual cues may have distracted the decoders, a notion which is consistent with the Ekman and Friesen (1969, 1974) theory that people simulate effectively with facial behavior. The laymen in the current study, who watched and heard the interview, also attained 58% accuracy. Despite the fact that the chi square analyses indicated that only the layman group exceeded chance levels of detection accuracy, it must be remembered that the analysis of variance yielded no significant difference in detection accuracy across the three groups. Further, since only eight clinicians comprised the advanced training group, conclusions based upon their data are tentative. Since the data at least suggests that the laymen produced the highest detection efficacy, it is necessary to search for possible causes. The data yields two possible explanations. First, the laymen made more use of nonverbal behaviors which are traditionally associated with anxiety to discriminate between the truthful and the deceptive communications than the clinicians (see Table 1).

A comparison of the data between Tables 1 and 3 indicates that the psychiatrists used only one behavior reliably, gestures, to discriminate truth from deception.

The clinicians associated significantly more gesturing with deception than with truthful role plays. Table 3 shows that the deceptive communicators did not exhibit more gestures than the truthful communicators. In fact, the means are slightly in the opposite direction. This same method of comparison between behaviors associated with deception and the actual behavior trends demonstrates that the perceptions of the psychologist-social workers were correct in four of eight behaviors, and laymen were correct in five of the nine behaviors which they associate with deception.

This analysis is admittedly highly speculative since it is based upon the trends shown in Table 3 and not upon statistically significant differences.

A second possible explanation is that the three groups made different levels of usage of the encoders' verbal behavior. This does not appear, however, to be a factor. The mean on the scale of one to seven for the question, "To what extent did the verbal content affect your opinion?" were 4.83 for the laymen group, 5.40 for the psychologist-social worker group, and 4.24 for the clinicians. This appears to be unrelated to the accuracy rate for the three groups: 58.8% for the laymen, 54.8% for the psychologist-social worker group, and 51.9% for the clinicians.

Perhaps the key question regarding the deception research published to date is whether the lie behavior captured from the experiments is representative of lie behavior outside the laboratory. Maier and his co-workers employed student-instructor role plays; Knapp (1974) videotaped veterans delivering brief speeches for and against increasing veterans' benefits; and Mehrabian's (1971) subjects encoded pro and con messages on abortion. All of these methods involved role plays and are distinguishable from "real life" lies in regard to their salience for the encoders. It is reasonable to expect that the duress caused by relatively salient "real life" lies would induce overt behavior which is observably different from one's truthful behavior. Such observable behavior is only a short step from the physiological changes detected by the polygraph during deception. Whether the role play technique used in most of the deception research produces different levels of anxiety between truth and lie conditions is an important question. In an attempt to validate the role play approach, Maier and Lavrakas (1976) found that the polygraph could not reliably differentiate dishonest from honest role players. Continued efforts to discover methods of observing lies which have natural consequences for the deceiver are essential to the development of deception research and

theory. Mehrabian's third experiment in his 1971 report is one such effort.

Did the deceptive role players in the current study behave differently from the honest role players? Of the 12 possible contrasts shown in Table 2, two behaviors distinguished the treatments. Deceptive role players exhibited significantly more gestures and made more speech errors than the honest communicators. The former result is contradictory to the bulk of previous research, while the latter (speech errors) is consistent with the findings of Mehrabian (1971) and Knapp, et al., (1974).

As mentioned, the data provided by the judges (see Table 3) is likely a more accurate representation of the role play behavior. A comparison of these findings with those of Mehrabian (1971) and Knapp, et al., (1974) yields only moderate support for the earlier studies. For example, Mehrabian found that deceptive communicators gesture less, demonstrate more facial pleasantness, and have a higher speech error rate than truthful communicators. In each case the current results showed no difference between truthful and deceptive communicators, although subjects did perceive increased speech rate to be indicative of deception (see Table 2). Also in contrast to Mehrabian's results is the finding

X that there is more backward lean and head nodding in truthful communicators. Mehrabian, in his concept of immediacy, noted that in an effort to place a greater distance between themselves and the interviewer, the deceptive communicator will exhibit more backward lean than the truthful communicator. He also reported that X deceivers nod less, possibly because of the greater degree of concentration required for successful deception.

This research does offer directional support for Mehrabian (1971) and Knapp, et al., (1974) in two key areas; eye contact and self manipulation. Mehrabian and Knapp, et al., both found that there is reduced eye contact in deceptive communicators, and Knapp, et al., concluded that deceivers exhibit more self manipulation. The data shown in Table 3 indicates similar trends for both factors.

Conclusions and Implications

In conclusion, it was found that psychiatrists and those trained in the field of mental health were not more adept than laymen in the detection of deception. The percentage of correct judgments by clinicians was 51.9%, compared with 54.8% for the psychologist-social worker group, and 58.8% for the laymen. Only the laymen group exceeded chance levels in detection of deception. However, the lack of reliable behavioral differences between

the truthful and deceptive role players severely limits the external validity of this finding. The judges' ratings (Table 3) indicated that the behavior of deceptive encoders significantly varied from that of truthful role players in only one area, sideways lean, with truthful encoders exhibiting more side lean, and thereby possibly demonstrating a greater degree of relaxation. The lack of differing success rates among the three decoder groups appears to be at least partially attributable to the methodological shortcomings of the role play approach. The question of whether training in a behavioral sciences enhances one's ability to detect deception cannot be answered satisfactorily from the current data. However, the failure of the role play method to produce reliable behavioral variations between truthful and deceptive encoders, coupled with the failure of physiological measures to differentiate truth and lie conditions (Maier & Lavrakas, 1976) calls into question the merits of this approach for capturing valid deceptive and truthful behavior.

The development of theory on the behavioral correlates of deception hinges largely upon the ability of researchers to discover new methods of observing spontaneous behavior under conditions of high and low acquaintanceship and status of the interactants. One procedure

which would heighten the reality of the deception is actually inducing subjects to engage in a specified behavior, then respond either deceitfully or truthfully to an interviewer's questions. For example, a subject would be induced to complete a boring task, such as crossing out digits on a piece of paper, then answer a series of questions truthfully or deceitfully regarding what he had done and how well he enjoyed the task. The tasks used in some of the counterattitudinal advocacy research (see Miller and Burgoon, 1973, for review) are potentially useful in such an approach.

It is interesting to note that in the state of Florida jurors are instructed that they may consider witness demeanor as a means of assessing witness credibility. Based upon current data, this instruction is justifiable in that laymen exhibited the ability to detect deception in a brief interview, $p < .02$. The fact that the professionally trained groups did not exceed chance levels of accuracy raises a serious challenge to the position that psychiatrists be allowed to testify in court as to the veracity of a witness. It should be remembered, however, that the current data are based upon the testing of only eight clinicians who had only brief exposure to role played deceptive behavior.

Summary

Several researchers (Ekman & Friesen, 1969, Maier, 1966, and others) have established that untrained individuals can, without the aid of mechanical devices, determine whether they are being lied to at beyond chance levels. In addition, Mehrabian, 1971; Knapp, et al., 1974, and others have quantified specific verbal and nonverbal behaviors which accompany deceptive communications.

The current study was undertaken for two reasons. First, there is a lack of research on demographic and personality characteristics as predictors of detection efficacy. Secondly, a recent judicial decision (State of Florida v Richard Thompson) against allowing a psychiatrist to testify regarding his evaluation of the veracity of a witness seemed to mandate that an empirical comparison between those trained in the behavioral sciences and laymen regarding accuracy in the detection of deception, be undertaken.

It was the specific purpose of this study to determine whether those whose jobs involve constant assessment of interpersonal relationships (psychiatrists and other mental health professionals) are more accurate than untrained laymen in the detection of deception. The study also sought to determine which verbal and non-verbal cues are associated with truthful and deceptive

communication by decoders, and to quantify how the verbal and nonverbal behaviors of lying encoders actually differ from that of truthful encoders.

The stimulus for the experiment was a thirty minute videotape of 14 role plays, each about two minutes in duration. Six of the role players performed a lie role and eight the truth role. The methodology was similar to that of Maier, 1966, involving an interview between a student and his teacher concerning an exam grade. Role players in the lie condition had cheated on the exam but were attempting to convince the professor that they had not cheated.

Three decoder groups, clinicians; psychologist-social workers; and laymen, viewed the videotaped role plays and completed a questionnaire which required that they quantify 12 behaviors (see Table 1) on seven interval scales. The decoders also judged whether the role players had been lying or telling the truth.

It was found that those trained in the field of mental health were not more adept than laymen in the detection of deception. The percentage of correct judgments of truthful and deceptive communications by the clinicians was 51.9% compared with 54.8% for the psychologist-social worker group and 58.8% for the laymen.

Only the laymen exceeded chance expectations in detection accuracy. The cues associated with deceptive communicators included less eye contact, more backward lean, trunk swivel, leg movement, rocking, self manipulation, gesturing and speech errors. Also, it was found that the actual behavior of deceptive encoders differed reliably from that of the truthful encoders in only one area - sideways lean, with truthful encoders exhibiting more sideways lean, and thereby possibly demonstrating a greater degree of relaxation.

Several limitations to external validity were cited. These included that low number of subjects (eight) who comprised the clinician condition and the questionable validity of using the role play method to induce deceptive communications. It was suggested that subsequent research be focused upon improved methods of capturing deceptive communication and that such potentially relevant variables as levels of acquaintanceship and spontaneous lies of the interactants be considered.

APPENDIX A

Age: _____ Highest degree held: _____
Race: _____ Occupation: _____
Sex: male: _____ female: _____ Years in occupation: _____

We are interested in your perceptions regarding human behavior in circumstances when people are lying or telling the truth. Your job here is to view a series of interviews. After each interview you are asked to complete a brief questionnaire assessing the honesty of the person being interviewed and your reasons for your opinion.

In each of these interviews the situation is the same. A college student has made an appointment with his teacher, Professor Parker, to discuss a grade on an essay exam. The students are trying to convince the professor that they have been unfairly graded - that the assistant who graded the tests overlooked the second half of the last answer in the test booklet. Credit for that question, which was markedly superior in quality to the other answers on the exam, would give the student a passing grade on the test.

In this role play situation some of the students are lying and some are telling the truth. If you have further questions I will be happy to answer them at the completion of the session. The first interview is a sample.

Please place a checkmark at the point on each scale which best represents your estimate of the behavior exhibited by the person being interviewed.

Body Position:

amount of forward lean	high: __:__:__:__:__:__:__:low__
amount of backward lean	high: __:__:__:__:__:__:__:low__
amount of sideways lean	high: __:__:__:__:__:__:__:low__

Head:

facial pleasantness	high: __:__:__:__:__:__:__:low__
eye contact with interviewer	high: __:__:__:__:__:__:__:low__
amount of nodding	high: __:__:__:__:__:__:__:low__

Body Movement:

amount of trunk swivel	high: __:__:__:__:__:__:__:low__
amount of leg movement	high: __:__:__:__:__:__:__:low__
amount of rocking	high: __:__:__:__:__:__:__:low__
amount of self manipulation	high: __:__:__:__:__:__:__:low__
amount of hand gesture	high: __:__:__:__:__:__:__:low__

Voice:

speech error rate	high: __:__:__:__:__:__:__:low__
pitch	high: __:__:__:__:__:__:__:low__

Verbal Content:

degree to which verbal content influenced decision	high: __:__:__:__:__:__:__:low__
--	----------------------------------

Judgement:

Truth: _____ Lie _____

Using the column to the right, please go back and check those items which most influenced your opinion.

APPENDIX B

Count the number of head nods for each interviewee.

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____
- 11. _____
- 12. _____
- 13. _____

Count the number of speech errors for each interviewee. Speech errors include: slips of the tongue, repetition, changing statement in middle of sentence, vocal pause ("uh"), and stuttering.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____

Please place a check (✓) at the point on each scale which best represents your estimate of the interviewee's behavior.

Body Movement

Percent of time interviewee engaged in trunk swival:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Percent of time interviewee engaged in leg movement:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Percent of time interviewee engaged in rocking:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Please place a check (✓) at the point on each scale which best represents your estimate of the interviewee's behavior.

Body Movement

Percent of time interviewee engaged in trunk swival:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Percent of time interviewee engaged in leg movements:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Percent of time interviewee engaged in rocking:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Please place a check (✓) at the point on each scale which best represents your estimate of the interviewee's behavior.

Body Position

Percent of time interviewee leaned forward:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Percent of time interviewee leaned backward:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Percent of time interviewee leaned sideways:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Please place a check (✓) at the point on each scale which best represents your estimate of the interviewee's behavior.

Body Position

Percent of time interviewee leaned forward:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Percent of time interviewee leaned backward:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Percent of time interviewee leaned sideways:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Please place a check (✓) at the point on each scale which best represents your estimate of the interviewee's behavior.

Head Behavior

Percent of time interviewee smiled:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Percent of time interviewee engaged in eye contact with interviewer:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Please place a check (✓) at the point on each scale which best represents your estimate of the interviewee's behavior.

Head Behavior

Percent of time interviewee smiled:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

Percent of time interviewee engaged in eye contact with interviewer:

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

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