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NONVERBAL CONCOMITANTS OF PERCEIVED AND INTENDED PERSUASIVENESS¹

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Three experiments explored the hypothesis that the degree of liking which is nonverbally communicated to an addressee is a direct correlate of the intended persuasiveness of a communicator and the perceived persuasiveness of his communication. The nonverbal attitude-communication literature provided a basis for several derivative hypotheses relating to specific position, posture, facial, movement, and verbal cues. The findings supported the hypotheses and indicated that the intended persuasiveness of a communicator and the judged or perceived persuasiveness of his communication were correlated. The study also provided interpretations for some movement cues whose referents were previously unclear and suggested a grouping of postural cues which together define total bodily relaxation.

The present study explored some proxemic (e.g., distance, eye contact), postural, facial, movement, and vocal behaviors of a communicator which were hypothesized as relating to the degree to which he intended to present a message persuasively and the degree to which that message was perceived as persuasive by the addressee. The set of communicator nonverbal behaviors and personality attributes investigated in the study was selected because of their relevance to the implied communication of like-dislike toward, and status relative to, an addressee.

Variables relevant to the nonverbal communication of liking and status to an addressee were selected because (a) the related concepts of communicator trustworthiness and expertness have been found to be correlated with his effectiveness in eliciting attitude change (e.g., Cohen, 1964, pp. 23-29; Hovland, Janis & Kelley, 1953; Insko, 1967, pp. 43-49) and (b) liking and status have been identified as two primary referents of nonverbal communication (e.g., Mehrabian, 1969a). Indeed, investigations of communi-

cator credibility (i.e., his trustworthiness and expertness) have explored the attitude-change impact of some implied aspects of communicator-addressee liking. There have been studies of the effects on attitude change due to a communicator's physical attractiveness, height and weight (e.g., Baker & Redding, 1961; Mills & Aronson, 1965), race (e.g., Aronson & Golden, 1962), liking of the addressee (e.g., Mills, 1966), and implied belief similarity to the addressee (e.g., Weiss, 1957) which in turn has been shown to be a correlate of liking between two persons (e.g., Byrne, 1968). Such studies seem to have been motivated by the assumed correlation between communicator-addressee liking and the attitude change elicited by the communicator.

A second group of investigations of communicator credibility suggested the relevance of perceived communicator status in determining attitude change. In Aronson and Golden's (1962) study the higher socioeconomic status engineers elicited more attitude change than the dishwashers. Rosnow and Robinson (1967, pp. 2-5) suggested the relevance of voice quality such as its authoritativeness, rate of speech errors, or halting and hesitant quality of speech as additional determiners of the attitude change. The latter nonverbal cues in addition to other speech or dress attributes (e.g., social class intonations) can also be construed as correlates of communicator status relative to his addressee.

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In sum, in the absence of more directly relevant literature, the significance of communicator credibility which has been observed in attitude-change studies was used as a basis for suggesting the hypotheses and variables of this study. The present study focused primarily on the effects of nonverbal behaviors related to the communication of liking, some of which, however, have also been found to be related to status communication. In addition, the study included a series of personality measures (e.g., intelligence; dominance; and anxiety, neuroticism, and introversion) which could consistently influence the frequency with which such nonverbal cues were produced by communicators.

The nonverbal attitude-communication literature provided a series of derivative hypotheses for the relationship between the nonverbal communication of liking toward an addressee, the intended persuasiveness of the communicator, and the perceived persuasiveness of the message by the addressee.

In the case of posture and position cues, findings by Mehrabian (1968a) suggested that smaller distances from the addressee, more eye contact with him, and smaller reclining angles of the communicator communicated more positive attitudes to the addressee. In addition, female communicators oriented their torso such that they were bodily facing their addressees more directly when the addressee was liked than when he was disliked; the reverse was the case for male communicators, however, only when intense rather than moderate or neutral feelings were involved (Mehrabian, 1968b). Finally, findings indicated a curvilinear relationship between relaxation and the degree of positive attitude communicated to an addressee (Mehrabian, 1969a). For instance, sideways lean, which is an index of relaxation, was found to be moderately high for liked addressees, relatively low for neutral addressees, and very high for disliked addressees with the following exception: male communicators, while addressing very disliked males, tended to assume a relatively low sideways lean angle. Thus, generally moderate values of sideways lean (12 degrees for females and 8.7 degrees for males) conveyed positive attitudes and very large (15 degrees) or small

(6 degrees) angles communicated neutral or negative attitudes.

In addition to the preceding posture and position cues, several nonverbal cues have also been found to communicate variations in attitude toward an addressee. For example, verbal reinforcers such as "uh-huh" by definition communicate a more positive attitude (e.g., Krasner, 1958), as do positive head nods (e.g., Matarazzo, Wiens, & Saslow, 1965). Mehrabian (1965) found support for the hypothesis that lengthier communications are associated with more positive attitude. Mahl (1959) and Kasl and Mahl (1965) provided evidence that speech disturbance frequency was a correlate of a communicator's level of anxiety or discomfort. The weight of available evidence provides strong support for Mahl's hypothesis (e.g., Mahl & Schulze, 1964). Thus, speech-disturbance frequency should be correlated with negative attitudes of a communicator toward his addressee, toward his own communication as in the case of deceit, or when the referents of communication are affectively negative.

Finally, a series of findings by Rosenfeld (1966a, 1966b) led to additional hypotheses for movements and facial expressions as well as other qualities of verbalizations. In Rosenfeld's studies, some subjects were instructed to seek approval from their addressees and others were instructed to avoid approval. The behaviors of the subjects in the approval-seeking (AS) and approval-avoiding (AA) conditions were rated on a series of nonverbal measures. The results as summarized by Rosenfeld (1966a) indicated the following:

At the nonverbal level, AS subjects emitted a significantly higher percentage of smiles and a significantly lower percentage of negative head nods than did the AA subjects. AS women significantly surpassed AA women in percentage of gesticulations. AS men were significantly higher than AA men in percentage of positive head nods. . . .

At the verbal level, AS subjects emitted significantly lengthier speeches and utterances than the AA subjects. The AS subjects were significantly higher than the AA subjects in percentages of recognitions [verbal reinforcers] and significantly lower in percentage of answers . . . the speech disturbance ratio was significantly higher among AS than AA subjects . . . [pp. 600-601]. . .

Rosenfeld also assessed the perceived effectiveness of the various behaviors produced

by his communicator-subjects on the basis of correlations between the frequencies with which the latter occurred and the subsequent approval received from the addressee-subjects. These correlations suggested that "smiles, negative head nods, and gesticulations were less effective than they were intended to be, while positive head nods and self-manipulations were more effective than intended [Rosenfeld, 1966a, p. 603]." Since approval seeking can be assumed to involve the communication of more positive attitudes toward the addressee than approval avoiding, these findings by Rosenfeld, together with others which have also been noted, led to the set of hypotheses in the following list.

The hypotheses of the present study were as follows: Both the degree of intended persuasiveness and perceived persuasiveness of a communication are correlated with the following position, posture, movement, facial, and verbal cues from the communicator: smaller distances to the addressee, more eye contact with the addressee, smaller reclining angles, more direct body orientation of females to the addressee and more indirect body orientation of males to the addressee, and moderate rather than high or low relaxation, more frequent smiling, frequent positive head nodding, infrequent self-manipulations, frequent verbal reinforcers, greater degrees of gesticulation by females, lengthier communications, and greater speech disturbance rates.

The last hypothesis in the preceding set requires some comment. Although the findings of Mahl and his colleagues had indicated that negative affect was associated with speech-disruption frequency, Rosenfeld found a higher rate of speech-disruption frequency when subjects were seeking approval. Since Rosenfeld's paradigm more closely approximated the ones employed in the following experiments, his finding was used as a basis for the proposed hypothesis.

It will be noted that the above hypotheses do not differentiate between nonverbal communication behaviors which are expected to be associated with intended persuasiveness and behaviors which are expected to enhance perceived persuasiveness. The hypotheses as stated suggest that the two sets of behaviors are correlated—an assumption

which is mostly supported by the attitude-communication literature. More generally, however, the preceding hypotheses primarily served the function of defining relevant dependent variables to be explored in studies of persuasion. The experiments reported below included all the above variables with the exception of verbal reinforcers.

No specific hypotheses were elaborated to relate communicated status to perceived and intended persuasiveness. This is because communicators and addressees in the following experiments were peers. Thus, although a higher or lower status might have been nonverbally communicated to an addressee, its effects seemed unclear because actual peer status was known to both communicator and addressee. Since the dependent variables noted previously have been found to communicate variations in status, however, it was hoped that the findings would provide some information about the relation of actual communicated status discrepancy to intended and perceived persuasiveness.

In the first two experiments below, encoding methods were employed in which the behaviors of subjects were recorded and subsequently analyzed for possible differential use of the various nonverbal behaviors as a function of persuasive effort. The communications which were obtained were next judged for their convincing quality, thus allowing an assessment of the contribution of various nonverbal behaviors to the judged persuasive impact of communications. In a final experiment, prepared communications in which the nonverbal behaviors of communicators were systematically varied were rated by subjects as to their convincingness. Thus the experiments were designed to yield information about the cooccurrence of nonverbal behaviors with verbal ones when a communicator attempts to be persuasive and the actual judged effectiveness of some of these cues in enhancing the persuasiveness of communication.

ENCODING EXPERIMENT I

This experiment employed an encoding as well as a role-playing method in order to investigate the nonverbal correlates of intended and perceived persuasiveness of communications. There were three degrees of

intended persuasiveness: (a) a high degree of intended persuasiveness, such that the persuasive intent of the communicator was probably obvious to the addressee; (b) a moderate degree, such that the persuasive intent of the communicator was probably not obvious to the addressee; and (c) communications which involved no persuasive intent at all. A second and independent factor involved in the experiment was the degree to which subjects agreed with the statements which they were communicating to their addressees. The sex of the subjects was a third independent factor, and the sex of the addressee was always the same as that of the subject.

Method

Subjects. Thirty-six male and thirty-six female University of California undergraduates were paid to participate as subjects in the study.

Procedure. When the subject arrived to take part in the experiment, he was given the following instructions:

In this experiment we would like you first to read each of the numbered statements in the accompanying set of stapled pages. When you finish a given statement (e.g., Statement 3 on "Free Parking Permits"), indicate the degree of your agreement or disagreement with that statement in the answer section below.

At this point a scale ranging from +3 ("I agree strongly with the statement") to -3 ("I disagree strongly with the statement") was inserted, followed by a set of eight spaces for recording degree of agreement with each of the eight statements.

The subject was also provided with eight 300-word statements which were designed to elicit varying degrees of agreement and disagreement from University of California undergraduates. For example, there was a statement in favor of lowering the voting age to 18, a statement in favor of free parking permits for university students, and a statement in favor of having a free week for preparation before examinations.

After a subject had responded to this first portion of the instructions, three statements were selected, one with which he agreed, another to which he was neutral, and a third with which he disagreed. The subject was then given these three statements along with the following instructions.

Now we can give you some more information about this experiment. We are concerned with *exploring the ways in which people behave when they are being persuasive*—that is, with how people act when they are trying to convince another of something. In order to study this, we are asking you to present three communications based on

three of the statements which you read. The directions for these presentations are given on the next three pages.

Prior to your presentation of the first communication, you will have 10 minutes to read the statement carefully and to prepare what you are going to say and *how* you are going to say it. Feel completely free to modify the statement in any way you wish, but keep in mind the instructions which you received for your first communication.

It is also important that you know what you are going to say well enough so that you can freely deliver your communication in the manner of your choice. This is necessary to approximate the real-life situations which these communications simulate. A politician always knows what his pitch will be, and a job applicant generally prepares what he will say well in advance of his confrontation with his prospective employer.

When you are inside the experimental room and are talking to the experimenter, he will not be allowed to talk to you; however he will be attentive to what you're saying. We must do this in order to have a controlled experiment. Following your first communication, you will again be given 10 minutes to prepare the second communication. Later, you will have another 10 minutes to prepare the last one.

The specific instructions for the three persuasive conditions, ordered in terms of increasing intended persuasiveness, were as follows:

(a) You are to present statement number ___ as follows.

You are to communicate the contents of this statement to your listener in neither a persuasive nor an unpersuasive way, but in a neutral manner. In other words, you will neither try to be convincing nor unconvincing to your listener.

In this situation you are asked to present a factual and seemingly unbiased communication. Imagine a situation such as a courtroom, in which you know that if there is any apparent bias, distortion, or emotional involvement, your presentation will be discarded. In this situation you must present only the information and nothing else.

(b) You are to present statement number ___ as follows.

You are to communicate the contents of this statement to your listener in a moderately persuasive manner. However, you are to do so in a subtle way so that your persuasive intent is not obvious to your listener. Thus, your approach must be subtle and yet it must still be effective.

For this situation, imagine a salesman who has a product he wants to sell. He knows that if he appears to be as enthusiastic as he feels, people will think that he is only concerned with making the sale. You might also imagine a job interview in which you want the job but must take care not to appear pushy. These, then, are the kinds of

attitudes which you are to assume while communicating in this situation.

(c) You are to present statement number — as follows.

You are to communicate the contents of this statement to your listener in a highly persuasive manner without any effort on your part to disguise your persuasive intent from your listener. In other words, you will be trying very hard to convince your listener and will in no way conceal the fact that you are trying to persuade him.

This condition is one in which you are very interested in convincing the listener and it is desirable to let him know this. Think of a situation in which your communication will be judged both on its merits as well as on your degree of enthusiasm. Such a situation might be one in which someone has doubted your convictions and you must demonstrate that you really believe what you are saying, even if it means that you will appear pushy.

There were six possible sequences of the three communications for each agreement condition, and two replications of each of the six possible sequences were used for both the male and the female subjects, thus requiring $6 \times 3 \times 2 = 36$ males and 36 females for the experiment.

When the subject indicated readiness to present his first communication, he was led into the experimental room in which he addressed a confederate of the experimenter who had accompanied the subject into the room upon the direction of the experimenter. The behaviors of the subject were recorded from an adjacent room through a one-way mirror with the use of video and audio equipment.

Following the presentation of his first communication, the subject and the confederate were asked to leave and the subject returned to the room where he had prepared his first communication to prepare his second. When he was ready, the confederate and the subject were led back into the observation room where the subject presented his second communication. Then the subject prepared his third communication as he had the first two and communicated it to the confederate. Four undergraduate males and four females served as confederates in the experiment.

In a final step of the procedure, subjects responded to the Eysenck and Eysenck (1963) scales, Jackson's (1967) Dominance scale, the Mandler and Sarason (1952) Test Anxiety Questionnaire (TAQ), and the Shipley (1939) intelligence test. Subjects also responded to the question, "How good do you think you are at persuading people?" to which responses ranged from 0 ("I am not effective at all") to 6 ("I am extremely effective").

As the preceding method indicates, the presentation sequence of the three communications was counter-balanced within each agreement and communicator-sex condition.

Scoring procedures. Three judges independently rated the behavior of each subject from audio and

video recordings obtained during the running of the experiment. The judges had no information about what the experimental conditions had been and, therefore, did not know what experimental condition was being administered to a subject when they rated a given segment of recording. In addition, a fourth judge had directly observed the subjects through a one-way mirror and rated the degree to which the subjects seemed persuasive and their distance from, and eye contact with, their addressees.

All of the dependent measures relating to the nonverbal behaviors of a communicator are given in Table 1 of the Results section. The position and posture cues of Table 1 were scored using criteria reported by Mehrabian (1969b). Among the movement cues, "trunk swivel" refers to the lateral swivels of the communicator in his chair while communicating. Further, gesticulation is distinguished from self-manipulation in that the latter involves contact between body parts, such as rubbing or scratching. All movement cues were transformed into rate measures of number of movements per minute. The facial and verbal cues are self-explanatory.

In addition to the dependent measures relating to the nonverbal behaviors of a communicator, three measures of the perceived persuasiveness of each communication were also obtained as follows. As already noted, one judge who viewed the subject through a one-way mirror rated each communication for persuasiveness. Similarly, three judges who viewed audio and video recordings of each communication rated these as to their persuasiveness. Finally, a group of 20 untrained subjects were shown all the communications segments, which they rated for persuasiveness after reading the following instructions:

Please use the following scale to indicate how effective you consider the persuasive efforts of the person in each of the segments of communication which you will watch and listen to. In rating each segment, try to take into account everything the person does in addition to what he or she says. In fact, we have tried to minimize the importance of the words by turning down the audio volume. 0: not effective at all; 1: very slightly effective; 2: slightly effective; 3: moderately effective; 4: very effective; 5: very much effective; 6: extremely effective.

Instructions and space for the recording of responses were inserted at this point.

Results

Reliabilities. Each judge typically viewed and heard the data recorded on video and audio tapes three times to rate all the behaviors in a given communication. Interjudge reliabilities are reported in Table 1. These reliability coefficients were deemed satisfactory and therefore all of the variables were retained in further analyses of the data.

TABLE 1
MEAN VALUES OF NONVERBAL BEHAVIORS AND PERCEIVED PERSUASIVENESS FOR THREE DEGREES
OF INTENDED PERSUASIVENESS

Dependent variable	Reliability	<i>F</i>	<i>MS.</i>	Means for three degrees of intended persuasiveness		
				None	Moderate	High
Position cues						
Distance	.95					
Eye contact	.50	8.6	284	40%	44%	51%
Shoulder orientation	.96					
Posture Cues						
Arm position openness	.93					
Arm position symmetry	.87					
Leg position symmetry	.96					
Reclining angle	.95	7.6	121	13.8°	13.4°	7.4°
Sideways lean	.63					
Movement cues (number/minute)						
Trunk swivel	.98					
Rocking	.98					
Head nodding	.97	5.2	8.3	6.1	6.4	7.5
Gesticulation	.99	18.5	41	6.9	9.1	13.3
Leg movement	.97					
Foot movement	.96					
Self-manipulation	.93					
Facial cues						
Pleasantness	.79					
Activity	.49	9.6	.35	.70	.92	1.13
Verbal cues						
Duration	.91					
Rate	.77	27	.42	2.16	2.35	2.93
Volume	.88	29	.47	1.84	1.98	2.65
Intonation	.44	38	.45	1.99	2.40	2.97
Unhalting quality	.70	8.1	.44	1.95	2.14	2.38
Perceived persuasiveness						
<i>E</i> viewing through one-way mirror		33	1.7	2.4	3.2	4.2
<i>Es</i> viewing video-recording		41	1.03	2.4	3.1	4.0
<i>Ss</i> viewing video-recording		29	.29	1.6	1.8	2.3

For each of the dependent measures the scores obtained from the judges for a given subject were averaged. Then the data obtained for each dependent measure was analyzed using a $2 \times 3 \times 12 \times 3$ factorial design. There were two levels of sex of the subject communicator, three levels of degree of agreement with the message being presented (i.e., disagreement, neutral attitude, and agreement), and three levels of intended persuasiveness (none, moderate, and high), with 12 subjects nested under each of the sex and the agreement conditions, and repeated measures over the three intended persuasiveness conditions.

Table 1 summarizes the results for the intended persuasiveness factor for each of the 25 dependent measures employed in the experiment. For the dependent variables which were significantly influenced by intended per-

suasiveness, the three mean values corresponding to the three levels of that factor are provided in Table 1. An examination of these means indicates that in 11 of the 12 cases of variables which exhibited significant relationships to intended persuasiveness, the relationship of the variable to intended persuasiveness was a monotonic one.

In sum, the analyses of variance yielded the following significant effects for increasing degrees of intended persuasiveness: increasing degrees of eye contact; smaller reclining angles; increasing rates of head nodding, gesticulation, and facial activity; increasing degrees of speech rate, speech volume, intonation, and unhalting quality of speech; and finally, increasing degrees of perceived persuasiveness as judged by an experimenter viewing through a one-way mirror, experimenters viewing video recordings, and sub-

jects viewing video recordings. Since there were 25 such possible effects due to intended persuasiveness, with significance set at the .01 level, the expected value of the number of effects being considered significant on the basis of chance alone was .25. The number of actual significant effects equalled 12 and therefore compared favorably with the latter chance value.

Correlational Analyses

Relations among personality variables and nonverbal behaviors. Intercorrelations among all the dependent variables were obtained initially and it was found that abstraction scores on the Shipley (1939) Intelligence Test and rates of foot movement and leg movement did not relate significantly to any of the other variables. Therefore these three variables were eliminated from the subsequent factor analysis of the dependent measures.

The following .01 level significant correlations ($df = 214$) were obtained between the various personality measures and the nonverbal communication variables. The TAQ correlated $-.18$ with speech rate and $-.19$ with unhalting quality of speech. The Neuroticism scale correlated $.22$ with trunk swivel rate and $-.22$ with rocking rate. The Shipley Vocabulary Test correlated $-.18$ with facial pleasantness. Finally, Jackson's Dominance scale correlated $.39$ with the subject's subjective estimate of his persuasive ability; $-.21$ with head nodding rate; $-.22$ with arm position symmetry; and $.21$ with speech rate.

With significance set at the .01 level, the expected value of the number of correlations between the six personality and intelligence scales and the nonverbal behavior of the communicators, which would be considered significant on the basis of chance alone, was less than 1.5. There were actually eight such significant effects.

Perceived persuasiveness and nonverbal behaviors. In addition to the above significant correlations among the various personality measures and the nonverbal variables, the following significant correlations at the .01 level were obtained between the three indexes of perceived persuasiveness of a communication and the various nonverbal measures. It will be recalled that three kinds of judgments

of the degree of perceived persuasiveness of communications were obtained. These were judgments by untrained subjects (A) who watched the video recordings; an experimenter (B) who watched through a one-way mirror while the subject presented his communication; and a group of experimenters (C) who observed video recordings of the communication. The intercorrelations among these three indexes were as follows: A correlated $.41$ with B and $.38$ with C; B correlated $.51$ with C; thus indicating significant degrees of agreement among these three indexes of perceived persuasiveness of a communication.

Each of the following variables correlated significantly with all three of these indexes of perceived persuasiveness. The average correlation of the three indexes with intonation was $.51$; there was a $.46$ correlation with speech volume; $.41$ for speech rate, and $.36$ for unhalting quality of speech; $.38$ for facial activity; $.37$ for rate of gesticulation, and $.29$ for percentage of eye contact with the addressee. In addition, rate of self-manipulation exhibited significant inverse correlations with two of the indexes and an average correlation of $-.19$ with the three indexes of perceived persuasiveness.

In sum, rated in order of their importance for their contribution to perceived persuasiveness of communications, the above variables would be listed as follows: more intonation, more speech volume, higher speech rate, more facial activity, higher rate of gesticulation, less halting speech, more eye contact with the addressee, and finally, lower rate of self-manipulation. With $df = 214$, all of the preceding average correlation values are significant at the .01 level. Once again, the latter eight significant correlations compare favorably with the $.22$ expected value for the number of correlations which would be considered significant on the basis of chance alone.

Factor analysis of the measures. All of the dependent measures, which included measures of position, posture, movement, and speech qualities, as well as measures of personality characteristics of the subjects, were factor analyzed to obtain additional information about their interrelationships. In the following summary of the results of the factor

analysis, the statements will be worded in such a way that it will not be necessary to indicate the direction of loading of any of the dependent measures on any of the factors. A principle component solution yielded 10 factors with eigenvalues greater than unity. Varimax rotation of these 10 factors yielded a series of groupings of the variables which were further regrouped through the use of a second rotation in which only the first four factors with eigenvalues in excess of 2 were rotated. This second rotation, then, mainly served to group together factors obtained in the first rotation and yielded a set of four factors which were easier to interpret. The four factors were as follows.

1. Perceived Persuasiveness factor: the judged persuasiveness of a communicator from the video recordings of his communications on the basis of judgments made by untrained subjects; percentage of eye contact of the communicator with his addressee; the degree of judged persuasiveness of a communicator while he was directly observed through a one-way mirror by one of the experimenters; the degree of judged persuasiveness of a communicator from video recordings of his communications by a group of trained experimenters; relatively low rates of self-manipulation; and greater degrees of facial activity, speech rate, speech volume, intonation, and unhalting speech.

2. Nonimmediacy factor: higher degrees of reclining angle of the communicator while seated; less direct orientation of the communicator toward the addressee; relatively low rates of head movements; increasing distances of the communicator from the addressee; lengthier durations of the communication; male rather than female communicators; and higher estimates by the communicator of his own persuasive ability. (Dominance scores had their second highest loading on this factor.)

3. Dominance factor: low scores on the Mandler and Sarason (1952) TAQ; high scores on the Shipley (1939) Vocabulary Test; high scores on Jackson's (1967) Dominance scale; high scores on the Eysenck and Eysenck (1963) Extroversion scale; low scores on Eysenck's Neuroticism scale (Ey-

senck & Eysenck, 1963); and less facial pleasantness.

4. Relaxation factor: greater degrees of sideways lean, leg position asymmetry, arm position asymmetry, arm openness; higher rates of gesticulation and rocking; and lower rates of trunk swivel.

ENCODING EXPERIMENT II

In the present study, an attempt was made to use an encoding method to investigate the nonverbal concomitants of verbal communications of the subjects who were instructed to be persuasive versus those of subjects who were instructed to be informative. When a speaker attempts to be persuasive, his listener's positive or negative reception of the message is a salient cue in the situation which may interact with the degree of persuasive intent of the speaker in determining his behaviors. Therefore, although no specific hypotheses were proposed, such addressee reception of a message was included in the experiment as an additional factor. In one condition, addressees nonverbally communicated (e.g., with posture and orientation) a positive and receptive attitude to the communicator, whereas in the other condition the addressees were nonverbally negative or unreceptive toward the communicator.

The dependent measures in the experiment were based on the categorizations of communicator behavior given in Table 1.

Method

Subjects. The subjects were 72 University of California undergraduates who were paid to participate in the study.

Procedures. When a subject arrived to participate in the experiment, he was given a questionnaire in which he was requested to indicate his preference of various presidential candidates in the 1968 election by rating each of 15 candidates on a 7-point preference scale, which ranged from +3 ("I would not only vote for this candidate but I would also do precinct work for him to help him get elected") to -3 ("I not only would not vote for this candidate but I would work to prevent him from being elected").

After rating the candidates, the subject was requested to present either a persuasive or an informative communication. The instructions corresponding to the intended informative communication condition were as follows:

In this experiment we are concerned with the effects on the listener of persuasive versus informative communications. A persuasive communication is one in which the communicator's goal is to change the attitude of the listener, whereas in an informative communication, the speaker is concerned only with conveying information to his listener.

In this experiment we have randomly assigned the subjects to two groups. The first group consists of those subjects upon whom we are actually experimenting. They will listen to persuasive or informative communications and we will give them tests to determine how these communications affected their beliefs.

The second group in this study, the group of which you are a member, is helping us to create our experimental situation. In order to present the experimental group with realistic communications, we are having members of your group spontaneously present either persuasive or informative communications. The subject matter of your group's communications is presidential candidates. Your communication will be about the candidate that you rated highest on the attitude survey that you have just completed, that is, _____.

You are to help us provide an *INFORMATIVE* communication to one subject in this experiment.

Your listener does not know about your views, but we are going to tell you about his views. The person you will be talking to *feels neutral or is in slight disagreement* [italicized part handwritten] with your views about the candidate of your choice. We would like you to *present your communication in such a way that your listener will not change his opinion of your candidate* on the candidate attitude questionnaire which you have already taken (and which he will take again).

If after your talk to the subject we question him and find out that he is well informed about your communication and that he has not changed his view of your candidate on the candidate attitude questionnaire, you will receive a bonus.

Take about 5 minutes now to prepare an informative presentation concerning this candidate.

While presenting your communication, the only thing we will require you to do is to remain seated in the chair we will show you; otherwise you will be free to do anything you want, that is, place the chair where you want it, sit whichever way you want, and do and say what you think is appropriate. Please remember, however, that the subject has been instructed to remain silent while listening to you.

The instructions for the intended persuasive communication condition were identical to the above with the exception of the following changes.

You are to help us provide a *PERSUASIVE* communication to one subject in this experiment. . . . We would like you to *present your communication in such a way that your listener will*

change his opinion of your candidate by two or more points on the candidate attitude questionnaire which you have already taken (and which he will take again).

If after your talk to the subject, we question him and find out that he is well informed about your communication and that he has changed his views of your candidate by two or more points on the candidate attitude questionnaire, you will receive a bonus.

Take about 5 minutes now to prepare a persuasive presentation concerning this candidate.

The subject was given about 5 minutes to prepare his communication in a room which was adjacent to the experimental room. Near him was the confederate who was pretending also to be reading the instructions. When the subject was ready, the experimenter asked the subject and the confederate to accompany him into the experimental room. This room was 20 X 10 feet in size and there were a few pieces of furniture near the walls, leaving an open area in the center of the room. The experimenter asked the confederate to take a seat, and he assumed a prearranged position. The experimenter then said to the subject, indicating a swivel chair on rollers, "Please take this chair, move it wherever you want it, and present your talk to him [her]."

Unknown to the subject, his verbal and nonverbal behaviors were recorded through a one-way mirror from an adjacent room. Observers also scored the eye contact and distance, and judged the persuasiveness of each subject.

Following the brief 2 or 3-minute presentation of their communications, the subjects were taken to another room where they responded to two questions regarding their performance in the communication situation. One question was, "How much do you think your presentation changed your listener's opinion?" to which responses could range from -3 ("greatly in a direction away from mine") to +3 ("greatly in a direction toward mine"). The other question was, "How good do you think you are at persuading people?" to which responses could range from 0 ("I am not effective at all") to 6 ("I am extremely effective").

Subjects also responded to questionnaires including the TAQ, Jackson's (1967) Dominance scale, the Shipley (1939) Intelligence Test and the Eysenck and Eysenck (1963) Neuroticism and Extroversion scales.

Six male and six female confederates who were University of California undergraduates were employed in the study. These confederates were given the minimal amount of information necessary for their performance in the experiment. They were coached to sit and move in the "receptive" condition with a forward body lean of about 20 degrees from the vertical, facing the communicator; limb placement relaxed and slightly asymmetrical with the hands on the lap or loosely clasped, whichever felt more comfortable; 90% eye contact with the communicator; moderately pleasant facial expression and occasional nodding. For the "unreceptive" condition

TABLE 2

EFFECTS OF INTENDED PERSUASIVENESS AND ITS INTERACTIONS WITH ADDRESSEE RECEPTIVITY AND ADDRESSEE SEX ON COMMUNICATOR NONVERBAL BEHAVIORS AND PERCEIVED PERSUASIVENESS OF THE COMMUNICATION

Effect of :	F	MS.	Condition interacting with intended persuasiveness	Means for two degrees of intended persuasiveness	
				None	High
Intended persuasiveness on eye contact	3.8	558		36%	47%
Intended Persuasiveness × Sex on trunk swivel rate	4.8	28	M F	5.30 7.80	6.18 3.20
Intended Persuasiveness × Receptivity on self-manipulation rate	11.2	35	Receptive Unreceptive	5.4 6.2	11.6 3.0
Intended Persuasiveness × Receptivity on speech rate	4.1	1.2	Receptive Unreceptive	2.4 1.7	1.8 2.1
Intended persuasiveness on perceived persuasiveness for Es viewing through one-way mirror	28	2.5		2.17	4.14
Intended persuasiveness on perceived persuasiveness for Es viewing video-recording	4.3	1.7		2.12	2.75

they were instructed to sit leaning back about 20 degrees from the vertical; with body orientation about 15 degrees turned away from the communicator; more asymmetry in limb placement than in the receptive condition; 50% eye contact with the communicator; neutral-moderate facial pleasantness; and without nodding.

Scoring. The video recordings of the subjects' behavior were scored independently by three judges who used the criteria of Experiment I. In this study the two dependent measures, intonation and unhalting quality of speech, were not scored. There were three other scores obtained from four additional judges who were University of California undergraduates recruited only for this task. A perceived persuasiveness score was based on, "How well do you think the subject persuaded his or her addressee?" for which responses ranged from 0 (not effective at all) to 6 (extremely effective). Judgments of communicator comfort were obtained with, "How comfortable do you think the subject was while making his or her communication?" and ranged from 0 (extremely uncomfortable) to 6 (extremely comfortable). Finally, responses to, "For this subject, how important do you think his nonverbal behaviors are in communication relative to his verbal behaviors?" ranged from 0 (not at all, i.e., the verbal portion is the only important one), to 6 (extremely important, i.e., the nonverbal portion is of primary importance).

Results

Dependent measures were scored from complete recordings of the various communications by three judges. In other words, while

they scored, the judges could hear as well as see the communicators on the monitor screen. Reliability ratings for these measures have already been reported in Table 1.

For each dependent measure and each subject, the scores obtained from the judges were averaged. These average scores were next analyzed using a $2 \times 2 \times 2 \times 9$ factorial design in which there were two levels of the sex of the subject, two levels of intended persuasiveness (i.e., none and high), two levels of receptivity of the addressee (i.e., receptive and unreceptive), and nine subjects nested under each of the Subject Sex × Intended Persuasiveness × Receptivity conditions.

The significant effects due to intended persuasiveness and its interactions with communicator sex or addressee receptivity are summarized in Table 2. For example, intended persuasiveness was the only significant factor in the analysis of variance of eye-contact scores. The last two variables listed in Table 2 relate to perceived persuasiveness. Perceived persuasiveness, as judged by experimenters who viewed through a one-way mirror, was found to be only significantly affected by the intended persuasiveness factor. A similar result was found for perceived persuasiveness as judged by experimenters who viewed the recordings of the communications.

The results summarized in Table 2 indicate the following significant effects relating to increasing degrees of intended persuasiveness of a communicator: more eye contact with the addressee; decreasing rate of trunk-swivel movement for female communicators only; increasing rates of self-manipulation, only when the addressee was receptive; increases in perceived persuasiveness based on judgments of experimenters who viewed the communicator through a one-way mirror; increasing perceived persuasiveness based on judgments of experimenters who viewed recordings of the communication.

With 23 dependent variables, 3 possible significant effects for each variable, and a significance level of .06, the total number of significant effects obtained on the basis of chance alone is less than 4.2. The actual number of significant effects equalled 7. The ratio of the actual number of significant effects to the expected value of such effects by chance alone was not favorable in this case and therefore these findings will be interpreted more cautiously.

Correlational Analyses

All of the dependent measures which included measures of the personality characteristics, and sex of the subjects, were correlated. With $df = 70$, the following .05 level significant correlation coefficients were obtained. The Neuroticism scale correlated .26 with rate of head nodding. Jackson's Dominance scale correlated .44 with the subject's estimate of his own persuasive ability, .36 with global judgments of the overall comfort of the communicator, .29 with the speech volume of the communicator, and .24 with the subject's sex—males obtaining the higher dominance scores. Communicator sex exhibited the following significant relationships with the various indexes of nonverbal behavior: males relative to females assumed more symmetrical leg positions and more reclining positions; they had higher leg- and foot-movement rates and were more comfortable as judged by observers; their facial pleasantness and activity, however, was less than that of females.

Finally, as in the preceding experiment, the nonverbal measures were each related to two

available perceived persuasiveness indexes which were based on judgments by experimenters who observed the communicator directly through a one-way mirror as the communicator-subject presented his message, and by a group of experimenters who observed video recordings of the communications. The correlation between these two indexes of perceived persuasiveness was .67, which indicated significant agreement of judgments based on the two methods. With $df = 70$ and $r_{.05} = .232$, the following variables were found to correlate significantly with both indexes: an average correlation of .52 with judgments of the predominance of nonverbal over verbal behaviors of the subject-communicator; an average correlation of .51 with the global judgments of the comfort of the subject while communicating; .49 with speech volume; .34 with the subject's estimated success in having persuaded his addressee; .33 with speech rate; .30 with rate of gesticulation; .29 with percent eye contact with the addressee; and .28 with Dominance scores. In addition, for the following variables only one significant correlation was obtained with two perceived persuasiveness ratings: a correlation of .23 with duration of a communication; .22 with facial activity, and .21 with the subject's own estimate of his general persuasive ability.

In sum, excluding the predominance of nonverbal over verbal behavior and the comfort indexes which, in a way, were redundant indexes of perceived persuasiveness, as well as excluding the subject's own estimates of his own persuasive ability and his success in persuading the addressee, greater degrees of the following variables were found to relate significantly to perceived persuasiveness and are listed in order of their importance: speech volume, speech rate, gesticulation rate, eye contact with the addressee, Dominance score of the communicator, duration of communication, and facial activity.

With significance set at the .05 level, the expected value of significant average correlations between the various dependent measures and perceived persuasiveness is less than 1.3. The actual number of significant effects were seven and thus compare favorably with the chance level.

For comparability with the more informative second rotation of the variables in the factor analysis of the data from the preceding experiment, the factor analysis of the present set of variables employed a rotation of the first four factors which had eigenvalues greater than 2. Varimax rotation of these four factors yielded the following groupings of the variables.

1. Perceived Persuasiveness factor: This was defined by the highest loading from judgments of the video tape in response to the question, "For this subject, how important do you think his nonverbal behaviors are in communication relative to his verbal behaviors?" Other variables were perceived persuasiveness of the subject as ascertained from a viewing of video-tape recordings, less direct shoulder orientation, the facial pleasantness and facial activity variables, and higher speech rates and speech volume.

2. Dominance factor: This factor consisted mostly of personality variables and was defined by higher scores on the Jackson (1967) Dominance scale; low scores on the Neuroticism scale; high scores on the Extroversion scale (Eysenck & Eysenck, 1963); relatively high estimates by the subject of his own persuasive ability; male rather than female subjects; the comfort of the subject while he was communicating as estimated by judges who viewed a video recording of the communication; relatively high rates of leg and foot movement; longer durations of communication; and relatively higher rates of self-manipulation.

3. Relaxation factor: This factor was defined in terms of greater angle of sideways lean of the communicator while seated; greater reclining angles; greater degrees of arm-position asymmetry and leg-position asymmetry; greater degree of arm openness; higher rocking rates; and finally, lower scores on the Mandler and Sarason (1952) TAQ.

4. Intended Persuasiveness factor: This was defined by the degree to which observers judged the communication to be convincing and persuasive in quality, while viewing the subject through a one-way mirror; more eye contact with the addressee; the subject's own subjective estimate of his success in per-

suading his addressee in that particular communication instance; relatively low rates of trunk swivel; and high rates of head and hand movement.

DECODING EXPERIMENT

This experiment was designed to investigate the effects of the nonverbal behaviors which either enhance or detract from the perceived persuasiveness of a communication. In the experiment, a decoding method was employed in which video-tape recordings of nonverbal communications were presented to the subjects who were then requested to make judgments of the degree to which the communication was convincing to them.

The preceding two experiments provided some support indicating that intended persuasiveness and perceived persuasiveness of communications were correlated. Further, in both experiments postural cues relating to relaxation were not generally found to be significantly related to either perceived or intended persuasiveness. Since most of the postural cues related to relaxation of a communicator, it seemed that an experimental paradigm was required in which total relaxation of a communicator could be manipulated in such a way as to allow assessment of the proposed hypothesis relating total relaxation to perceived persuasiveness of a communication.

Both of the preceding experiments had indicated that the dependent variables of asymmetry in the positioning of arms or legs, arm openness, reclining angle, and sideways lean were all relevant for characterizing a communicator's relaxation. Therefore, in this experiment a decoding method was employed in which four degrees of postural relaxation of a communicator were recorded on video tape and corresponded to increasing degrees of asymmetry of limb placement, reclining angle, sideways lean, and arm openness. Furthermore, the use of a decoding method allowed the investigation of possible interactive effects of relaxation, eye contact, and distance in determining perceived persuasiveness.

Thus the factors investigated in the experiment were the sex of the communicator-model; the sex of the addressee-subject; two levels of formality of the situation in which

the communication took place (i.e., informal situation in which the communicators were of about the same status, versus a formal situation in which the communicator-model was of higher status than the decoder or addressee-subject); three degrees of subject-addressee agreement with the opinions being presented by the communicator-model (i.e., agree, neither agree nor disagree, and disagree); two levels of distance between the model and the addressee; two degrees of shoulder orientation toward the addressee; two levels of eye contact with the addressee; and four levels of relaxation.

The dependent measure in the study was the degree to which the addressee-subject found a given communication convincing.

Method

Materials. Thirty-two 30-second video-tape recordings were obtained from each of four male and four female communicator-models. Four factors were employed to generate the 32 communications of each model: (a) the distance of the model from the camera—either 4 or 12 feet; (b) the shoulder orientation of the model toward the camera—either 0 or 30 degrees turned away from the camera; (c) eye contact vis-à-vis the camera—either 90% or 50% of the 30-second interval; and (d) relaxation in the posture of the model which consisted of four degrees:

1. Slightly tense. This was classified as a symmetrical posture in which the subject was leaning forward in his chair about 10 degrees away from the vertical and with a straight back, but without obvious muscle contraction or very obvious tension. His hands, arms, and legs were positioned symmetrically and his feet were placed flat on the floor.

2. Slightly relaxed. The model sat leaning about 10 degrees forward from the vertical, with arms and legs placed slightly forward such that, for example, while both feet were on the ground one foot was slightly more forward than the other. Similarly, hands were on the lap but were not in a symmetrical position; for example, one hand was resting on one knee and the other one was resting on the thigh. There was some degree of curvature in the back of the model.

3. Moderately relaxed. The model was leaning back at an angle of about 15 degrees away from the vertical and there was a greater degree of asymmetry in the positioning of the legs and arms; for example, one leg was extended forward whereas the other was bent at the knee. There was a greater degree of curvature of the back of the model as the reclining position was more relaxed than in the preceding condition (2).

4. Extremely relaxed. The model was reclining backward at an angle of about 30 degrees and lean-

ing sideways in his chair at an angle of about 20 degrees. His legs and arms exhibited an even greater degree of asymmetry. The model in this condition was instructed to be as loose and relaxed as possible.

Thus the four increasing degrees of relaxation were designed in terms of increasing degrees of reclining angle of the subject, increasing degrees of asymmetry in the positioning of limbs, and increasing sideways lean of the subject in his chair.

The models' faces were concealed with the use of a blank cardboard mask with slits for the eyes. They sat in the specified position for 30 seconds and were video-recorded in that position. In order to represent the variations in the eye-contact factor, models looked in the direction of the camera either 90% of the time or 50% of the time. These variations in eye contact during various segments of the 30-second interval were made in response to signals from the experimenter. Thus, for one of the 50%-eye-contact conditions, the models looked in the direction of the camera for 5 seconds, looked away at an angle of about 20 degrees from the camera for another 10 seconds, looked back toward the camera for 10 additional seconds, and then looked away again for the final 5-second interval.

The 32 communications of each of 4 male and 4 female models were randomized and recorded on video tape, and a number was assigned to each.

Subjects. University of California undergraduates were hired to participate as subjects. There were 4 male and 4 female model-subjects and 114 male and 114 female subject-decoders.

Procedure. The experiment was administered to the subjects in several group sessions, and there were equal numbers of the between-subjects conditions in each group session. There were 12 between-subjects conditions, obtained through a combination of the 2 Decoder-Sex \times 2 Formality \times 3 Agreement conditions. Thus, multiples of 12 subjects were used in each group session, and each subject in a set of 12 received a different between-subjects condition. The subjects were presented with the following written instructions for the condition corresponding to the "formal" and "agree" conditions. The instructions for the other five conditions were similar to the above, except that the italicized word or phrase was changed to indicate the between-subjects condition. Thus, "formal one . . ." was changed to "informal one for you and that all of the communicators are people who are of the same status as you, for example, students like yourself in your classes," to indicate the other end of the formality factor, and "agree" was changed to either "neither agree nor disagree" or to "disagree" for the other two levels of the agreement factor.

In this experiment we want to find out what things a speaker can do, besides the things that he says, which may make him more or less convincing to his listener. You will be in the role of the listener in this experiment and will be watching 30-second segments of communications on the TV screen. For each of these segments we would like

you to imagine the following situation. You are seated in the same room as the communicator who is on the TV screen, and he is trying to convince you of something; you and the communicator are alone together in this room. We have shut off the sound portion of the recording so that you can attend only to the communicator's ways of sitting and his selected position in the room relative to you. For all of the different 30-second segments which you will watch, please remember that your position in the room is the same, whereas the different people who are addressing you may move around in the room and assume different seating postures in speaking to you. These positions and ways of sitting are what we would like you to attend to in your task of trying to decide how convincing each of the communication segments seems to you.

In watching all of these different segments, we want you to keep the following things in mind. First, for all of the communications, please try to imagine that the situation is a *formal* one for you and that all of the communicators are people who are of higher status than you, for example, teachers, teaching assistants, or employers. Second, for all of the communications, remember that at the beginning of each segment you *AGREE* with what the communicator has to say.

For each segment you are to use the following scale to indicate how convincing you think the communication seems to you under the circumstances we have asked you to keep in mind: 0: the communication is not convincing at all; 1: the communication is very slightly convincing; 2: the communication is slightly convincing; 3: the communication is moderately convincing; 4: the communication is quite convincing; 5: the communication is very convincing; 6: the communication is extremely convincing.

Subjects were also provided with instructions and an answer sheet for recording their responses.

In each group administration, subjects were presented with a random sequence of video recordings of the eight different communicators, but since only the between-model communications were randomized, the subjects within each of the group sessions received the same sequence of communications of a given model.

Results

The design of the present experiment involved two levels of formality, three levels of agreement, two levels of decoder-subject sex, two levels of model-communicator sex, two levels of distance, two levels of orientation, two levels of eye contact, and four levels of relaxation. In the factorial design, subject-decoder sex, formality, and agreement were between-subjects conditions, and there were 19 subjects nested under each of the 12

between-subjects conditions, with repeated measures taken over the remaining 5 within-subjects conditions.

The dependent measure, which ranged from 0 to 6, corresponded to increasing degrees of convincingness of the communications as judged by the decoder-subjects. It was not possible to analyze the data of the present nine-factor design in one analysis of variance. Therefore, the analysis of the data was carried out in four segments. To investigate the effects of the formality factor for male and female decoder-subjects separately, a 2 Formality \times 114 Subjects \times 2 Model-Sex \times 2 Distance \times 2 Orientation \times 2 Eye Contact \times 4 Relaxation factorial design was employed. The significance of an effect was assessed at the .01 level for these as well as all subsequent analyses of variance results reported below. No effects were found due to the formality factor or any of its interactions for either the male or the female decoder-subjects. Similarly, an analysis of variance comprising 3 Agreement \times Subjects \times 2 Communicator-Sex \times 2 Distance \times 2 Orientation \times 2 Eye Contact \times 4 Relaxation factorial design was performed on the data from each of four between-subjects conditions: female decoder and formal situation, male decoder and formal situation, female decoder and informal situation, and male decoder and informal situation.

These analyses indicated that the agreement factor contributed only minimally to the perceived persuasiveness of the nonverbal communications and only for female decoders in formal situations. The means for this effect are given at the bottom of Table 3 and indicate that the perceived persuasiveness of a communication was a parabolic function of the degree of relaxation in the posture of a communicator. However, in formal situations in which the addressees were female a slightly tense posture was perceived as significantly less persuasive when the addressee's views were neutral than when they were either in agreement or disagreement with the contents of the communication. Also, an extremely relaxed posture of the communicator in these formal situations served to detract from the perceived persuasiveness of his communication more when the addressee was initially

TABLE 3

PERCEIVED PERSUASIVENESS OF A COMMUNICATION AS A FUNCTION OF COMMUNICATOR AND ADDRESSEE SEX, INITIAL DEGREE OF AGREEMENT WITH THE TOPIC, AND THE COMMUNICATOR'S EYE CONTACT, DISTANCE, SHOULDER ORIENTATION, AND RELAXATION

Source	F	df	MS _e	Com- muni- cator sex	Mean perceived persuasiveness						
					50%		90%				
Eye Contact × Communicator sex	53	1/226	.34	M F	1.92		1.84				
					1.80		1.86				
					4 ft.		12 ft.				
Distance Distance × Communicator Sex	145 49	1/226 1/226	2.63 .55	MorF M F	2.01		1.69				
					2.03		1.67				
					1.95		1.71				
Distance × Eye Contact × Sex	18	1/226	.37	M F M F	50% eye contact	2.09		1.74			
						1.93		1.67			
					90% eye contact	2.07		1.60			
						1.96		1.75			
					Direct 0°				Indirect 30°		
Shoulder orientation Shoulder Orientation × Sex	29 73	1/226 1/226	1.06 .48	MorF M F	1.81		1.90				
					1.78		1.97				
					1.80		1.82				
Relaxation Relaxation × Sex	208 138	3/678 3/678	5.04 .66	MorF M F	Slightly tense	Slightly relaxed	Moderately relaxed	Very relaxed			
					2.10	2.46	1.65	1.20			
					1.95	2.69	1.64	1.24			
					2.25	2.23	1.67	1.17			
					2.34	2.53	1.68	.90			
Relaxation × Agreement (only for female addressees in formal situations)	3.3	6/162	.05	Agree Neutral Disagree	1.77	2.35	1.48	1.20			
					2.22	2.40	1.17	.64			

Note.—Significance set at the .01 level.

either in agreement or disagreement with the contents than when he initially felt neutral. Furthermore, when the addressee initially disagreed, moderately or extremely relaxed postures of the communicator tended to be more detrimental to perceived persuasiveness than when the addressee initially agreed.

Results of the analysis of variance of the effects of communicator sex, decoder sex, distance, shoulder orientation, eye contact, and relaxation on the degree of perceived persuasiveness are also reported in Table 3.

The results summarized in Table 3 indicate that communicator sex interacted with distance to the addressee and eye contact with the addressee in determining perceived persuasiveness. The cell means corresponding to this effect indicated that for male communicators who were seated at a small distance from their addressees, variations in eye con-

tact were not significant (2.07 corresponding to 90% eye contact and 2.09 corresponding to 50% eye contact). For male communicators who were seated at a relatively greater distance, 90% eye contact was perceived as less persuasive (1.60) than 50% eye contact (1.74). However, for females, although once again the effects of eye contact at a relatively small distance from the addressee were not significant (1.96 for 90% eye contact and 1.93 for 50% eye contact), there was a significant effect (in the opposite direction from that for male communicators) when the female communicator was seated at a relatively greater distance from her addressee. In this case her communication was perceived as more persuasive for 90% eye contact (1.75) than it was for 50% eye contact (1.67).

Table 3 also indicates a Communicator Sex × Orientation effect. Whereas for female

communicators a direct (1.80) shoulder orientation did not significantly differ in its effect from an indirect shoulder orientation (1.82), communications of males were perceived as more persuasive when shoulder orientation was indirect (1.97) than when it was direct (1.78). In other words, only in the case of male communicators did a more direct shoulder orientation detract from the perceived persuasiveness of their communications.

In addition to the above interactions, there were four second-order interactions between communicator relaxation and each of addressee sex, communicator sex, distance, and shoulder orientation. Finally, a series of three-way and four-way effects, and one five-way effect which involved the relaxation factor, were also obtained. Examination of the corresponding cell means indicated that the effects due to relaxation on perceived persuasiveness were consistently parabolic such that, with minor variations, the cell means corresponded to the main effect of relaxation. Of these effects, the most interesting and strongest interaction was that of Communicator Sex \times Relaxation, which is reported in Table 3. This interaction effectively summarizes the contribution of relaxation to perceived persuasiveness and the remaining effects involving relaxation only suggest minor variations within this general pattern. Whereas the cell means for increasing degrees of communicator relaxation on perceived persuasiveness were 1.95, 2.69, 1.64, and 1.24 in the case of male communicators, the corresponding cell means in the case of female communicators were 2.25, 2.23, 1.67, and 1.17. In other words, a slight degree of tension in the posture of male communicators significantly detracted from perceived persuasiveness relative to when they were slightly relaxed. In contrast, for females a slight degree of tension, or slight relaxation, did not have different effects, although both of these differed significantly in their effect from moderate and extreme relaxation.

With significance set at the .01 level, the total number of significant effects expected on the basis of chance alone from the analysis of the main and interactive effects of distance, eye contact, orientation, relaxation, communicator and addressee sex was less than 7. The

actual number of significant effects was 24, which compares favorably with the number expected by chance.

In sum, as in the preceding experiment, very few significant effects were obtained for the between-subjects factors. However, the within-subjects factors which provided data relevant to the hypotheses indicated that, in decoding, the hypotheses relating to the effects of distance and relaxation were supported. An indirect shoulder orientation enhanced perceived persuasiveness more than a direct shoulder orientation only in the case of male communicators. Further, for both male and female communicators who sat at a small distance from the addressee there were no effects due to eye contact. However, for males seated at a large distance from the addressee increasing degrees of eye contact were perceived as less persuasive, whereas for females who sat at a large distance from the addressee increasing degrees of eye contact were perceived as more persuasive. Thus, the hypothesis with respect to eye contact was not supported in general in this decoding study.

DISCUSSION

In considering the findings of the three experiments, it is helpful to distinguish between the kinds of nonverbal behaviors which are likely to be associated with increasing degrees of persuasive effort and those which enhance the perceived persuasiveness of communications. The results of the first encoding study showed that in the case of all of the following nonverbal behaviors, their occurrence in the direction indicated was associated both with increasing intent to persuade and decoded as enhancing the persuasiveness of a communication: more intonation, more speech volume, higher speech rate, more facial activity, higher rate of gesticulation, greater unhalting quality of speech, and more eye contact with the addressee. In addition, it was found that smaller reclining angles and more head nodding were associated with increasing persuasive effort and that a lower rate of self-manipulation was correlated with the perceived persuasiveness of a communication.

In contrast to the first encoding experiment in which intended persuasiveness was a within-subjects effect, in the second encoding

experiment it was a between-subjects effect. Consequently a smaller number of significant effects were obtained from the latter study. Increasing degrees of persuasive effort were found to be associated with increases in eye contact with the addressee, decreasing rates of trunk swivel for females only, and increasing rates of self-manipulation when the addressee was receptive. Furthermore, the judged persuasiveness of communications was found to be correlated positively with the following variables: more speech volume, higher speech rate, higher rate of gesticulation, more eye contact with the addressee, lengthier communications, more facial activity, and higher Dominance scores of a communicator. (It will be recalled that the second encoding study did not employ the intonation and evenness of speech-rate variables which were found to relate significantly to perceived persuasiveness in the first encoding study.) The findings relating to eye contact in both experiments were consistent with a hypothesis and data presented by Exline and Eldridge (1967).

The entries of the last three rows of Table 1 and the last two rows of Table 2 had indicated that when a communicator attempted to be persuasive, he was also judged as being persuasive. Correlational data corroborated these results. For instance, in the first experiment there was considerable overlap in the nonverbal cues which were associated with intended persuasiveness and the cues which were perceived as contributing to persuasiveness. Although the second experiment produced few effects as a function of intended persuasiveness, the nonverbal cues which were perceived as contributing to persuasiveness in that experiment once again overlapped with those obtained in the first experiment. Thus, these findings are consistent with nonverbal attitude-communication studies which have shown that the cues used to encode a given attitude are decoded to infer that same attitude (e.g., Rosenfeld, 1966a and 1966b in the case of movement and verbal cues; Mehrabian, 1969a, in the case of posture and position cues).

One aspect of the method of the first experiment which may have been of some concern was the possible two-dimensional manipula-

tion of intended persuasiveness. Subjects in the "moderate" condition were told to be both moderately persuasive and subtle, whereas subjects in the "high" condition were told to be highly persuasive without attempting to conceal their persuasive efforts. The monotonic quality of the 11 out of 12 effects reported in Table 1 suggests that one rather than two independent variables were involved; or more precisely, that the obviousness of persuasive intent and degree of intended persuasiveness are correlated dimensions in terms of their behavioral concomitants.

One by-product of both encoding experiments was that several postural cues were found to define a relaxation factor. These postural variables relating to relaxation, when treated individually, had yielded only one significant relationship to intended or perceived persuasiveness. Since the proposed hypotheses were based on a communicator's total relaxation in relation to his intended or perceived persuasiveness, therefore the cues which defined a relaxation factor were combined in the third experiment, to prepare four degrees of postural relaxation. In addition, the position cues of eye contact, distance, and orientation were also included in this third decoding experiment. This is because the latter two cues had produced no significant relationships to intended or perceived persuasiveness in the first experiment and it seemed that the absence of such effects could have been due to interactions with other communicator behaviors. The use of a decoding method in the third experiment, then, not only allowed an assessment of the effects of total relaxation but also of the main and interactive effects of eye contact, distance, and orientation in determining perceived persuasiveness. The results indicated that, as hypothesized, smaller distances from the addressee enhanced perceived persuasiveness and relaxation exhibited the expected curvilinear relationship. An indirect orientation toward the addressee enhanced perceived persuasiveness more than a direct orientation in the case of male communicators, as hypothesized. However, the hypothesized reverse effect for females was not obtained. Finally, eye contact produced significant effects only at larger

distances and in opposite directions for males and females—less eye contact from males and more from females was perceived as more persuasive.

Thus, generally, the findings from the decoding experiment produced support for the hypothesis that postures and positions which communicate more liking to an addressee contribute to the judged persuasiveness of a communication. The exceptions to this were the absence of a significant effect due to the shoulder orientation of females and the result for eye contact obtained for males.

Finally, the obtained interaction in the third experiment between relaxation and communicator sex in determining perceived persuasiveness showed that for male communicators, slightly tense postures were perceived as significantly less persuasive than slightly relaxed postures, whereas this was not the case for females. Such a finding suggests that slight degrees of tension in the posture of males tended to communicate an uneasiness which could have been associated with deceit, or a general sense of discomfort about what the male was communicating, whereas slight degrees of tension in the posture of females did not necessarily communicate such discomfort but were interpreted as socially appropriate postures for females who are communicating to strangers.

At this point, it is possible to review the evidence bearing on the proposed general hypothesis regarding the direct correlation between intended or perceived persuasiveness and the degree of liking communicated to the addressee. In the preceding three experiments there were frequent instances of absence of significant findings where such findings had been hypothesized. However, among the obtained significant effects, the majority conformed to the proposed set of derivative hypotheses. The exceptions were (a) less eye contact of males being perceived as more persuasive—but only in the third experiment and in contrast to the findings of the first two experiments, and (b) less halting quality of speech being associated with both intended and perceived persuasiveness. Thus, the only consistent contradiction to the proposed hypotheses was that obtained for the halting quality of speech which was used as a mea-

sure of speech disruption. In introducing that hypothesis, it was noted that despite the evidence from Mahl and his colleagues, Rosenfeld's (1966a) finding was used as a basis for the hypothesis since his method was quite similar to that in the present experiments. Given the consistency of the present results relating to the unhalting quality of speech and, furthermore, their correspondence with Mahl's hypothesis, it seems appropriate to consider speech-disruption frequency as a direct correlate of intended and perceived persuasiveness.

There were four measures of communication behavior employed in the study which yielded significant relationships to intended and perceived persuasiveness and for which no hypotheses had been proposed: speech rate, volume and intonation, and facial activity. These are measures of activity level which are in general independent of positive-negative attitude or the evaluative dimension. More precisely, although Osgood, Suci, and Tannenbaum (1957) identified activity and evaluations, their data as well as subsequent work (e.g., Bentler, 1969) indicated a small positive correlation between activity and evaluation (e.g., .33 in Bentler's study). Thus, although the preceding four measures are primary measures of activity, they can also be seen as communicating interest in, or liking toward, the addressee. In particular, when a relatively high level of activity is combined with other cues which communicate liking, as was the case in the preceding experiments, then activity may be seen as a vehicle for the communication of the intensity of liking.

The results of the factor analyses provided surprisingly consistent support for earlier findings (e.g., Mehrabian, 1968a, 1968b) regarding the significance of various postural cues as indexes of relaxation. Thus, in the first experiment, greater degrees of sideways lean, leg position asymmetry, arm position asymmetry, arm openness, higher rates of gesticulation, and rocking and lower rates of trunk swivel loaded on one factor. The only variable not present which would have been expected to have been included was the reclining angle of the communicator. The latter, however, did have its second highest loading on the present

factor. Thus, the results relating to this last factor not only provided corroborative support for earlier interpretations of these postural cues as indexes of relaxation, but also suggested higher rates of gesticulation and rocking as positive correlates of relaxation and a higher rate of trunk swivel as an index of discomfort or tension.

In comparison, the third factor, Relaxation, obtained in the second encoding study included all of the postural cues of the preceding Relaxation factor but it also included the reclining angle as another index of relaxation. Finally, lower scores on the TAQ as well as higher rocking rates were associated with increasing relaxation.

A Dominance factor obtained from the second encoding experiment indicated that males were more extroverted and dominant, less neurotic, and had a higher estimate of their subjective ability to persuade others than females. Furthermore, judges found more dominant and extroverted individuals as being more comfortable in the communication situations (the relation of a more dominant social position to greater relaxation has been noted in several studies reviewed by Mehrabian, 1969a). Finally, the more dominant individuals also produced longer communications and engaged in greater degrees of self-manipulation while they communicated. Incidentally, the high rates of leg and foot movement which loaded on this factor were most probably due to the male-female distinction, since findings have shown that males exhibit higher rates of leg and foot movement while they talk.

Although the first and fourth factors obtained in the second experiment were designated as perceived and intended persuasiveness, respectively, due to the correlation between the latter two dimensions, a complete separation of the two factors was not achieved. Thus, although facial activity, speech rate, and volume loaded on the first factor, eye contact and observers' judgments of persuasiveness loaded on the fourth factor. However, head and hand movements and trunk swivel, which were correlates of intended persuasiveness, were grouped within the fourth factor.

Finally, the factor analyses provided additional information about the significance of

various movement cues. In the first encoding experiment, the correlational analysis of the data indicated a significant correlation of trunk swivel rate with scores on the Neuroticism scale. The latter suggests that trunk-swivel movement is an indicator of discomfort or unwillingness to interact with another person in a highly immediate or proxemic manner. As to the results of the factor analysis, the fourth factor provided further support for this interpretation in that it indicated that high rates of trunk swivel tended to be associated with less relaxed postures. Thus, when a communicator has available a physical setting which allows the minimization of eye contact and directness of orientation toward the addressee via such swivel movements, he may use these in a casual way to minimize the immediacy of his interaction with the addressee.

Rocking rate correlated inversely with the Neuroticism scale and thus suggests a lower level of discomfort in the communicator—an interpretation which is further supported by the results of the factor analysis where rocking rates were associated with more relaxed postures (fourth factor). In contrast to trunk swivel, rocking does not diminish the immediacy of interaction, since, while rocking, a communicator can directly orient to and maintain eye contact with his addressee. These findings provided unexpected, yet interesting, interpretations for the latter two movement patterns in communication.

The inverse correlation between head-nodding rate and scores on the Dominance scale, as well as the grouping of the variables suggested by the second factor, provided an additional interpretation for head nodding. This second factor was somewhat difficult to name since on the one hand it included nonimmediacy cues (i.e., greater reclining angles, less direct orientation, and increasing distances from the addressee) and on the other hand some self-confidence cues (i.e., higher estimates of one's own persuasive ability, males rather than females, longer communications, and higher dominance scores). Since the non-immediacy cues had the highest loadings on the factor, it was given that name. The two sets of variables subsumed by this factor can be interrelated conceptually, however, since

findings have indicated that a person who considers himself of higher status to his addressee does assume relatively nonimmediate postures and positions to that addressee (e.g., Mehrabian, 1968a; Mehrabian & Friar, 1969). Specifically, findings by Lott and Sommer (1967) have shown that a person selects more distant positions to addressees whom he considers to differ more in status from himself. The inclusion of head-nodding rate in this second factor, together with its significant inverse correlation with Dominance scores, provided the following interpretation: frequent head nodding, in addition to communicating liking to an addressee, can imply a less confident or submissive quality of the communicator.

Just as in the case of rate of head nodding, rate of smiling seems also to reflect both liking toward the addressee as well as a less confident or subordinate quality of the communicator. This additional interpretation for facial pleasantness is based on the third factor where it was seen to be associated with less dominant, more neurotic, and anxious tendencies of an individual. Thus, greater facial pleasantness or higher rates of smiling, when these occur in somewhat awkward social situations such as those involved in the methodology of the first experiment, may indicate greater efforts of a communicator to relieve tension and discomfort by "placating" the addressee.

The preceding interpretations of the significance of the rates of trunk swivel, rocking, head nodding, and smiling are novel and therefore tentative. Head nodding and smiling were seen as having at least two kinds of significance, whereas trunk swivel and rocking rates were only interpreted as negative and positive correlates of relaxation, respectively. It is recognized that additional interpretations of these cues are possible and that the qualities of the social situations in which such behaviors occur could highlight different kinds of significance for the cues. For instance, as already noted, frequent smiling in a socially awkward situation may be less an indicator of liking than of a less confident state of the communicator. In other social situations, however, where the communicator and addressee are moderately familiar, frequency of smiling

could be more an indicator of liking than of discomfort.

At this point, the yield of the encoding and decoding experiments may be compared. In general, for a preliminary study of an area of nonverbal communication, as already suggested by Mehrabian (1968a), the use of encoding methods seems preferable to decoding ones. Given, however, such information about important variables from encoding experiments, decoding methods can be employed to study the interactive effects of variables more adequately. In this connection, the first encoding experiment seems to have been the most informative. Some of the results of that experiment led to the development of the third experiment in which the effects of total relaxation in a communicator's posture were explored. Thus, the particular sequence of use of encoding and decoding methods led to the development of a more compact set of stimuli for the decoding experiment than would otherwise have been possible. Further exploration of nonverbal behaviors in relation to intended and perceived persuasiveness or attitude change could continue with encoding methods. Once findings from such studies are available, it may be possible to design decoding studies in which the effect on perceived persuasiveness, for instance, for the variables obtained from the encoding studies can be systematically investigated.

A final issue to consider is the effect of the nonverbal communication of status on perceived or intended persuasiveness. Inferences about actual socioeconomic status which an addressee can make (e.g., from directly available information or more subtle indicators such as clothing or vocabulary) may be discrepant from the nonverbal status which is communicated to him. Of course, the actual status of a communicator which may be defined in terms of income level and/or education can in itself be a determiner of perceived persuasiveness. However, in considering the role of nonverbally communicated status, it seems that the critical variable may be the difference between the actual status of the communicator and the one which he communicates nonverbally to his addressee. If this index is positive, that is, if the nonverbally communicated status is higher than the ac-

tual status, a detrimental effect on the perceived persuasiveness of the message is expected. In contrast, if the index is small in absolute value, then its effects are neither positive nor negative. If the index is moderately negative, that is, if the communicator nonverbally communicates a lower status than the one he actually possesses, it is expected that perceived persuasiveness is enhanced. Finally, if the index is substantially negative, then it is expected that once again the effect will be detrimental. A similar hypothesis would relate intended persuasiveness to the communicated-minus-actual status index.

The data from the present study provided some information relevant to the latter hypothesis. For example, head-nodding rate was interpreted as partly an index of less confident or submissive attitude of the communicator toward his addressee and therefore higher head nodding rates should have been associated with increased persuasiveness of a communicator. The first encoding study indicated that higher rates of head nodding were indeed associated with greater persuasive effort. Again, in accordance with the results of the factor analysis from the second encoding study, higher rates of self-manipulation may be interpreted as communicating a dominant position of the communicator to his addressee. It would thus be expected that high rates of self-manipulation should detract from the perceived persuasiveness of the communication, which was indeed the case in the first encoding study.

In both preceding instances, the communication of liking as well as a less dominant position was associated with intended or perceived persuasiveness for similar rates of the same cue. A more interesting exploration of the role of communicated status could involve situations in which the nonverbal cues which signify more dislike also signify a more respectful or submissive attitude to the addressee (e.g., larger distances from the addressee). Thus, in attempting to be persuasive, distance cues would be affected in opposite directions. This may partially explain the absence of findings with distance cues in the encoding studies, but more generally suggests a paradigm for assessing the relative strengths of status communication and the communi-

cation of liking in determining perceived persuasiveness.

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